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Contact Address:
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Message from the Editor-in-Chief

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We are very pleased to publish Special Issue for INTE 2016 conference. This issue covers the papers presented at 7th International New Horizons in Education Conference which was held in Vienna, Austria. These papers are about different research scopes and approaches of new developments and innovation in educational.

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TOJET invites you article contributions. Submitted articles should be about all aspects of educational technology. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJET. Manuscripts must be submitted in English.

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A Study On The Relatıonshıp Between Eq And Computer Game Addıctıon Of Secondary School Students

Ülkü TOSUN
Guidance & Counselling Department
Fatih University, Turkey
ulkutosun@hotmail.com

Alime TOPŞAR
Guidance & Counselling Department MA Student
Fatih University, Turkey
alime.topsar@hotmail.com

ABSTRACT

In the present study, the relationship between emotional quotients (EQ) necessary for success in life and addiction caused by computer games which is predicted to improve EQ has been examined.Development of children's EQ levels are very important for success in life. However, computer games, in one hand, help the development of children's EQ, on the other hand, can harm children with improving their addictive behaviors. It is important and necessary to conduct researches on how to prevent it.In the present study relational survey method was applied. The study group was consisted of 224 female and 201 male 7th grade students from three different districts as two separate schools from each one, in İstanbul province. For data collection, a personal information form to gather socio-demographic variables, EQ scale developed by Küçükkaragöz and Kocabaş (2012), and computer game addiction scale for children developed by Horzum, Ayas&Balta (2006). Data analyzed through SPSS 22 software program and in the analysis, independent sample t-tests one way ANOVA, Levene& Tamhane tests for multiple comparisons and Pearson Product Moment Correlation techniques were used. Results pointed out that there are statistically significant relations among EQ test andsubtests' scores, and computer game addiction test and subtests' scores.

INTRODUCTION

Emotionalquotient (EQ) has an important role as intelligent quotient (IQ) as has in lifelong achievements (Tuyan&Beceren, 2004). It can be expected that a person with just IQ but without a developed EQ cannot be happy and successful in his/her life (Gülşen, 2015a; Goleman, 2005). EQ is a combination of personal and social talents & skills of a person & it can be improved at any age (Acar,2002; Gülşen, 2015a).

EQ Components:

1. **Self-awareness**: It is to recognize & understand of a person's own feelings, strengths& weaknesses, needs & motivations (Zel,2008).
2. **Self-regulation:** Under the trend, change & uncertainty, for thoughts & ideas to act relaxed & honest (Bayhan, 2004; Fetihi, 2008).
3. **Motivation**:It means to mobilize the person himself/herself to undaunt despite all the failures, differences & frustrations (Çakar, 2003; Gülşen, 2015b).
4. **Empathy:** To be demonstrated an empathicbehavior is expected to be aware of a person both him/her own & also the connected people's values & characteristics (Mayer &Salovey, 1993 in Titrek, 2007).

Childhood is the most important period for personality development and in this period computers contribute to the child EQ development. Unlike other training or psychological tools, computers have attracted almost all children's attention. Leonard (2003, p. in Ural, 2009), has been called the 21st century as "play age"(p.34).

Öz (2009) has determined an interactive relation between staying away from the social life and computer addiction in his study entitled as "the psychological effects of information technologies on children." Technological dependencies are expressed as not chemical but behavioral dependency style including person-computer interaction. They are also classified as active & passive dependencies. While TV is a good example for passive dependency, computer is an active dependency example. The interactive features of computers such as sound and color effects, and the frequency of events have increased addictive tendencies of people (Griffiths & Hunt, 1995).

Children with high EQ are more successful in computer games than others (Goleman, 2003). However, it's predicted that computer game addiction threatens the educational and social lives of children (Goleman, 2005).

During 12-14 age period individuals have intensive emotions & they need to reflect them to their around. Recently, computer games have satisfied their these demands in a way. Almost in all countries the parents are responsible for the children' game styles. While before 10 years old age just playing prosocial computer games and after 12 years old age all styles of computer games including prosocial, neutral & violent have been allowed to play under the control of parents.

The purpose of the study is to identify the relationship between EQ, necessary for success in life, and computer game addiction which is predicted as improving EQ, on the basis of secondary school 7th grade students whose ages are between 12-14.

Research Questions:

1. Have EQ and computer game addictive levels of secondary school 7th grade students indicated significant differences on the basis of these variables: Gender, family socio economic status (SES), school & district where live in.
2. Is there any significant relationship between EQ and computer game addiction levels of secondary school 7th grade students?

THE STUDY

The study has been conducted in terms of rationale survey method which includes the relationship between variables. The aim of survey method as a research approach is to describe the case in the past & present (Karasar, 2009).

The study group was consisted of 224 female and 201 male totally 425, 7th grade students from three different districts as two separate schools from each one, in İstanbul during the 2013-2014 academic year. Convenient sampling method was used to determine the study group.

Instruments:

1. **Personal Information Form:** Forms included sex, perceived family socio-economic status (SES) level, school, and district where live in.
2. **EQ Scale for Children (EQSC):** The scale with 4 subscales has been developed by Küçükkaragöz&Kocabaş (2012). Its alpha reliability coefficient is .72. Its subscales alpha coefficients as follows: (1) Emotional awareness: .60; (2) empathy: .72; (3) motivation: .59; (4) managing emotions/assertiveness: .84.
3. **Computer game addiction scale for children (CGASC):** It has been developed by Horsum, Ayas&Balta (2006 in Horzum, Ayas&Çakır-Balta, 2008). Alpha internal consistency coefficient is .85. The scale items have high values, factor loads are between .40 and .74. the scale has four subscales :
    a. **Factor 1:** Not to give up playing computer games & disturbed when prevented
    b. **Factor 2:** To imagine computer games & contribute to real life.
    c. **Factor 3 :**To disturb tasks because of playing computer games
    d. **Factor 4:** To prefer other activities instead playing computer games

In the data analysis through SPSS 22 software programindependent sample t-tests, one way ANOVA, Levene& Tamhane tests for multiple comparisons and Pearson Product Moment Correlation techniques were used.

FINDINGS

1. Findings related to Socio-Demographic Variables:

In the study group there were 425 students as 52.6% (224) girls and 47.2% (201) boys. 38.2% of participants in Beylikdüzü district, 33.3% of them in Silivri district and 28.4% of them in Esenyurt district were located.

2. Inferential Findings related to EQ and Computer Game Addiction (CGA) Levels of Secondary School 7th Grade Students:

Table 1: EQ means & t-test findings in terms of gender variable

EQSC	Gender	N	Mean	SD	t	p
Empathy	Female	224	18.633	3.759	5.113	.000
	Male	201	16.801	3.609		
Motivation	Female	224	13.750	2.200	2.024	.044
	Male	201	13.293	2.449		
Assertiveness	Female	224	9.602	3.587	-2.588	.ö1
	Male	201	10.492	3.484		
EQ Total Score	Female	224	55.080	8.391	2.186	.029
	Male	201	53.303	8.340		

There are significant differences in EQ *empathy & motivation* subscales in favor of female students in contrast to *managing emotions/assertiveness* subscale in which differences in favor of male students.

Table 2: Computer game addiction (CGASC) means & t-test findings in terms of gender variable

CGASC	Gender	N	Mean	SD	t	p
Factor 1	Female	224	37.446	10.159	5.187	.000
	Male	201	37.388	9.897		
Factor 2	Female	224	17.290	3.364	6.221	.000
	Male	201	15.049	4.054		
Factor 3	Female	224	13.633	2.167	5.074	.000
	Male	201	12.442	2.666		
Factor 4	Female	224	16.991	3.445	5.504	.000
	Male	201	15.01	3.973		
Total Score	Female	224	85.361	15.892	6.503	.000
	Male	201	74.890	17.299		

Female students represented dependent behaviors toward computer games more than male students in terms of Factor 1 (p=.000), Factor 2 (p=.000), Factor 3 (p=.000), Factor 4 (p_.000) and total scores of computer game addiction scale.
There were no significant differences among EQ test total scores & its four subtest scores of participants in terms of *'perceived family SES, school, & district where live in'* variables. In *perceived family SES* variable there were no significant differences among test scores of computer game addiction (CGA) scale & its subscales.

Table 3 : Computer game addiction (CGASC) means & ANOVA findings in terms of school variable

CGASC	School	N	Mean	SD	F	p
Factor 2	Esenyurt_1	59	15.033	4.266	4.480	.001
	Esenyurt_2	62	15.048	4.575		
	Beylikdüzü_1	79	16.797	3.677		
	Beylikdüzü_2	84	16.916	3.859		
	Esenyurt_1	90	17.066	2.863		
	Esenyurt_2	52	15.576	3.621		
Factor 4	Esenyurt_1	59	15.186	4.154	4.561	.000
	Esenyurt_2	62	14.451	4.276		
	Beylikdüzü_1	79	15.974	4.206		
	Beylikdüzü_2	84	16.773	3.426		
	Esenyurt_1	90	16.886	3.395		
	Esenyurt_2	52	16.576	2.865		
Total Score	Esenyurt_1	59	78.220	17.766	2.768	.018
	Esenyurt_2	62	74.467	17.490		
	Beylikdüzü_1	79	82.063	19.766		
	Beylikdüzü_2	84	83.392	17.383		
	Esenyurt_1	90	82.688	13.856		
	Esenyurt_2	52	78.576	16.652		

There are significant differences among CGA scale totalscores and Factor 2 & Factor 4 subscale scores in terms of school variable. The highest total scores in Beylikdüzü2 and the lowest scores in Esenyurt2 schools were seen. The highest score in Silivri1 school and the lowest score Esenyurt1 school were exhibited for Factor 2 '*to imagine computer games & contribute to real life'* tendency. Tamhane multiple comparison findings were represented that Beylikdüzü 2 &Silivri1 school students had more tendency in 'to *imagine computer games & contribute to real life (Factor2)'*than Esenyurt2 school students.

The highest scores in Beylikdüzü_1, the lowest scores in Esenyurt_2 schools were seen in Factor4 '*to prefer other activities instead playing computer games.'* Tamhane multiple comparison findings showed tendency in Factor 2 'to *imagine computer games & contribute to real life'*as follows:
(1) Silivri1 school students more than Esenyurt 1 &Esenyurt2 school students,
(2) Silivri2 school students more than Esenyurt2 school students

Table 4: Computer game addiction (CGASC) levels ANOVA findings in terms of district variable

CGASC	District	N	Mean	SD	F	p
Factor 2	Esenyurt	121	15.041	4.409	8.586	.000
	Beylikdüzü	163	16.858	3.761		
	Silivri	142	16.521	3.230		
Factor 4	Esenyurt	121	14.809	4.215	9.798	.000
	Beylikdüzü	163	16.386	3.833		
	Silivri	142	16.760	3.204		
Total Score	Esenyurt	121	76.297	17.652	5.122	.006
	Beylikdüzü	163	82.748	18.531		
	Silivri	142	81.183	15.014		

Tamhane multiple comparison findings were appeared as

(1) Students from Beylikdüzü & Silivri districts compared to students from Esenyurt district had more tendencies in 'to *imagine computer games & contribute to real life (Factor2).*
(2) Students from Beylikdüzü & Silivri districts compared to students from Esenyurt district had more tendencies in '*to prefer other activities instead playing computer games (Factor4).*
(3) The computer game addiction levels of students from Beylikdüzü were higher than students from Esenyurt district according to total scores.

3.The Relationship between EQ and CGA Levels of Secondary School 7th Grade Students:

Table 5: Correlation between EQSC and CGASC tests & subtests

Subtests	**Emotional awareness**	**Empathy**	**Motivation**	**Assertiveness**	**EQ Total Score**	**Factor1**	**Factor2**	**Factor3**	**Factor4**
Empathy	.250**								
Motivation	.338**	.429**							
Assertiveness	.088*	.138*	.141*						
EQ Total Score	.467**	.758**	.701**	.565**					
Factor1	.153**	.332**	.186**	.250**	.361*				
Factor2	.054*	.136**	.139**	.121*	.186*	.602**			
Factor3	.281**	.313**	.290**	.171**	.379**	.659**	.450**		
Factor4	.139**	.286**	.133**	.108*	.262*	.535*	.509*	.525**	
CGA Total Score	.174*	.336**	.212**	.225**	.369**	.943**	.759**	.752**	.728*

*P<0.05 ** p< 0.01

On the p<0.01 and p<0.05 levels statistically significant positive correlation were found among EQ and CGA tests and also their subtests.

CONCLUSIONS

Emotional Quotient (EQSC) Results: While girls took significantly more points than boys in *'empathy & motivation'* subtests, boys took significantly more points than girls in '*managing emotions/assertiveness*.' These results coincide with some research results done both in Turkey (Mumcuoğlu, 2002; Köksal, 2003: Akkan, 2010: Yurdakavuştu, 2002) and in abroad (Harrod&Scheer, 2005 in Kıran, 2011: Hoe & Jung, 1999 in Köksal, 2003).

The results can be interpreted as female participants being more sensitive to others' feelings, thoughts *(empathy)* and perhaps more eager and ready to help others *(motivation)* than boys. On the other hand, male participants have defended their rights more than females *(assertiveness)*. These consequences are parallel to our cultural childrearing attitudes which include differences toward girls and boys. Besides that in *emotional awareness*subtest, the mean scores of boys and girls are similar to each other. It can be suggested that all students are aware of their own feelings.

In both EQ total scores & all subtests scores significant differences were not spotted in terms family SES, school and district where live in. The districts chosen for research are close to each other geographically, besides their socio-economic structures are different from low to high SES. The results did not provide answers to problem about either family or school have affected the children's EQ development.

Any comment as school education or climate not having an impact on the students' EQ levels can be ambitious and exaggerated because school districts are close to each other.

Computer Game Addiction (CGASC) Results:CGA levels of girls were higher than boys. This result is contrary to the other research results in literature. Other research results both in Turkey (İnal&Çağıltay, 2005; Tüfekçi, 2007; Yılmaz, 2008) and in abroad (Klawe, 1999; Sherry, 2001; Fromme, 2003; Gentile, 2009 in Tüfekçi, 2007) found that boys have played computer games and showed addictive behaviors more than girls. In the present research, addictive behaviors were measured together with EQ test, so the findings can have reflected the connections between prosocial style computer games and EQ levels. Bushman (2015b) points out three types of computer games (1) prosaically (2) violent (3) neutral.

According tothe 'district' variable where they live in 't*o imagine computer games and contribute to real life (Factor2)'* scores were observed as the highest level on students from Beylikdüzü and the lowest level on students from Esenyurt. Social, cultural and economic conditions of Beylikdüzü district are wealthier than Esenyurt district. It can be predicted that the environment where they live in can affect the thoughts, dreams and imaginations of students.

Students from Silivri district took the highest scores whereas students from Esenyurt district took the lowest scores in terms of *Factor 4*'*to prefer other activities instead playing computer games.'* Silivriin comparison with the other districts is out of İstanbul city an in a rural area. However, Esenyurt district has the families with many children and their socio-economic and cultural status are generally lower than the other districts. In this respect, sharing the spare times with friends instead of computers canbe a common habit among children inSilivri.

CGA total test scores were the highest of the students from Beylikdüzü district and the lowest of students from Esenyurt. Most of the students living in Esenyurt cannot have their own computers and computer access can be possible only through internet cafes for them because of their family SES, in contrast to the students from other districts. Based on their economic conditions the addiction scores of these students can be the lowest level.
In terms of *'school'*variable 'to *imagine computer games & contribute to real life (Factor2)'*subscale score had the highest level in Silivri_1 school students & the lowest level Esenyurt_1 school students. *Factor 4*'*to prefer other activities instead playing computer games'*trend was the highest level in Beylikdüzü_1 school students & the lowest level Esenyurt_2 school students. In the total scores of CGA test, the highest scores were observed in Beylikdüzü_2 school students & the lowest scores in Esenyurt_2 school students.

As a result, findings are consistent with the social, economic and cultural conditions of the schools and the districts where the schools in. In other words, students from socially, economically & culturally lowest level Esenyurt district had the lowest scores in Factor2, factor4 and CGASC total points.

The Relationship between EQ and CGA: Positive relations were found among the EQ and CGA test scores and their all subtests' scores. Bushman (2015a) points out that computer games including prosocial behaviors affect EQ in a positive way. Because all subtests of EQ test are related to emotions, children playing prosocial computer games while watching prosocial behaviors can develop empathy &helpful behaviors. In the symposium (2015) a question about the computer games including violence Bushman expressed that it is hard to prevent the people over 10 years old should not play computer games including violence. Instead the parents and teachers can make children & young people conscious of choosing computer games including prosocial behavior instead of violence.

SUGGESTİONS

It canbe suggested that

- Information related to computer game styles (prosocial, violent, and neutral) and their psychological and behavioral effects on persons should be given to students, parents & teachers.
- Parents should be careful and conduct their children for playing computer games with prosocial behaviors
- Internet cafes in all districts should be checked continuously by authorities, because the students with low SES can access to the computers through internet cafes.
- The computer game styles, aggressive, and anger behaviors of students should be searched in different grade levels.
- The relationship between cyber bullying & cyber victimization can be searched.

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A Case Study On The Effects Of Teacher-Structured Out-Of-Class Ict Activities On Listening Skills, Motivation And Self-Efficacy

Ayşe GÖRGÜN
Çukurova University, Turkey
agorgun@cu.edu.tr

ABSTRACT

The current study was designed to investigate the effects of out-of-class ICT activities, which were implemented in a blended style with the regular listening and speaking course, on students' listening proficiency, intrinsic motivation and self-efficacy perceptions related to listening. Both quantitative and qualitative research methods were utilized to have more reliable results. The participants were 26 preparation class students at English Language Teaching Department, Çukurova University. The participants engaged in extensive out-of-class listening activities arranged and assigned by the instructor through a class blog and English podcasts for seven months. Detailed analyses of quantitative and qualitative data revealed that teacher structured out-of-class ICT activities, mainly podcasts in this study, used in a blended design with the regular course has positive effects on students' listening proficiency, intrinsic motivation and self-efficacy perceptions.

INTRODUCTION

The internet explosion and the information and communication technologies (ICTs) at the end of the 20th century opened new opportunities and are bringing about dramatic changes in teaching and learning (Traxler, 2007; Bonk, 2009; Green & Hannon, 2007). New digital technologies and the internet have particularly been effective in the field of language teaching and learning (Kukulska-Hulme, 2006). Research findings (Thorne, Black & Sykes, 2009; Zhao & Lai, 2007) indicate that digital technologies and access to internet offers language teachers and learners a profuse amount of English resources and activities for in and outside the classroom. Taylor and Gitsaki (2001) asserted that using the internet lets students practice English and computer skills at the same time, exposes them to rich input of English used in real life situations, encourages student autonomy, assists students to communicate with native speakers at any time, and enhances their learning motivation through various online activities. Educational researchers often claim that with the widespread use of new technologies and electronic resources, all education has been revolutionized (Baird & Fisher, 2006; Imperatore, 2009); and a paradigm shift is taking place in the approaches to education in terms of method and structure: from teaching to learning, from classroom to real life, from one time training to life-long education, and from stand-alone to networking. New concepts and approaches in learning and the new ICTs have been considered as major forces in this paradigm shift in education (Redecker, 2009).

Although the use of ICTs for education has been of great interest and an important research topic in the last decades, it also brought about debates, speculations and skepticism among educational researchers (Shields, 2011). One basic problem causing conflict is "conceptual and methodological – the conflation of diverse forms of educational technology under the umbrella term ICT" (Livingstone, 2012). Studies focusing on integrating technology in education include overlapping concepts and phrases, such as e-learning, e-supported learning, online learning, web/internet-based learning, technology-enhanced learning, technology-mediated learning, ICT-based learning, blended learning, hybrid learning, m-learning, distributed learning, mixed-mode of instruction, etc.; and the definitions of these terms can differ from one study to another. Another problem causing uncertainty is that each used different types of ICTs, more importantly, different types of integration strategies. Therefore, it is difficult to distinguish which aspects of technologically-mediated learning are effective in any particular situation (Livingstone, 2012). The type of ICTs or the integration strategy of the ICTs which is considered effective in one field may not give the same results in another. In the past, although some researchers claimed that technology has little or no effect on education (Cuban, 2001), there is still a rapidly growing body of research proposing that it has substantial positive impact on education and expected learning outcomes (Oblinger, 2005; Cramer, Collins, Snider & Fawcett, 2007; Punie & Ala-Mutka, 2007; Mosenson & Johnson, 2008; Ducate & Lomicka, 2008; Saeed, Yang & Sinnapan, 2009).

Although this technological revolution has highly ambiguous effects and causes debates among researchers, there is one point upon which all of them agree: technology itself is not a method; and we cannot improve teaching and learning just by putting materials online (Alexander and McKenzie, in Kirkwood and Price, 2005; Henry & Meadows, 2008). What really matters is how creatively and properly it is exploited and constructively integrated in an educational program (Taylor & Clark, 2010). To what extent they serve to fulfill educational goals and the benefits students are likely to gain are more important than the intrinsic characteristics of the medium itself. Without proper resources, pedagogy, and educational practices, technology might be an obstacle or burden to genuine learning (Chinnery, 2006). 'Many of the results seem to indicate that technology is not nearly as important as other factors, such as learning tasks, learner characteristics, student motivation, and the instructor' (Phipps and Merisotis, 1998 in Kirkwood & Price, 2005). Alexander and McKenzie (in Kirkwood and Price, 2005) stated that along with a range of factors which are necessary for a successful project outcome, the most critical factor is the design of the students' learning experience.

Technology has developed so rapidly that there has not been time to carry out the research needed to determine how best to use these resources in teaching and learning. Many ICTs that were once seen as new and innovative – even sometimes labeled as a fad – are now considered mainstream, particularly in adult education (Oblinger, 2003), therefore, it is important to understand their strengths and weaknesses. So far, ICTs were used in higher education mostly as a supplement to existing teaching and learning practices or sometimes just because they are convenient. Although the research about the integration of ICTs in education is growing, there are still unanswered questions and unexplored aspects of them. Researchers are still attempting to identify important and relevant variables that contribute the educational effectiveness of using technology in education. Studies focusing on the effectiveness of ICTs, generally elaborate on presupposed potential and theoretical benefits rather than presenting evidence to support their claims; the argument is based mainly on theories or assumptions about what ICT can do rather than empirical evidence of what it actually does (Shields, 2011).

Despite the opportunities and potentials ICTs offer for education and growing evidence indicating that they have profound effect on education, they are also presenting challenges in deploying these new opportunities for learning and innovation. There is a clear need for more research on the nature and impact of ICTs, and still much to be done to explore, evaluate, initiate, and formulate strategies that lead to effective practices and rich pedagogical use (Selwyn, Gorard & Furlong, 2006; Smith & Dobson, 2011).

The aim of the present study was to investigate the impact of ICTs as out-of-class activities on Turkish learners' English listening skills, intrinsic motivation in the listening and speaking course and perceived self-efficacy in English listening skills. Utilizing mainly podcasting and blogging in a blended way with regular face-to-face instruction, it was aimed to explore whether or not these tools had a positive effect on Turkish foreign language learners' cognitive and affective progress.

THE STUDY

The present study proceeded from an attempt to find a practical, feasible and effective solution to the problem of inadequacy in listening skills of preparation class students who were enrolled in a five-year-teacher training program at Çukurova University. Therefore, it has the characteristics of both a case study and an action research. The study was based on the principles of the following theories: Constructivism, Computer Assisted Language Learning (CALL), Second Language Acquisition Theory; specifically The Input Hypothesis and Low Affective Filter Hypothesis (Krashen, 1981,1982,1985), and Social Cognitive Theory: Self-efficacy component (Bandura, 1986)

A blended research design, where both quantitative and qualitative methods were used, was adopted to explore the impact of the intervention and the participants' experiences concerning podcast integration as out-of-class activities into the listening and speaking course.

The participants for the current study were 26 preparation class students (19 females/7 males) enrolled in English Language Teaching Department at Çukurova University. Factors such as sex, age, gender and educational background were not taken into consideration since such factors were not the variables of the study. In the teacher training program at Çukurova University, in order to determine the ones who need a preparatory education, a language proficiency test is administered at the very beginning of the education process. According to the results of this test, students can skip the preparatory education or they have to take it because they do not have the desired level of proficiency to start their education from the first grade. The participants, failing to pass the proficiency test, can be considered to be at low-intermediate level. Their similar characteristics were that almost most of them (except one student) came from government schools; they all got prepared for the nationwide university entrance exam focusing on only grammar and reading; they had very little or no listening and speaking experience in English. In the university program, in each preparation class, there are 25-30 students and they have six hours of listening and speaking courses a week. It was quite difficult to help the students improve their listening and speaking skills in such limited class hours.

During the intervention, in addition to the regular listening and speaking course, the participants were exposed to extensive listening activities which were uploaded to the class blog built by the instructor. Each student built a personal blog as well. Every week, the participants listened to at least two, at most four extra listening passages, completed related tasks (including fill in the blank questions, vocabulary activities, summarizing, transcribing, etc.), and evaluated their own performances through the Intrinsic Motivation Inventory (IMI) (Deci & Ryan, 1982). They did more research about the listening passages they liked, shared what they found on their blog pages, where the other students read their findings and commented about them, and prepared a five-minute presentation for the classroom session. The intervention lasted for 7 months (almost two academic terms including the semester break upon the demand by the students). Two learning logs – the first one after one and a half months later, and the second one towards the end of the study – were also filled out by the participants. At the end of the study, the participants evaluated their self-efficacy perceptions retrospectively and currently, and they were interviewed by the instructor about the advantages and disadvantages of the study.

There were five research questions for this study: 1. Are students involved in out-of-class language learning activities to improve their language skills? If so, what kind of activities are they involved in? 2. Do students make use of ICTs as out-of-class language learning activities? If so, what kind of ICT activities are they involved in? 3. Do teacher-structured out-of-class language learning activities utilizing ICTs contribute to enhancing students' intrinsic motivation in listening? 4. Do teacher-structured out-of-class language learning activities utilizing ICTs contribute to enhancing students' self-efficacy perceptions about their listening skills? 5. Do teacher-structured out-of-class language learning activities utilizing ICTs contribute to the improvement of the students' listening skills?

In order to answer the first and second research questions, an Out-of-class Activities Questionnaire developed by the researcher; for the third research question, the Intrinsic Motivation Inventory) (Deci & Ryan, 1982), learning logs, and the semi-structured interview; for the fourth research question, Self-efficacy Scale (Bandura, 2006), learning logs and the semi-structured interview; and for the fifth research question, three regular achievement tests were used. The Out-of-class Activities Questionnaire, the Intrinsic Motivation Inventory and the Self-efficacy Scale data were analyzed quantitatively, and the learning logs and semi-structured interview data were analyzed qualitatively.

FINDINGS

The quantitative analysis of Out-of-class Activities Questionnaire indicated that the participants were engaged in a range of traditional and ICT out-of-class activities but not at a desired level or, in other words, not to an extent that can make contribution to their language development. The first prominent finding was that the out-of-class activity that our students were engaged in was listening to music (see Table 1). Most of the participants indicated that they performed this activity every day or a couple of times a week. When the content and the language used in lyrics are considered, it cannot be said that listening to music has much to offer to help students improve their language skills. They can contribute a little to vocabulary knowledge at best. From academic point of view, songs cannot help remedy their language deficiencies especially in an academic context. Watching films was the second most common activity that our students performed. This activity can be more helpful in terms of teaching listening, vocabulary, register and other cultural aspects, however, half of the students implemented it very rarely or never. So, less than half of the students were engaged in this activity at a sufficient frequency. Surfing on the internet was the next common activity but only half of the students perform it every day or a couple of times a week. More than half of the students did not perform it at a desired level, including six students who answered 'never', and three students who answered 'very rarely'. It was obvious that the participants did not consider surfing on the internet as a useful activity to improve their language skills. The following most common activity was watching television programs, but less than half of the students performed it 'every day' or 'a couple of times a week'. Most of the students indicated that they were involved in this activity 'a couple of times a month', which can be considered insufficient to be helpful for language improvement. There were three students who answered 'never' for this activity.

Table 1: Frequencies and Percentages of Out-of-class Activities

	Everyday		**A couple of times a week**		**A couple of times a month**		**Very rarely**		**Never**	
	f	%	f	%	f	%	f	%	f	%
Listening to music	15	57,7	6	23,1	3	11,5	2	7,7	0	0
Watching films	9	34,6	2	7,7	1	3,8	10	38,5	4	15,4
Surfing on the internet	7	26,9	5	19,2	5	19,2	3	11,5	6	23,1
Watching TV programs	7	26,9	3	11,5	10	38,5	3	11,5	3	11,5
Watching videos or listening to the news/stories on the internet	2	7,7	6	23,1	5	19,2	7	26,9	6	23,1
Reading newspapers. magazines on the internet	2	7,7	6	23,1	6	23,1	5	19,2	7	26,9
Conversation with Turkish friends in English	1	3,8	9	34,6	3	11,5	5	19,2	8	30,8
Reading books (novels/short stories)	2	7,7	1	3,8	6	23,1	15	57,7	2	7,7
Listening to the radio	2	7,7	0	0	7	26,9	8	30,8	9	34,6
Reading newspapers	1	3,8	1	3,8	3	11,5	13	50	8	30,8
Chatting with foreigners on the internet	1	3,8	5	19,2	3	11,5	5	19,2	12	46,2
Conversation with foreigners	0	0	1	3,8	4	15,4	12	46,2	9	34,6
Corresponding through e-mail with foreigners	0	0	1	3,8	4	15,4	2	7,7	19	73,1

The other activities employed by our students excluding the ones mentioned above were not practiced sufficiently to contribute to language development of the students. Watching videos or listening to the news/stories on the internet, for example, were employed only by one-third of the students ‘every day’ or ‘a couple of times a week’. Half of the students performed these activities ‘very rarely’ or ‘never’. Reading newspapers, magazines on the internet or reading books were not among the popular activities, either. Only eight out of twenty-six students read newspapers and magazines on the internet; almost half of them performed it ‘very rarely’ and ‘never’. Reading books had even less frequencies; only three out of twenty-six students read books ‘every day’ or ‘a couple of times a week’. Reading newspapers was not popular at all; only one student performed it ‘every day’, and one student ‘a couple of times a week’. The number of the students who never employed it was eight. Listening to the radio was another low-frequency activity; there were only two students who performed it ‘every day’, and more than half of the students ‘never’ performed it.

Productive activities such as conversation with Turkish friends, conversation with foreigners, chatting with foreigners on the internet, and corresponding through e-mail with foreigners were the least practiced activities by the students. Half of the students spoke in English with their Turkish friends ‘very rarely’ or ‘never’; and the other half performed it ‘a couple of times a week’ or ‘a couple of times a month’. Conversation with foreigners was performed only by five students ‘a couple of times a week’ or ‘a couple of times a month’; the rest of the participants practiced it ‘very rarely’ or ‘never’. This was an expectable result because, in Turkey, where English is taught as a foreign language, it is quite difficult to meet some foreigners to practice English with. But the result for chatting with foreigners on the internet was not different: that is it was employed only by six students ‘every day’ or ‘a couple of times a week’; almost half of the students never performed it. The least practiced activity in the study was corresponding through e-mail with foreigners.

Considering all these findings, it can be said that the most common activities among the participants of the present study was listening to music, watching films, surfing on the internet, and watching television programs, which are generally traditional and receptive in nature. The participants were also of the opinion that their poorest skills were listening and speaking although most of these activities are related to listening. Another interesting finding was that on the one hand they believed that these out-of-class activities contributed most to their listening and speaking, on the other hand they stated that their poorest skills were listening and speaking. This was another indication that the out-of-class activities in which they were engaged were not efficient enough to help them improve their weaknesses in terms of language skills. In conclusion, the participants attended a range of out-of-class activities which were traditional and/or including ICTs, but considering the frequency of the participants and the frequency of the activities in the present study, it is obvious that these attempts were not sufficient and efficient to remedy their problems in language learning. The proportion of ICT activities for language learning was quite low. As it was suggested by Lai and Gu (2012), the reasons for not employing out-of-class ICT activities may vary to a great extent ranging from personality traits, learning styles, low proficiency level, technical facilities to context, motivation, unawareness, disbelief in the usefulness of activities, limited knowledge of how to use new technologies for language learning or bad study habits. Whatever the reason for not employing and making use of out-of-class activities, just as Lai and Gu (2012) suggested, these out-of-class activities, especially the ones exploiting the facilities of ICTs, are of great importance to help students improve their language skills; and students should be provided with opportunities, guided and motivated by their instructors to take the utmost advantage of these activities and the time spent out of the classroom.

In order to analyze the Intrinsic Motivation Inventory data, firstly the Friedman Test, which is a non-parametric alternative to Repeated Measures ANOVA was utilized. The Friedman Test results revealed that there was a statistically significant difference in motivation scores of the students ($p < 0.001$).

Table 2: The Freidman Test Statistics for IMI

N	26
Chi-Square	113,789
df	28
Asymp. Sig.	,000

Since the Friedman Test gives an overall opinion but does not pinpoint where the differences occur, the scores were compared by utilizing the Wilcoxon Signed Rank Test. The IMI was administered 29 times in a seven-month period and the duration was divided into equal intervals for the data to be manageable. So, a series of selected score points were compared with each other. In addition to these comparisons, the points where sharp increases or decreases were observed were also compared.

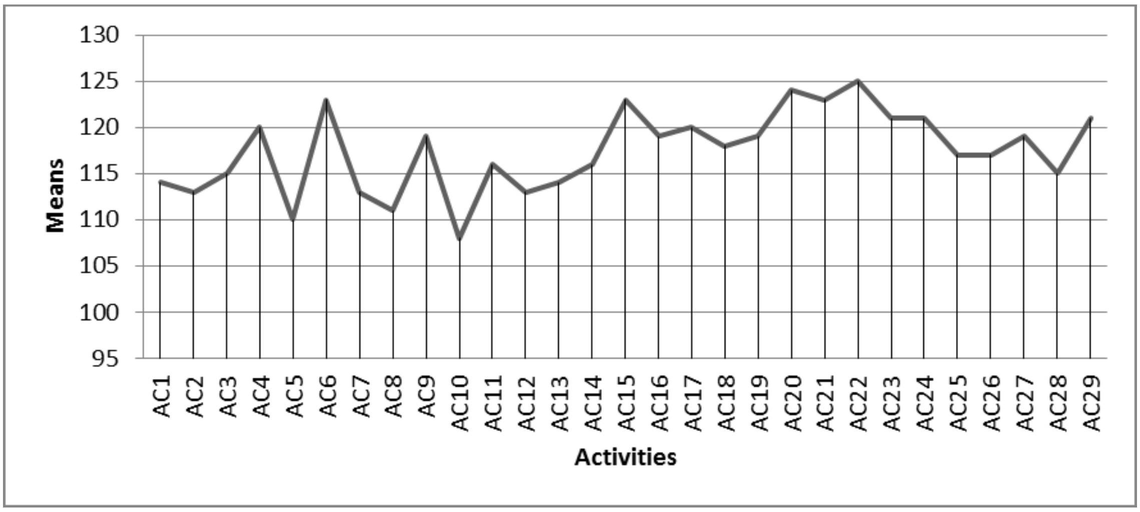

Figure 1. Mean scores of IMI

Figure 1 displays the mean scores of all IMI evaluations. Examining this figure, it can be said that the motivation levels of the participants displayed and increasing trend throughout the study. The comparisons of the selected points utilizing the Wilcoxon Signed Rank Test and whether or not these differences are significant are shown in Figure 2.

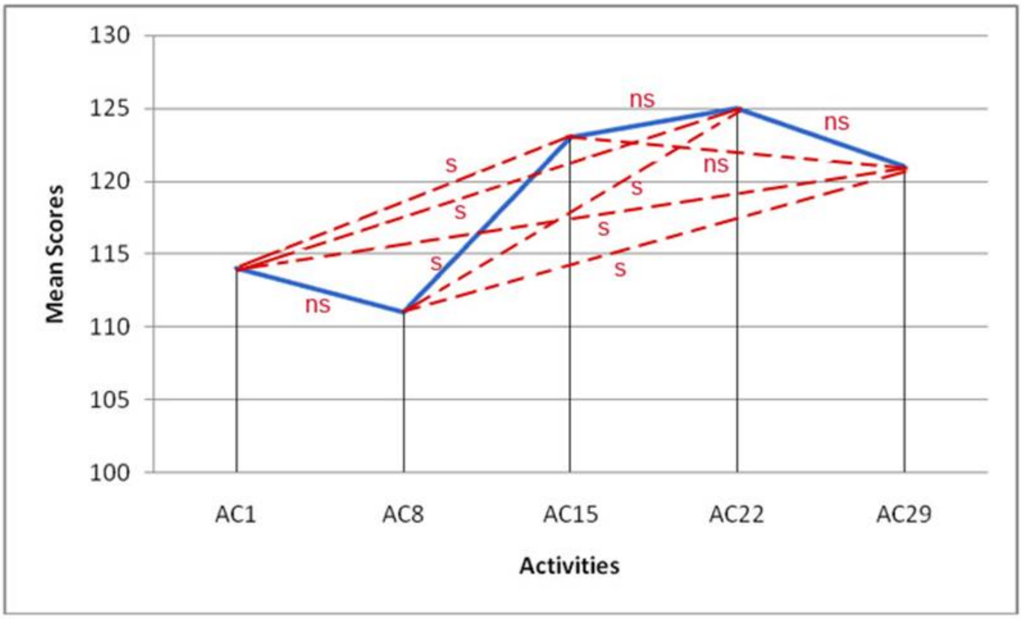

Figure 2. IMI mean scores comparison of selected activities

As can be seen in Figure 2, there was a decrease in the participants motivation levels between 1st and the 8th activities but this decrease was not significant. It was the same between the 15th and the 20th activities and between the 22nd and the 29th activities. The increases between the selected activities were all significant except for the 15th and the 22nd activities. When the whole process is examined, despite the decreases in the participants' motivation levels, it can be said that using podcasts arranged and assigned by the instructor and blogs as out-of-class activities in a blended manner with the regular listening and speaking course may have resulted in an increase in the students' motivation levels. From the qualitative analysis of the learning logs and the interviews, the factors which brought about the increase in motivation were mentioned by the participants as a) the belief in the benefit of activities, b) getting accustomed to the activities, gaining experience and becoming more competent in listening, c) seeing progress not only in listening skills but also in speaking, vocabulary, writing, note-taking and computer skills, pronunciation and general culture, d) developing study skills, e) developing sense of responsibility and self-awareness, f) having an enjoyable learning experience, g) realizing that they could be successful if they spent effort, h) blended and mobile aspect of the study; flexibility, self-paced study, low anxiety, i) timely and constructive feedback from the instructor and her being available in times of need, and j) improving self-efficacy perceptions. The study confirmed the idea that ICT use (specifically podcasts and blogs in this study) in teaching/learning processes along with teacher support and guidance in the light of sound pedagogical principles result in increased student engagement and motivation (Taylor & Gitsaki, 2001; Passey, Rogers, Machell & Mchugh., 2004; Lee & Chan, 2005; O'Bryan & Hegelheimer, 2007; Edirisingha & Popova, 2010; Kavaliauskiene & Anusiene, 2009).

The self-efficacy Scale adapted by the researcher was administered in the end of the study. The scale consisted of twenty-four items, sixteen of which were related to listening skills. The participants were asked to assess themselves first retrospectively, considering their listening and speaking levels at the very beginning of the term when they first came to university, and then to assess their listening and speaking levels for the present time. They assessed themselves through a 10-point scale, where 0 represented "Cannot do at all", 5 "Moderately certain can do", 10 "Highly certain can do". For the analysis of the Self-efficacy scales, the Wilcoxon Signed Rank Test was utilized. The scales were analyzed descriptively and comparatively, only the comparative results are presented here. Table 3 displays the comparisons of pre and post efficacy perceptions of the participants.

Table 3: Comparison of Self-efficacy Perceptions Related to Listening

	Pair	N	Mean	SD	Z	p
1. I can understand most of the speech that instructors use in the classroom.	Pre	26	2,91	1,49	-4,485	0,00
	Post	26	8 ,11	1,42		
2. I can understand a passage in academic language listening from a CD.	Pre	26	1,15	0,78	-4,487	0,00
	Post	26	6,42	1,55		
3. I can understand a passage in daily language listening from a CD.	Pre	26	2,11	1,17	-4,477	0,00
	Post	26	7,53	1,43		
4.I can understand most of the language in radio programs.	Pre	26	2,11	1,30	-4,473	0,00
	Post	26	6,42	1,57		
5. I can understand most of the language in TV programs.	Pre	26	2,38	1,35	-4,482	0,00
	Post	26	6,69	1,43		
6. I can understand most of the language in movies.	Pre	26	2,07	1,32	-4,486	0,00
	Post	26	6,30	1,64		
7. I can understand most of the audio and video files on the internet.	Pre	26	2,38	1,29	-4,472	0,00
	Post	26	7,38	1,32		
8. I can understand academic language better than many students at my level.	Pre	26	1,61	0,98	-4,496	0,00
	Post	26	6,07	1,52		
9. I can understand daily language better than many students at my level.	Pre	26	2,46	1,44	-4,473	0,00
	Post	26	7,26	1,51		
10. Even if I can't understand most of what I listen, I can understand the main idea.	Pre	26	3,19	1,49	-4,475	0,00
	Post	26	7,88	2,00		
11. Even if I can't understand the whole passage, I can answer most of the questions.	Pre	26	1,84	0,96	-4,490	0,00
	Post	26	6,50	1,52		
12. I can summarize a listening passage and talk about it.	Pre	26	1,42	1,17	-4,478	0,00
	Post	26	6,92	1,71		
13. I can guess the meanings of the unknown words from the context while listening.	Pre	26	2,15	1,40	-4,481	0,00
	Post	26	6,57	1,36		
14. I can take detailed notes while listening.	Pre	26	0,73	0,96	-4,475	0,00
	Post	26	5,88	1,55		
15. I can easily concentrate on a listening activity.	Pre	26	1,50	1,36	-4,473	0,00
	Post	26	6,92	1,89		
16. I can improve my listening skills if I study harder.	Pre	26	4,46	3,32	-3,984	0,00
	Post	26	8,38	1,69		

The Wilcoxon Signed Rank test results indicated that there was a statistically significant difference in their views related to their listening self-efficacy perception. Mean scores of their post-perceptions were much higher than their pre-perceptions and the differences were significant at level of 0.00 ($p<0.01$). The greatest change was observed in the 1st (I can understand most of the speech that instructors use in the classroom.) and the 16th (I can improve my listening skills if I study harder.) items. While the mean score for the 1st item in the pre self-efficacy perception was quite low (2,91), it was considerably high in the post self-efficacy perception evaluation (8,11). Similarly, while their mean score for the 23rd item was 4,46 for the pre self-efficacy perception, the mean score for the post self-efficacy perception evaluation was 8,38. While the mean scores of other items related to listening for the pre self-efficacy perception evaluations ranged between 1 and 3, which were quite low, in the post self-efficacy perception evaluations ranged between 5 and 8, which were at least above the moderate degree.

Increased self-efficacy was also evident in the qualitative data analysis. When the learning logs and the interview given at the end of the study were examined, it was seen that the participants were aware of the improvements in their language skills. In the first learning log, for example, although it was given only one and a half months later after the study started, more than half of the students indicated that they realized they could improve their listening skill by spending effort and studying regularly. This realization probably developed by seeing improvement in their listening skills. Despite the fact that it was too early to expect a significant improvement in their listening skills in such a short time, more than half of the students (57,6%) indicated that their listening skill started to improve. Almost all of them (92,3%) stated that the activities were contributing to their listening skills. Another indication in the first learning log was that more than half of the students (65,3%) stated that they showed interest/put effort in doing the activities, which can be interpreted that they were in the process of building their self-efficacy. As Bandura (1986) stated, self-efficacy is likely to improve when people attribute their success on internal factors, such as effort, persistence, modifiable abilities and effective strategies. When the participants were asked what their future plans for better performance in the activities, more than half of them (65,3%) indicated that they planned to listen more and more. When they were asked whether or not they considered themselves successful in doing the activities, 43,3% of the participants answered “yes”, 50% of them answered “partly”, and 7,6% of them answered “no”. When they were asked about the reasons for feeling or not feeling successful, all their answers were related to internal factors, such as putting necessary effort (15,3%), listening over and over again (15,3%), enjoying activities (11,5%), and gaining more experience through activities (30,7%), for feeling successful. Among the reasons for not feeling successful, only two of them were related to external factors: technical problems (11,5%) and difficulty level of the passages (7,6%). The other reasons were related to internal factors, such as not listening carefully (11,5%), poor listening skill (7,6%), missing classes (3,8%), having no experience related to listening (3,8%), and limited vocabulary (3,8%).

In the second learning logs, which were given at the end of the term, almost all of the participants (96,1%) indicated that their listening skills improved, and more than half of them (53,8%) indicated that they put necessary effort in doing the activities. When they were asked about gains other than language skills, among the answers were raised self-awareness (10%) and developed self-confidence (7%), which can be interpreted as factors that contributed to their sense of self-efficacy. Another indication in the second learning logs was that all participants except for one, considered themselves successful throughout the study, which is a very important factor for building a sense of self-efficacy.

Improved self-efficacy was even more evident in the interviews given at the end of the study. All of the participants asserted that listening to podcasts as out-of-class activities in a blended way with the regular courses contributed dramatically to their language skills, especially to their listening skills. The study had many positive effects on them in many aspects such as improved language skills, increased self-confidence, improved self-awareness, and enriched general culture. These findings also support the idea that using ICTs in educational contexts may result in positive outcomes (Kavaliauskiene & Anusiene, 2009; Taylor & Clark, 2010; Thorne & Payne, 2005).

Throughout the study the students were given three achievement tests at almost equal intervals. The results of the tests were analyzed by utilizing Repeated Measures ANOVA, which is the equivalent of the one-way ANOVA, but for related, not independent groups, and which is the extension of the Paired-Samples T-test. It is used to detect any overall differences between the related means over three or more time points. In other words, the same participants are being measured more than once on the same dependent variable, which is, in this case, exposure to the extra out-of-class ICT listening activities. The analyses for Repeated Measures ANOVA were made using Statistical Package for the Social Sciences (SPSS). Table 4 displays the comparisons of the achievement tests.

Table 4: Comparison of Achievement Test Mean Scores

	Mean	Mean Difference	Std. Error	p
Test 1	48,962	-15,384	3,055	0,000
Test 2	64,346			
Test 2	64,346	-3,654	2,809	0,615
Test 3	68,000			
Test 1	48,962	-19,038	3,639	0,000
Test 3	68,000			

As can be seen in Table 4, the mean score for Test 1 was 48,962 and the mean score for Test 2 was 64,346. The significance level between the first two tests was 0,000, which indicated that there was a significant difference between the scores of two tests since it is lower than 0,001 ($p<0,001$).

When the mean scores of the second and the third tests were compared, it was seen that the mean score of the third test was higher (68) than the mean score of the second test (64,346). However, this increase is not significant as the significance value is higher than 0,05 ($p>0,05$). When the mean scores of Test 1 and Test 3 were compared, it was seen that there was a significant increase since the significance value was lower than 0,001 ($p<0,001$). To sum up, the differences between the mean scores were significant when Test 1 and Test 2 mean scores were compared; not significant when Test 2 and Test 3 mean scores were compared; and significant when Test 1 and Test 3 mean scores were compared.

When the findings of qualitative data analysis were examined, the contribution of out-of-class ICT activities to the participants' listening skill improvement was also evident in their learning logs and interviews. In the first learning logs (which were administered one and a half months later), almost all of the participants (92,3%) stated that the activities were contributing to their listening skills. In the second learning logs, the contribution was mentioned even more strongly; 96,1% of the participants, even those who had little or no expectation from the activities, indicated that the activities contributed to their listening skill to a great extent. In the interviews that were given at the end of the study, all of the participants agreed that listening to podcasts and doing related activities out of class contributed to their language skills, particularly to listening skill, dramatically. These findings support the previous research suggesting that using ICTs as out-of-class activities have positive effects on students language skills (Thorne & Payne, 2005; Sze, 2006; Kavaliauskiene & Anusiene, 2009; O'Bryan & Hegelheimer, 2007)

CONCLUSIONS

The current study revealed that most of the students at ELT Department, Çukurova University start their tertiary education with poor listening and speaking skills. All of the participants in the study stated that their poorest skills were listening and speaking. In order to remedy this problem, consciously or unconsciously, they engaged in various out-of-class activities. They were of the opinion that these out-of-class activities contributed the most to their listening skills and vocabulary. The dilemma here was that although they thought that these out-of-class activities contributed the most to their listening and speaking skills and vocabulary, they thought that their poorest skills were listening and speaking. It can be concluded that the out-of-class activities they were involved in were not efficient enough to offer a solution for their problems. This was not surprising when the most common out-of-class activities of the participants were examined. These activities were listening to music, watching films and TV programs, and surfing on the internet. It cannot be said that these activities are of no benefit at all, but when the language used in lyrics and movies is taken into account, it is obvious that these activities probably will not be helpful enough for achievement in academic contexts. The least common activities were corresponding with foreigners through e-mail, conversation with foreigners in traditional ways and on the internet, listening to the radio, conversation with Turkish friends, reading regular newspapers or on the internet, and reading books respectively. The participants engaged in traditional and ICT out-of-class activities but not at desired/necessary frequencies. As a result, these activities did not contribute to their language skills efficiently. Therefore, limited class hours should be extended to out of class making use of students' nonproductive time, and students should be provided with opportunities through out-of-class ICT activities in order to help them improve their language skills.

One of the aims of the current study was to investigate the effects of out-of-class ICT activities on students' intrinsic motivation. The analysis of Intrinsic Motivation Inventory revealed that assigning students extra listening passages with the aim of improving their listening skills through intense exposure to spoken language helped them to increase/maintain their intrinsic motivation. Although there were some significant and insignificant decreases in students' motivation levels throughout the seven-month-period, the overall motivation level displayed an increasing trend throughout the study. There was a significant difference between the intrinsic motivation level of the students at the beginning and at the end of the study. The intrinsic motivation level of the participants tended to decrease in exam times and when they felt overwhelmed with assignments of all courses they were taking, and when they found the listening passages difficult. However, "difficult" passages were also the source of motivation; most of the students stated that they studied more and more to be able to understand those "difficult" passages. Thus, the previous research (Passey et al., 2004; Al Quasim & Al Fadda, 2013) suggesting that ICT activities, podcasts and blogs in our case, enhance student motivation was confirmed by the findings of the current study.

Another aspect investigated by the current study was whether or not out-of-class ICT activities contributed to students' self-efficacy perceptions related to listening. Analysis of quantitative and qualitative data revealed that there was a significant difference between the initial and recent self-efficacy perceptions of the participants. Particularly depending on the qualitative data findings, it can be said that exposing the students to ample amount of on-line listening materials and related activities in a systematic manner contributed to their self-efficacy perceptions related to listening considerably. As hypothesized by Bandura (1986), self-efficacy beliefs are built and developed out of mastery and vicarious experiences, verbal persuasions and psychological states, the strongest of which is mastery experiences as they provide the most authentic evidence of success. Throughout the study, the participants engaged in a wide range of listening activities and had ample amount of opportunities to have the feeling of success. Success results in building a strong belief in one's personal efficacy, and failure undermines it, especially if failure occurs before a sense of efficacy is strongly built (Bandura, 1986). Providing the participants with abundant of opportunities in which they could feel successful probably helped them change their negative perceptions about their efficacy in listening skills and build a strong sense of self-efficacy. As they indicated in the learning logs, the majority of the participants assessed themselves successful and all of them stated that they had important gains in terms of listening and speaking skills. Discussions about the out-of-class experiences in the classroom and volunteer presentations about the listening activities also provided them with opportunities in terms of vicarious experiences, which is another component of building strong self-efficacy. Combined with realistic and timely feedback by the instructor and peers, all these experiences conduced to enhanced self-efficacy perceptions in listening skills. Since listening and speaking are inseparable components of communication, although it was not primarily aimed to improve through the study, it was also found that the participants' self-efficacy perceptions related to speaking improved as well; there was a significant difference between the initial and recent self-efficacy perceptions of the participants in terms of speaking. This was also evident in the learning logs and the interviews.

The other aspect of the present study was to investigate whether or not out-of-class activities contributed to the participants' listening skill proficiency. Three achievement tests given at almost equal intervals throughout seven-month-period were used to investigate this component of the study. Data analyses revealed that there was a significant difference between the first and the third achievement test scores. This finding supports the previous research suggesting that using technology in education combined with sound theoretical and pedagogical base can enhance student learning.

In addition to the findings above, the qualitative data analysis also revealed that the participants had a very positive attitude towards the ICT use implemented in a blended and systematic manner with the traditional listening course. They stated that the whole implementation contributed not only to their listening skills but also to other language skills such as speaking, pronunciation and vocabulary. The participants also indicated that the study contributed to their general culture, internet skills, self-awareness, self-confidence, sense of responsibility, self-discipline and study skills. This finding supports the previous research suggesting that students have positive attitudes towards the use of ICTs in blended learning environments.

Finally, it should be noted that simply putting listening materials online or giving links to students for self-study without supervising, guiding and evaluating will not be as effective as the systematic integration of materials in the regular course. Previous research agreed on that although advances in technology today has a great potential to help enhance teaching and learning processes, technology per se is unlikely to achieve it. What makes the difference is not the device itself, but the combination of thoughtful second language pedagogy and technology (Chinnery, 2006; Kirkwood & Price, 2006; Henry & Meadows, 2008). Therefore, instructors who have the purpose of facilitating and enhancing learning through ICTs should have clearly defined goals and develop a design which can provide students with utmost benefits by grounding the design on a sound pedagogical basis.

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A Comparison Of The Evaluation Of Teacher Candidates' Views On Culture-Meaning Relationship Between The Years Of 2005-2015

Oya ABACI
Ataturk Faculty of Education
Marmara University
Turkey
oabaci@marmara.edu.tr

ABSTRACT

Culture is the body of values which defines and interprets the society it belongs and the life of this society. Culture is a human-specific term which formed by abstract and rational thinking ability. These abstract values become concrete on objects of life. Culture has an alive, self-feeding and regenerative organism, which is dynamic and has its own inner dynamics. Thus, culture has to improve and change. The purpose of this study is to compare the results of a previous study done in 2005 with the same study done in 2015 which involves the evaluation of the thoughts of teacher candidates on the meanings carried by the word "culture". The pattern of this study is determined to be qualitative research method. Data is gathered in the lecture of visual arts for pre-school teaching in the 2014-2015 school year. The teacher candidates are asked for the meanings carried by the culture concept and the data gathered is interpreted by descriptive analysis. The results are compared with the results of the same study done in 2005.

INTRODUCTION

Culture is the moral and material body of values which defines how the society it belongs to perceive itself and life. Culture is the product of communal living. Culture is a system of social and moral values. It is a legacy which is handed down to next generations and an accumulation to be protected. It can be thought and learnt. It is historical, perpetual and social. Culture is an idealized system of rules. It is connective and integrative (Kızıldağ, 2001; Yıldız, 2005). Culture is human-specific and it is formed by human's abstract and rationalist thinking skill. These abstract values concretise at objects of life and show themselves as rules in human relationships. Human is the most important factor of notion of culture. We cannot explain culture without human. Özer (2007), draws attention to human emphasis when explaining culture. Culture is everything that human added to nature and assigned a meaning to. The human seeking a meaning in life, created a second nature with his additions to nature (pp. 10).

Human protected its own species by adapting to changing natural conditions throughout the history. This is a struggle between nature and human. Child particularly mentions the importance of human's ability to adapt when explaining culture. According to Child (1988) culture is the set of rules humans created in order to adapt to their surroundings and consequently maintain their life in changing conditions. The living conditions of human change as a result of the domination process of changing the nature in line with the requirements of human. Culture is the product of a society, but it is also the intellectual productivity of individuals, one by one. Human owes this ability to change to his creative thought. Güvenç specially mentions human's creative thought in the quote "Culture is produced by human's creative activity" (1999).
The cultural values which are carried on to this day came about by developing, being tested and changing throughout ages. In other words, cultural values of a society are not accidental. However, if one side of culture faces past and the other side faces the future. Culture which is formed by human experiences in time, which is effective and determinant in social relationships, harbours change inside as well. Culture has to change according to the need (Kızıldağ, 2001). Traditional rules are not fixed and unchangeable. New experiments inspires humans changes and additions. If these thoughts are deemed worthy, they are conveyed to society, discussed, tested, and added to the collective tradition in the end (Child, 1988).

Culture has a dynamic, living organism which feeds and renews itself and has its own dynamics. Culture has to develop and change like any other living being which does not stay as it is born, which develops and changes. The elements which does not fit into the general structure and incongruous with it are dulled by time. They lose their validity and leave their place to newly formed values. A society has to breathe and produce new cultural values based on human rights in order to live, and continue its existence. Nowadays we are at an age when the societies consisting of different cultures create new values based on human and human rights. Modern humans, are the humans who share the same basic values even though their cultures are different (İpşiroğlu, 1990). Modern human communicates with different cultures and is open to new thoughts, a researcher, and creative. According to Elliot (1981), a culture is evaluated by its contribution to other cultures that are formed later and developing.

THE STUDY

The point of origin of the research is the thoughts of the youth on the context of the word "Culture" who are studying at the last step of the education which is university. The study group of the research consists of students who are in their third year in the major of primary education of a state university in the year of 2015, trained towards being a teacher and who never took visual arts education lecture. Research is carried out with 80 students. The aim is to evaluate the notions that 80 students, who are to be teacher candidates, used to explain the word "Culture" and make a comparison of the same study done in the years of 2002 and 2005. The results of the study done in 2002 were published with the title "Art and Art Education for New Cultural Formation" (Abacı, 2003). Since it is thought that the education they will get in the visual arts education lecture would affect the outcome of the research, the study group was formed by students who did not take the visual arts education lecture. Because, "Art Education" contributes to children and young people to digest and interpret the culture, develop perspective towards cases and events (Abacı, 2007, pp.8).

This research was done in two stages. In the first stage the question "Did the students who are studying at the last step of the education which is university question the meanings contained by the word Culture?" was asked. Based on this question an open-ended survey is applied to 80 teacher candidates who never took art education before. The question of what does the word "culture" express is asked in an open-ended manner. The answers are grouped with the ones that have the same content. The first 15 notion's frequency/percentage evaluations are recorded and interpreted. Because of their ages, it is expected that the teacher candidates are able of thinking in an abstract manner and evaluate the context of notions by separating them from concrete objects and events. In the second phase of the research, teacher candidates were shown the figures circle, square and triangle and they were asked what these figures meant. The answers are grouped as concrete objects and abstract notions and the frequency/percentage while evaluations are recorded and interpreted.

In this research, qualitative research method is used. Qualitative research is the research method in which perceptions and events are presented with an integrated approach in a natural setting and analyzed where qualitative data acquisition methods such as observation, interview, and document analysis are used (Yıldırım and Şimşek, 2013, p45). Because of the fact that, the research is the evaluation of the teacher candidates' answers to the notion of "culture", the model used is descriptive scanning model. Descriptive scanning model is the research approach that aims to explain a situation of the past or present as it is. The event, individual or object that is the subject of the research is tried to be defined as it is in its own environment and without making any effort to change or influence they are monitored and identified (İslamoğlu, 2009, pp. 85). In descriptive scanning model, scientific methods such as monitoring, recording, identification of the relationships between events and generalisation based on unchanging relationships. In descriptive scanning model, aside from the direct evaluation of the case, it is imperative to consult the references and pre-recorded data in the area of research and interpret the results by integrating their findings with own observations (Karasar, 2006, pp.79).

FINDINGS

The notions contained by the word culture are asked to 80 teacher candidates who studied in the years of 2005 and 2015 and who did not take the lecture Visual Arts Education. The teacher candidates are asked to write down ten notions at most. The 15 notions which were seen most frequently in the answers were evaluated.

The findings according to the answers of teacher candidates from the year 2005 and 2015 regarding the culture notion are presented in Table 1 and Table 2.

Table: 1. The notions that teacher candidates of the year 2005 used to explain the word culture

Culture Notions	f	%
Traditions	52	63
Art	45	56.25
Education	32	40
Human	30	37.50
Clothing-Food	17	21.25
History-Past	15	18.75
Common Language	8	10
Individuality -Distinctness	8	10
Life Style	7	8.75
Geography - Area	6	7.5
Being open to new ideas	6	7.5
Values	5	6.25
Rules	4	5
Thought (Philosophy)	3	3.75
Change - Development	2	2.50

When Table 1 is examined, it can be seen that the most frequent answer of the teacher candidates of year 2005 is "traditions" (63%). The second is "art" (56.23%), third is "education" (40%). These are followed by "human" (37.50%), "clothing-food" (21.25%), "history-past (18.75%), "common language (10%), and "individuality-distinctness (10%). The least frequent responses were "life style" (8.75%), "geography-area" (7.5%), "being open to new ideas" (7.5%), "values" (6.25%), "rules" (5%), "thought-philosophy" (3.75%), "change - development" (2.5%). When these results are reviewed it can be seen that the side of the notion of culture that is unchanging and facing past is preferred. Thought, values, modernity, change and development characteristic was not in favour.

Table: 2. The notions that teacher candidates of the year 2015 used to explain the word culture

Culture Notions	f	%
Traditions	63	78.75
Society	62	77.50
Clothing-Food	61	76.25
Language	42	52.50
Values	32	40
Life Style	31	38.75
Art	30	37.75
Thought (Philosophy)	30	37.75
History-Past	30	37.75
Religion	29	36.25
Geography	23	28.75
Education	20	25
Science	8	10
Change - Development	5	6.25
Morals	2	2.5

When Table 2 is examined, it can be seen that the most frequent answer of the teacher candidates of year 2005 is "traditions" (78.75%) again. The second is "society". These are followed by "clothing-food" (76.25%), "language" (52.50%), "values" (40%), "life style" (38.75%), "art, philosophy, history" (37.75%), "religion" (36.25%), "geography" (28.75%), "education" (25%), "science" (8%), "change-development" (5%), "morals" (2.5%),

There are hidden meanings behind the visible aspects of objects and events. To try and give a meaning to what is behind the visible and interpreting it requires abstract thinking ability. Evaluation of the culture notion with its every aspect requires being able to think abstractly. In order to understand whether the 80 teacher candidates are aware of abstract meanings concrete notions contain, a triangle, a circle and a square figures are presented and they are asked about the meanings these concrete figures express. If there is even definition via an abstract notion amongst the answers, the answer is evaluated as defining figures with abstract notions.

Findings regarding the abstract thinking ability of teaching candidates are shown in Table 3 and Table 4 for the teacher candidates of the years 2005 and 2015 respectively.

Table:3. The views of teacher candidates of the year 2005

Circle - Square - Triangle	f	%
Defining figures with concrete notions	64	80
Defining figures with abstract notions	16	20
Total	80	100

According to Table 3, 20% of the 80 teacher candidates defined these figures with abstract notions such as for square, equality and justice; for circle, eternity or cycle; for triangle limitation and conventional thought. Whereas 80% of the teacher candidates named the figures with concrete objects such as tunnel, house, ball, slice of cake, tepee, pine tree, kite, house without a roof.

Table:4. The views of teacher candidates of the year 2015

Circle - Square - Triangle	f	%
Defining figures with concrete notions	52	63
Defining figures with abstract notions	28	35
Total	80	100

According to Table 4, our of 80 teacher candidates 63% of them explained the figures with concrete objects while 35% of them wrote down the abstract meanings the figures expressed.

CONCLUSIONS

In the every grade of education the word culture is thought particularly based on the definition done by the Turkish Language Association. Culture, according to the dictionary of Turkish Language Association (1982) is explained as "All kinds of entities of life, thought and art that are in the position of tradition which form a society's immaterial characteristics, perception and thinking unity". While, in the Turkish dictionary prepared for high schools it is explained as "All of the traditional, thought, living, and art entities which form a society's moral characteristic" (Kuşçu, 2000). In these two definitions, the traditions which would similarize the differences of a society are actually a combination of the society's all social properties. Because of the fact that traditions are the most defining factor of culture in primary and secondary education school books, it is not surprising to see "traditions" in first rank in Table 1 and Table 2. In Table 2, the second rank is art. In reality, art and tradition are opposite notions. Traditions express past and stability, while art expresses future and creativity. However, they come side by side in school books in education process in definition of culture. But, in Table 2, we can see that art has lost its significance in 10 years and fell to seventh rank.

Culture is not universal. It belongs to a society and it contains properties that separate the society from other societies. The most observed property is "language", "clothing-food", and "life style". These concepts are deemed important by the both of the work groups. Thought is an abstract notion which underlies a society's culture. A society exists through thinking, questioning world and universe; creating theories, evaluating and comprehending them; through the motivation for life views. Thought is the essence of culture and this essence comes to life in the life style, art work of the society it belongs to. "Thought" is in one of the lowest ranks in Table 1 with 3.75%, while in Table 2, it is in 8th rank with 37.75%.

The first condition for relaying culture to next generation is education (Özer, 2007, pp.13). "Education" is in the third place in Table 1 with 40% while in Table 2, it regresses to 12th rank with 25%. With the ten years passed, the "education" is no longer seen as a significant component of culture. In addition, while "science" does not even exist in Table 1, it can be seen at 13th rank in Table 2 with 10%.

Since the culture of a society is formed by the communal living of people that lasted centuries; human is one of the most significant components of culture. In Table 1, "human" is listed with 37.50%, while in Table 2 instead of "human" the notion of "society" is preferred by 77.50%. The most important notions required to protect an existing culture are the ones that are related to human. These notions are life style, clothing, food, rules of human relations, and values along with the notions that affect the formation process of culture such as history and geography. However, notions such as novelty, change, and modernity, which are needed in order to relay the culture to future and keep it alive, are not in many teacher candidates' agenda as one can see in Table 1 and 2.

As one can realise in Table 2 notions such as "human", "individuality", "distinctness", "being open to new ideas" are not included, but instead notions that cannot be observed in Table 1 exist such as "religion", "science" and "morals".

It can be seen that the answers to the question for the meanings contained by the word "culture" are under influence of the learnt culture definitions. In the education process the "Culture" notion is not addressed properly. Only learning in definition level was achieved. Well, "How do we think?". Thought is a chain which starts with perception and evolves through concrete to abstract; form to meaning. The data of visual perception is added to one another as design in mind, relate, question, analysis from different perspectives, observation, interpretation, experience, decision, reinterpretation, evaluation, and implementation which leads to explanation of form (Abacı, 2003). This is named, Critical Thinking. Critical thinking is a style of thought which helps us to understand things better. When we are faced with a situation, solving a problem, evaluating a subject, we feel the need to ask questions to ourselves and people across. These questions help us reconstruct our cognitive pattern and understand the things we are trying to learn better (Güven, 2005).
Culture can be defined as understanding and using abstract meanings (Elliot, 1981). Abstract thinking is neither an innate ability nor an ability which is formed by itself. It is developed with education in line with age. As can be seen in Table 2 and Table 4 it can be understood that, most of the 80 teacher candidates does not have the ability of abstract thinking.

According to the result of this research, we can see that the young ones only have efforts for learning the information supplied to them rather than understanding and making a sense of it themselves. This case only coincides with an education system that is based upon teaching and learning.

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A Computerized Corpus Analysis Of The Use Of Pragmatic Markers In Ktucale And Bawe

Tuncer AYDEMIR
Karadeniz Technical University,
Trabzon, Turkey
tunceraydemir28@gmail.com

Ali Şükrü OZBAY
Karadeniz Technical University,
Trabzon, Turkey
alisukruozbay@gmail.com

ABSTRACT

It is an old consensus by now that a computerized corpus-based analysis of semantic prosodic profiles in English language provides various explanations for how EFL learners exploit the target language during their learning process in terms of lexical selection. The prosodic analysis of lexical selections of EFL learners is likely to give us much better means of understanding the acquisition and learning processes of EFL learners as well as the factors influencing these processes (Granger, 2008). This study investigated the semantic prosodic awareness of Turkish EFL learners in terms of using pragmatic markers such as *"I mean, I think, so, well, you know, so on, or so"*. The analysis was done by comparing two argumentative academic corpora, KTUCALE (*Karadeniz Technical University Corpus of Academic Learner English)* and BAWE (*British Academic Written English)*. In order to measure possible overuses and underuses as well as statistical significance, frequency counts and log-likelihood ratios were used. Corpus linguistics software AntConc 3.2.2 and SketchEngine online corpus software interface were used in order to collect data. The data was analysed quantitatively by comparing frequencies and calculating log-likelihood ratios. The results of this study validated that the commonly held view that a limited number of pragmatic features are overly used in the academic argumentative papers of tertiary level Turkish EFL students.

Keywords: pragmatic markers, corpus, frequency, log-likelihood, discourse markers

INTRODUCTION

Corpus is a computer based study of language that is commonly defined as a compilation of language examples that provides authentic data in written and spoken forms for the linguists who analyse and study the language. It helps researchers while comparing the native speakers' use of language to the language learners'; it also gives statistical data such as word list, frequency, collocates, concordance and key words. Reference corpus is the trustworthy corpus comparing to the learner corpus. Basically, reference corpus is the native and main corpus, which provides reference materials and authentic data, while comparing to the non-native or learner corpus, which is researched in order to find out the mistakes, problems, differences or similarities, etc. In this study, semantic prosodic awareness of tertiary level Turkish EFL learners in terms of using pragmatic markers with the help of corpus. When the usage of a word gives an impression of an attitudinal or pragmatic meaning, this is called a semantic prosody (Sinclair, 2000). According to Stewart (2010) semantic prosody is mostly presented as a concept which is inextricably linked with corpus data as corpus data enlightens the less transparent meanings of the words and phrases. In this respect, semantic prosodic usages of pragmatic markers were analysed with the help of corpus data in order to find out their functional usage in case of oral or written language.

"*I mean, I think, So, Well, You know, You see, So on* and *Or so*" are the target pragmatic markers which were used in this research. The reason of the fact that only these eight pragmatic markers were used in this research is that these pragmatic markers are the most frequent ones which were also used by other researchers in their studies**.** Learners may overuse or underuse certain devices in comparison with native speakers and therefore they sound non-native. With the help of corpus, this difference may be find out in order to create awareness about language usage of the learners.

Semantic Prosody

Semantic prosody has become one of the important notions in Corpus linguistics in recent years. Therefore, it is an essential subject for EFL learners. According to some linguists, this notion is also called as semantic harmony, discourse prosody, pragmatic prosody or semantic association. Louw (1993) describes semantic prosody as a consistent aura of meaning with which a form is imbued by its collocates. So that, each word may have a special function in its context, and even some near-synonym words may not be used interchangeably. Without semantic prosody, words are just considered as single meanings which may not be suitable for writing or speaking; therefore, the discourse may sound non-native or problematic. In *Table 1* below, the contextual usages of the pragmatic markers were shown with the examples which were randomly chosen from BAWE and KTUCALE corpora.

I mean	BAWE	By autocratic, **I mean** that I am solely responsible for the decision…
	KTUCALE	**I mean** that students should do some activities or…
I think	BAWE	**I think** the pace of the film is interesting.
	KTUCALE	**I think**, a computer cannot take place of teacher.
So	BAWE	**So**, why has this occurred?
	KTUCALE	**So**, I believe that listening helps and facilitates…
Well	BAWE	**Well**, dear Amanda, thou art the most constant wife…
	KTUCALE	**Well**, in this essay, I will reply how to teach…
You know	BAWE	As **you know**, you have been experiencing some chest pain.
	KTUCALE	**You know**, I also use computer program before we…
You see	BAWE	**You see** he knows me!
	KTUCALE	As **you see**, the world's biggest authorities highlight the…
So on	BAWE	It is quite similar to Burke's; the sea, the storm and **so on**.
	KTUCALE	What their needs and objectives are, and **so on**.
Or so	BAWE	Over the last half-century **or so**, there has been dramatic decline…
	KTUCALE	Increasingly, in one of the 800 **or so**…

Table 1. Contextual usage of the pragmatic markers in BAWE and KTUCALE corpora

As it is seen in *Table 1*, the usage of the pragmatic markers are quite similar in case of their semantic prosody. Moreover, all of the pragmatic markers look like spoken forms. In results and discussion part, the semantic prosodic usages of the pragmatic markers in case of their oral and written functions will be explained with the evidence data which were gathered by corpus research.

Pragmatic Markers

In very general terms, pragmatic markers presuppose one speaker and at least one addressee taking part in a speech situation, which they at the same time create and monitor via discourse (Erman, 2001). He also continues listing the features of pragmatic markers that is to mark various kinds of boundaries (to initiate or end a discourse or to effect a shift in topic); to assist in turn-taking in oral discourse; to express speaker attitude; and to achieve intimacy between speaker and addressee. Pragmatic markers, such as *you know, I mean, so, well, like* and *now*, have been studied at great length since the 1980s when corpus became widespread and useful for this kind of studies after spreading of computers with the technological developments. They can be defined as linguistic elements "which do not contribute to the propositional content of the utterance which they modify [and that] are frequent in conversation, where they express the speaker's attitudes to the addressee, negotiate background assumptions, express emotions and contribute to coherence" (Aijmer, 2003). Jucker and Ziv (1998) listed the characteristics of discourse markers in their study.

According to their list, discourse markers are short, phonologically reduced, optional, multifunctional, and a feature oral rather than written discourse. Even in Middle English period, pragmatic markers were used as oral features in language. In one of early articles of Novelli (1957), it was mentioned that pragmatic markers represent informal language; remind the reader that "someone is telling the story, controlling the total effect". Moreover, According to Fraser (1996), any signal that has an effect at the communicative, as opposed to the strictly propositional, level can be considered a pragmatic marker. If such markers are omitted, the discourse is grammatically acceptable, but would be judged "unnatural", "awkward", "disjointed", "impolite", "unfriendly", or "dogmatic" within the communicative context. Creating such a discourse could be "incomprehensible" for the listener, and "mission impossible" for the speaker (Svartvik, 1985). He also continues that as a consequence of their semantic shallowness, they are difficult to translate into other languages. They can be considered as cultural expressions in oral discourse. As a result, it can be inferred from the previous studies that pragmatic markers play a fundamental role in spoken language.

Some researchers use the term commonly ‘discourse markers’ instead of pragmatic markers. On the other hand, there are many other terms for this expression which were used by the linguists. Brinton (1996) collected different expressions for pragmatic markers from various researchers and linguists: “*comment clause, connective, continuer, discourse connective, discourse-deictic item, discourse operator, discourse particle, discourse-shift marker, discourse word, filler, fumble, gambit, hedge, initiator, interjection, marker, marker of pragmatic structure, parenthetic phrase, (void) pragmatic connective, pragmatic expression, pragmatic particle,* and *reaction signal*”.

Research Questions

1. Are the pragmatic markers used mostly in spoken language or written language?
2. Do Turkish EFL learners overuse or underuse pragmatic markers compared to native speakers in academic written language?

METHODOLOGY

The instruments which were used in this study include two different academic written and one spoken corpora; KTUCALE (Karadeniz Technical University Corpus of Academic Learner English), BAWE (British Academic Written English), BASE (British Academic Spoken English). Moreover, two concordance tools were used in order to reach the data; SketchEngine online corpus interface, and AntConc 3.2.2 offline corpus software.

Representation	Corpus	Number of Texts	Average Length of Texts	Total Number of Words
Learner Writing	KTUCALE	196 texts	2,272	509,464 words
Native Expert Writing	BAWE	2897 texts	2,554	6,506,995 words
Native Expert Speaking	BASE	160 texts	7,826	1,252,256 words

Table 2. Corpora Contents of KTUCALE, BAWE and BASE

The learner corpus comes from Karadeniz Technical University Corpus of Academic Learner English (KTUCALE). KTUCALE corpus contains essays which were written by the students of a Turkish university. All of the essays are academic in character and the selected sample for the present comparative study is a total of 509.464 words. The reference and control corpus of similar writing was taken from the British Academic Written English (BAWE) database. This native speaker corpus consists of Academic essays written by British university students and contains 6.506.995 words with the contents range from Arts and Humanities, Social Sciences, Life Sciences to Physical Sciences in three levels of study: undergraduate, graduate and master levels. KTUCALE and BAWE corpora were analysed via AntConc 3.2.2 offline corpus software which is available free online, and it makes possible to gather data such as wordlist, concordance, collocates, frequency and word clusters, etc... As the last corpus, British Academic Spoken English (BASE) was used in order to compare and to find out the use of pragmatic markers whether they are mostly used in spoken or written language. BASE was reached via SketchEngine online corpus interface on which it is possible to gather data from online corpora in various languages, or it is available to upload the personal corpus of the researchers.

In order to compare the three corpora, normalized (standardized) frequencies were calculated. The reason of the use of normalized frequencies is that the raw frequencies do not give the proportional data while comparing at least two corpora because of the difference between corpora contents. In order to calculate the normalized frequencies, the following formula was used; (Standardized Frequency = Raw Frequency x 1.000.000 / Corpora Content). Normalizing the data to one million is optional; furthermore, it can be also normalized to one thousand or one hundred thousand.

Moreover, LL (Log Likelihood) scores of each pragmatic marker were calculated in order to find out the difference between the use of pragmatic markers in the native spoken, native written, and non-native written corpora. LL scores were automatically calculated via online interface of Lanchester University database on the following link; *(http://ucrel.lancs.ac.uk/llwizard.html)*. If the LL score is over 3.84, critical value is 95th percentile; if the LL score is over 15.13, critical value is 99th percentile.

RESULTS AND DISCUSSION

The pragmatic markers, and their raw and normalized frequencies of the three corpora, which are mostly used in spoken or informal language instead of academic language, are listed below in *Table 3*.

	BASE	BAWE	KTUCALE	BASE	BAWE	KTUCALE
		Raw			Normalized Per Mil	
I mean	1052	27	13	840,08	4,1493	25,5170
I think	1501	318	122	1198,60	48,8704	239,4673
So	12790	10478	901	10213,60	1610,2671	1768,5253
Well	3187	50	10	2545,01	7,6840	19,6284
You know	2133	50	37	1703,30	7,6840	72,6253
You see	381	24	9	304,25	3,6883	17,6656
So on	385	145	44	307,45	22,2837	86,3652
Or so	74	34	3	59,09	5,2251	5,8885
TOTAL				**17161**	**1710**	**2236**

Table 3. Raw and Normalized per mil frequencies of the pragmatic markers in three corpora

According to *Table 3*, it is obviously seen in the total normalized frequencies of the three corpora that target pragmatic forms are overly used in spoken corpus. In *Table 4* and *Table 5*, the three corpora were compared with the details and Log Likelihood scores.

	BASE normalized	BAWE normalized	LL score
I mean	840	4	1119.24
I think	1199	49	1316.77
So	10214	1610	6981.11
Well	2545	8	3430.99
You know	1703	8	2270.14
You see	304	4	384.28
So on	307	22	294.58
Or so	59	5	53.63

Table 4. Log likelihood Score of BASE and BAWE

In *Table 4*, log likelihood scores of BASE and BAWE were calculated in order to prove that the pragmatic markers are mostly used in spoken language compared to written one. As it is seen in *Table 4*, all of the LL scores are highly over 15.13 ($p<0.01$) which is the critical difference value of 99.99th percentile. There is a significant difference between BASE and BAWE, which means that the target pragmatic markers can be considered as the speech-like words and phrases with their oral functions. With this comparison, on the other hand, it also seen in native written corpus that the pragmatic markers are not the forms which are commonly used in academic writings.

	BAWE normalized	KTUCALE normalized	LL score
I mean	4	26	18.03
I think	49	239	136.54
So	1610	1769	7.48
Well	8	20	5.31
You know	8	73	60.07
You see	4	18	9.64
So on	22	86	40.53
Or so	5	6	0.09

Table 5. Log Likelihood Scores of BAWE and KTUCALE

In *Table 5*, log likelihood scores of BAWE and KTUCALE were calculated in order to compare academic writings of the natives of English to the tertiary level Turkish EFL learners' academic writings. According to the table, all LL scores except *or so* are over 3.84 ($p<0.05$) which is the critical difference value of 95th percentile. Except *or so*, all of the use of target pragmatic markers can be considered as problematic. The situation of *or so* might be caused because of its limited frequency; furthermore, its normalized frequency of KTUCALE was still overused in comparison with BAWE. The use of each pragmatic markers in KTUCALE is five times higher than BAWE in average.

CONCLUSION

With this study, it has been partly proven that tertiary level Turkish EFL learners use some pragmatic markers more than the native speakers of English in their academic writings. The reason of being partly proven is that this is a small scale research which was only applied to KTU students in Trabzon. In order to reach the more general statistics, this research would be applied to the whole country or the main representative regions. The results of the study is quite similar to previous counterpart studies such as Babanoğlu (2014) and Ünaldı (2013).

This overuse by tertiary level Turkish EFL learners may be considered as a problem in the use of English language as they write their academic writings like they speak. In order to reach the advance or native-like level, learners need more awareness and practice about correct usage of the language. This skill may be gained by input such as reading native texts with the attention on the usage of language. On the other hand, lack of practice of reading and writing, and L1 transfer may cause these kind of mistakes. Furthermore, it can be inferred from this research that Turkish EFL learners need more awareness about foreign language usage in academic level.

For further research, pragmatic markers are gender specific and more typical of women's speech (Jucker, 1998). In this respect, the usage of the pragmatic markers by EFL learners can be analysed according to gender or age.

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A Content Analysis Of Studies Devoted To Physical Sciences Education At Primary School Level

Murat GENÇ
Education Faculty
Düzce University, Turkey
muratgenc@duzce.edu.tr

ABSTRACT

The purpose of this study is to investigate the papers published between 2000 -2015 in the field of physical sciences education at primary school level. A total of 114 papers from 38 journals were examined via content analysis. Due to the fact that the number of studies in the field of physical sciences education at primary school level conducted before the year 2000 is very low (5), these studies were not evaluated. Out of 10380 papers published between 2000 and 2015, 114 of them were dealt with. It was ascertained that most of these papers were published in 2013 (15.79%). The smallest numbers were 0 in 2000 and 1 in 2001. In terms of the research patterns, it was found out that these papers were mostly scanning studies. It was seen that the papers that were studied dealt with mostly primary school students, followed by bachelor's degree students doing their degree on primary school teaching. It was also observed that the studies that adopted student and teacher views and included the knowledge and success levels of students came to the fore as research subjects. Scale/inventory, success tests and surveys were mostly preferred as the data collection tools. In the light of the findings, it can be put forward that this study can guide the researchers that intend to conduct studies on primary school level physical sciences education.

INTRODUCTION

Science is the endeavor to examine and identify the beings in an area; make generalizations and principals related to those beings and forecast future happenings by means of these principals. Physical sciences, similarly, deal with the beings and happenings in the nature with the same purpose. Physical sciences can be described as examining the nature and natural events in a systematic way and predicting the not-yet-observed events (Kaptan, 1999).

Physical sciences are made up of pieces of knowledge with different structures such as facts, concepts, generalizations, theories and laws.

The foundation of the improvement of the society and the environment is originally established in primary schools, in Physical Science lessons. In these lessons, students have the chance to deal with and examine the science and nature world that they live in. Indeed, they depend on having a good knowledge of the science and nature world and benefiting from it adequately to adapt to life. In this sense, children gain the ability to think objectively on happenings and situations and make correct judgements via examining their environment with scientific methods at primary school. This ability makes them useful for themselves, their families and the environment (Kaptan, 1999).

By learning physical sciences, people can make predictions on some unobserved events and facts. By learning science-related events, people can perceive what is happening around them correctly, predict what might happen and render life easier. They can approach events and facts with an analytical point of view and make more accurate reason-result relationships. That physical sciences are beneficial in social relationships, technology and individual life and pave way for improvement in students' skill and behaviors are a fact.

Physical sciences lessons play an important role in the process of primary school students' structuring the knowledge and experiences of the nature, which they are also a part of. The aim of physical science education is to train individuals who research, inquire, examine, establish relationships between the daily life and science subjects, can use the scientific method in solving problems of every area of daily life, can look at the world from the point of view of a scientist, can use the nature of science in appropriate ways with an insight of basic scientific concepts, principals, laws and theories (Ministry of National Education, 2005).

Achieving this goal in the national physical science program is possible teaching the students the scientific knowledge concept, implementations and the scientific method that has led to the emergence of physical science concepts as well as teaching them those concepts and leading them to think about those. In this regard, a structuring physical sciences education must also include the development of the scientific knowledge concept of students. Therefore, one of the aims of physical sciences education should be dealing with how scientific knowledge was structured during its formation and the foundations it was established upon (Driver, 1995).

Today's rapidly-moving technology bears the necessity of producing solutions to the environmental problems that technology brings alon (Yaşar and Yıldı-Duban, 2007) as well as the necessity of education physical sciences-literate individuals that can adapt themselves to the fast-changing lifestyle. Physical science-literate individuals are those that have a certain point of view and knowledge on daily life topics, have the skills required to utilize their knowledge when necessary, have a flexible mindset and life-long learners that respect the evidences they are presented (Harlen, 2000). Physical sciences lessons spearhead the way for other lessons in gaining the students these features. Physical sciences lessons aim to get students to deal with the environment they live in and the universe in a scientific manner. Their easy adaptation to life depends on observing their environment well and learning the ways of establishing reason-result relationships as well as possible (Kaptan and Korkmaz, 2001: 1).

An effective physical sciences education leads students to do various researches, evaluate the knowledge they get by making links with their prior experiences, relate the knowledge they have learned in relation with the daily life and solve the problems they encounter. Moreover, thanks to physical sciences education, students can identify their own roles, develop a sense of responsibility, learn how to share and gain the skill of self-expression. This way, students are raised to be physical-science-literate individuals who know how to work in cooperation (Tatar, 2006). Among the aims of physical sciences education are gaining the individuals knowledge, awareness, values and sensitivity towards their environment, adopt a critical point of view in their interaction with the environment and and providing them with the skills required to participate in solving environmental problems effectively and responsibly (Erol and Gezer, 2006).

Accordingly, a quality physical sciences education starting at an early age is essential in terms of individuals' self-realization, developing problem-solving skills, becoming social individuals and taking responsibilities. Based on this, studies devoted to providing students with quality physical science education are of importance. Thus, this study aims at examining the contents of the studies on primary school level physical sciences education. The papers that were dealt with were studied in terms of variables like the topic of the study, the study group, research type and data collection tools. The study sought answers to the following questions;

1- What are the inclinations of the subjects dealt with in the papers?

2- What sort of a distribution is there in the papers with regard to the study group, research type and data collection tools?

METHOD

In this study, the content analysis method was used to investigate the studies devoted to the physical sciences education at primary school level in Turkey between 200 and 2015. The content analysis is a scientific approach that enables objective and systematical evaluation of verbal, written and other materials (Tavşancıl and Aslan, 2001). According to Cohen, Manion and Morrison (2007), content analysis can also be defined as the process of summarizing and identifying the basic content of written information and the messages it includes. A frequently used method in social sciences, content analysis can be defined as a systematical, renewable technique which summarizes books, book chapters, letters, historical documents, newspaper headlines and articles with smaller content categories using codings based on certain rules.

Scanning and Choosing Criteria

To determine the papers to be used for the study, several scanning and choosing criteria were ascertained by the researchers. Following this, the issues of the studies devoted to the physical sciences education published between 2000 and 2015 were scanned.

In accordance with the above-mentioned criteria, each appropriate journal was examined by the researchers and the articles that were attained were tabulated. The papers were compared to check whether each researcher obtained the same papers. Different papers were checked separately based on the criteria to decide whether they could be included in the study, with the aim of maintaining the study's reliability and internal validity.

Following the scanning process, 114 papers that were compliant with the criteria were examined in terms of "research subject, study group size, method of determining the study group, research type, data collection tools and data analysis methods".

FINDINGS

Using the key words determined at the first scanning, a total of 142 papers from 38 journals were chosen. After all the papers were checked by the researcher in accordance with the criteria, 114 papers were decided to be included.

An examination of Table 1 which gives the distribution of the papers according to their year of issue shows an increase in recent years. The data in the table shows that the highest number of studies that fit in the criteria of the study were in 2013 (15.79%).

Table 1. Distribution of the Papers Studied According to Year of Issue

Years	**Number of articles**	**%**
2001	1	0,88
2002	2	1,75
2003	5	4,39
2004	12	10,53
2005	4	3,51
2006	8	7,02
2007	6	5,26
2008	11	9,65
2009	9	7,89
2010	3	2,63
2011	5	4,39
2012	7	6,14
2013	18	15,79
2014	9	7,89
2015	14	12,28
Total	**114**	**%100**

It can be seen that the physical sciences program of the Ministry of National Education has particularly been altered and there has been an increase in the research numbers following 2004 and 2013.

Looking at the research question "what is the inclination of research subjects?" (Table 2), it can be understood that the subject that was most dealt with was the one in which student and teacher views on physical sciences education were taken - it was handled in 29 papers. Particularly, teacher views on program changes stand out as the most researched topics. Besides this, it is observed that there are 22 papers which are on the knowledge level and success of students in physical science subjects; 19 on the attitude towards physical science subjects; 17 on the teaching on physical sciences subjects; 13 on the self-efficacy and beliefs of teachers; 9 on the physical science misconceptions of students; and 5 on Scientific Process Skills. It was reported that the 22 papers which were devoted to researching the academic success were more of a sum of researches that included empirical studies dealing with a method's effect on success.

Table 2. Distribution of the Research Subjects That Were Dealt With

Subject	**Number of articles**	%
Views of the Teachers and Students	29	25,44
Achievement level	22	19,30
Attitude	19	16,67
Teaching/ Learning	17	14,91
Misconceptions	9	7,89
Science Process Skills	5	4,39
Other	13	11,40

Examining the papers in terms of research type (Table 3), one can say that the studies were mostly quantitative ones (81) while the number of the qualitative studies was 30. Besides, 3 combined studies were reported to have been done. Whereas 52 of the quantitative studies were made of non-empirical scanning researches, the number of the empirical studies which were conducted with pretest-posttest control group pattern was 29. As for the qualitative studies, it is observed that the qualitative scanning pattern was used in 18 studies; the case study pattern was used in 8 studies; phenomenological research was used in 3 studies and action research was used in 1 study. It was found out in the scanning that the studies in which student and teacher views were taken predominated the studies that were used.

Table 3. Distribution of the Research Type Used

Research Type	Number of articles	%
Quantitative	**81**	**71,05**
Non-experimental	52	45,61
Experimental	29	25,44
Qualitative	**30**	**26,32**
Descriptive Qualitative	18	15,79
Case study	5	4,39
Phenomenological	3	2,63
Action Research	1	0,88
Mixed	**3**	**2,63**

With regard to the data collection tools (Table 4), the majority of the studies (40) were the ones conducted with scale/inventory. In addition, 37 tests, particularly success tests were used and open ended/likert surveys were used in 20 researches. It was also seen that 15 studies with interviews in which semi-structured form was used were performed.

Table 4. Distribution of the Data Collection Tools

Data Collection Tools	Number of articles	%
Scale / Inventory	40	35,09
Information / Achievement Test	37	32,46
Survey	20	17,54
Form of Interview	15	13,16

As the sample group (Table 5), mostly primary school students were chosen (48). Candidate teachers were included in 38 studies. The number of the studies in which primary school teachers took place was 28. As for the sample size (Table 6), 51 researches with a sample of 100 subjects, 34 studies with 51-100 subjects and 29 studies with fewer than 50 subjects were detected.

Table 5. Distribution of Sample Group Type

Sample Group Type	Number of articles	%
Primary Schools Students	48	42,11
Preservice Teachers	38	33,33
Teachers	28	24,56

Table 6. Distribution of Sample Group Sizes

Sample Group Sizes	Number of articles	%
0-50	29	25,44
51-100	34	29,82
101-	51	44,74

CONCLUSIONS

The study analyses 114 studies concerning physical sciences education at primary school level in Turkey, in terms of research patterns, data collection tools, sample types and sample size.

The distribution of the papers in terms of their year of publication shows that there has been an increase in the recent years. The data given in the table reveals that the highest number of studies that match the criteria that were ascertained were in the year 2013 (15.79%). In particular, there was an increase in the number of researches after the years 2004 and 2013, when the physical sciences program was altered by the Ministry of National Education.

An examination of the inclination of the research subjects exhibits that the topic that was dealt with the most was the ones that took the views of students and teachers. Under this topic, particularly the teacher views on program changes leap out. Besides this, the number of the studies that inquire into the knowledge levels and success of the students in physical science subjects are also high. Farther, the attitude towards physical sciences subjects is also among the researched topics. A rise in the number of the studies looking at the teachers' self-efficacy and beliefs following the new circumstances that emerged after program changes is also observed. Misconceptions about physical sciences, which are always popular, are also among frequently-examined topics. Scientific Process Skills that came to the fore with the physical sciences program of 2004 has taken its place among the research subjects.

With regard to the types of research, it was found out that mostly quantitative studies were carried out and the reason for this is believed to be the fact that it is easy to collect data in such type of studies. The number of qualitative studies, on the other hand, is low. The fact that particularly the type of scanning is low in quantitative studies is predominant leads to limitations in terms of variety. In empirical studies, generally, pretest-posttest control group pattern is preferred. Here, the most preferred topic is the effect of the new methods and techniques on student success. In qualitative studies, the qualitative scanning pattern is in the foreground.

With regard to data collection tools, the majority of the studies were conducted with scale/inventory. Preferred in terms of being easy to collect data, scales were frequently used in scanning studies. As for the studies which examined the effects of methods and techniques on academic success, Success Testes were used. It was found out that the semi-structured interview form was mainly used to get the views of teachers. The sample groups of the studies consisted mainly of primary school students, followed by candidate teachers and primary school teachers, respectively. The rationale behind these sample groups was being easily accessible. It is believed that this study will guide other studies in the future

In accordance with the findings of the study, the following recommendations were brought up;

- Physical sciences education, which is getting more and more important, should be examined by more researchers at primary school level
- At primary school level, more studies should be done, particularly on concept teaching.
- The number of the studies on the physical sciences education by candidate teachers should be increased.
- Various methods and data collection tools should be used in studies.
- Rather than picturing the current situations, studies should look for the gaining the students get from the implementations.

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A Different Method Proposal To Improve Of Skills And Success Of The Subtraction At Primary Schools In Turkey

Engin CAN
Kaynarca School of Applied Sciences
Sakarya University
Turkey
ecan@sakarya.edu.tr

ABSTRACT

In this study 2nd grade primary school students' skills and success of subtraction especially with borrowing three digit numbers is investigated. Two different models of the subtraction are analyzed. One of them is used in Turkey (1) and the proposed method which is used in Austria (2). The present paper describes the success, both of the subtraction methods to be observed when 16 primary students worked on 10 subtraction problems. These 10 problems were administered repeatedly by means of a class test: In March 2015 firstly the standard Turkish algorithms were introduced and as a pretest examined, afterwards two weeks long two hours in a week Austrian system was practiced and finally they had been examined as a posttest with Austrian system.

Keywords: Mathematic teaching/learning, primary schools, basic mathematic operations, subtraction.

INTRODUCTION

When considering the importance of the four basic operations in mathematics, the psychological studies focusing on subtraction solving are surprisingly scarce compared with those focusing on addition in the literature devoted to cognitive mental arithmetic. The rare studies focusing on subtraction in primary school children (Robinson, 2001) as well as in preschoolers (Siegler, 1987) have reported important individual variability in speed, accuracy, and strategy use. It has been assumed that such variability is comparable to that observed in addition. Nonetheless, the strategy of direct retrieval of the answer from memory, which is the fastest and most accurate strategy, seems to be used less frequently to solve subtractions than to solve additions (Robinson, 2001). The subtraction skill has an important place in learning mathematics which is required to acquire other high level objectives in the mathematics curriculum (Ozder, 2011).

Addition and subtraction are complementary operations. Knowledge of addition combinations has long been thought to facilitate the learning of subtraction combinations (e.g., 8 - 5 = ? can be answered by thinking 5 + ? = 8). Indeed, it follows from Siegler's (1987) model that an associative facilitating effect should make the correct answer the most common response to a subtraction combination, even in the earliest phase of mental-subtraction development.

Subtraction of multiunit numbers has the same three components as addition: (a) One operates on (subtracts) like multiunits, (b) this subtraction can be carried out as single-digit subtraction of the numbers of each kind of multiunit, and (c) trading is required for problems where the sum of a multiunit is ten or more. With addition, one can carry out the addition of like multiunits and only confront component (c), the problem of trading, if the sum exceeds nine. For subtraction, if a trade is necessary, one cannot even begin the subtraction of like multiunits until one has traded. Addition and subtraction are inverse (opposite) operations, and each multidigit addition problem is inversely related to two subtraction problems (those made by subtracting each addend from the sum). One will need to trade in a subtraction problem for any multiunit that was traded in the related inverse addition problem, because the number of that multiunit in the minuend (sum) will be less than the number of that multiunit in the subtrahend (addend being subtracted). Thus, trading in subtraction is just undoing the original trading that was required in addition, because one could not write the whole two-digits um for that multiunit. Therefore, trading in subtraction is just one-for-ten trading to the right, the opposite of the ten-for-one trading to the left that occurs for addition (Fuson, 1990).

Resnick (1992) noted that, starting at about 7 years old, children begin to use a choice strategy: choose between two informal computational strategies to determine differences. In cases in which the numbers are relatively close, such as 7 - 5, counting down ("7; 6 [is one less], 5 [is 2 less], 4 [is 3 less], 3 [is 4 less], 2 [is 5 less]-so the answer is 2") is more difficult to execute than counting up ("5; 6 [is 1 more], 7 [is 2 more]-so the answer is 2"); therefore, children tend to choose the latter strategy.

The above examples demonstrate that subtraction mistakes are caused by defects in the students' prerequisite behavioral objectives. Here the learning defect is due to not knowing the decomposition principle incorrectly. Therefore, while teaching subtraction pre- and post-aspects of the behavioral objectives must be known for effective teaching (Ozder, 2011). Different methods for teaching behavioral objectives related to subtraction skills including the principle of equality and change in decimal-hundred fractions where students make most of their mistakes can be tested (Haylock, 2005).

METHODOLOGY

Research Design: If the digits of the top number (subtrahend) are greater than the digits of the lower number (minuend), then everything is very simple, for example:

$$\begin{array}{r} 974 \\ -\ 851 \\ \hline 123 \end{array}$$

For this calculation in (1) we say: 4 minus 1 is 3, 7 minus 5 is 2 and 9 minus 8 is 1. In (2) is used supplementary method and we say: 1 and 3 is 4, 5 and 2 is 7 and 8 and 1 is 9.

But if the digits of the minuend are greater than the digits of the subtrahend, then everything is quite terrible, for example:

$$\begin{array}{r} 672 \\ -\ 298 \\ \hline ??? \end{array}$$

In subtraction method (1) are the children are confused with drawing lines and calculate as:

$$\begin{array}{rccc} & & 16 & \\ & 5 & \cancel{6} & 12 \\ & \cancel{6} & \cancel{7} & \cancel{2} \\ - & 2 & 9 & 8 \\ \hline & 3 & 7 & 4 \end{array}$$

2 less 8 is not possible, therefore we take from the 7 tens of subtrahend one ten, must deduct from 7 - 1 and it remains 6 tens, so have 10 + 2 = 12 one count available and can now calculate 12 - 8 = 4. And by the second step also 6 less 9 is not possible, therefore we take from the 6 hundred of subtrahend one hundred, that is 10 tens must deduct from 5 - 1 and it remains 5 hundred, so have 10 + 6 = 16 tens available and can now calculate 16 - 9 = 7. And finally 5 - 2 = 3. So as a result, 12 minus 8 is **4**, 16 minus 9 is **7**, 5 minus 2 is **3**. That is **374**.

This calculation could be done with proposed method (2) as follows:

$$\begin{array}{rccc} & 6 & 7 & 2 \\ - & 2_1 & 9_1 & 8 \\ \hline & 3 & 7 & 4 \end{array}$$

8 plus how much is 2, is not possible, therefore it is called 8 plus how much is 12; **4**. So that it is remembered with a small 1 in addition to the 9 by minuend that later also actually by 1 more respectively have to deduct not only 9 but 9 + 1 = 10. 10 plus how much is 7, is not possible, therefore it is called 10 plus how much is 17; **7**. So that it is remembered with a small 1 in addition to the 2 by minuend that later also actually by 1 more respectively have to deduct not only 2 but 2 + 1 = 3. Finally, 3 plus how much is 6; **3**. So as a result, **4** and 8 is 12, **7** and 10 (9 + 1) is 17, **3** and 3 (2 + 1) is 6. That is **374**.

Purpose of Study:

The purpose of this study is to determine the skills and the success of the objectives belonging to the multi digit subtraction with borrowing in the 2nd grade mathematics curriculum of two different methods.

Study Group:
The study was conducted with 2nd grade primary school students at Atatürk Primary School in Kaynarca, Sakarya during the 2014-2015 academic year. There were 16 students in total.

Procedure:
To examine the main purpose, the following research sub questions were asked:

- How are the skills and success in 2nd grade primary school students in three-digit number subtraction before the proposed method?
- Whether the skills and success in 2nd grade primary school students have developed in three-digit subtraction after teaching the proposed method?

For this purpose, considered hypotheses are chosen as follows:

H_0: There is not the statistically significant average success difference between both methods.

H_1: There is the statistically significant average success difference between both methods.

Research Instruments:
Research was conducted with 16 students in 2c class at Atatürk Primary School in Kaynarca, Sakarya and was prepared according to the pretest-posttest model. During the research, the operations below were performed successively.

- All of 16 children were administered a formative test (as a pretest) with following 10 questions:

Q1) $\begin{array}{r} 783 \\ -\,248 \\ \hline \end{array}$ Q2) $\begin{array}{r} 615 \\ -\,494 \\ \hline \end{array}$ Q3) $\begin{array}{r} 921 \\ -\,567 \\ \hline \end{array}$ Q4) $\begin{array}{r} 512 \\ -\,199 \\ \hline \end{array}$ Q5) $\begin{array}{r} 1000 \\ -\;\;328 \\ \hline \end{array}$

Q6) $\begin{array}{r} 403 \\ -\,154 \\ \hline \end{array}$ Q7) $\begin{array}{r} 854 \\ -\,798 \\ \hline \end{array}$ Q8) $\begin{array}{r} 746 \\ -\,248 \\ \hline \end{array}$ Q9) $\begin{array}{r} 680 \\ -\,334 \\ \hline \end{array}$ Q10) $\begin{array}{r} 921 \\ -\,145 \\ \hline \end{array}$

- 2 weeks with 2 hours in a week teaching were held in the class. Firstly, the proposal method was presented. And then many examples were solved with the participation of students.
- After 2 weeks teaching same questions in pretest were asked again (as a posttest).

Data Analyses:
After collecting the pretest and posttest data, were saved to computer and arranged. After the reliability and validity values of the scales were determined, the phase of data analysis started.

The determination of descriptive statistics for the analysis of data; paired samples t test ($p < .005$) were applied. Excel and SPSS software was used for the data analysis.

Finding and Results:
The posttest data from subtraction timed test served to check whether knowledge of addition combinations plays a key role in mastering subtraction combinations. Following Figure 1 show us how well the children have been involved in a short time and have shown success. For example:

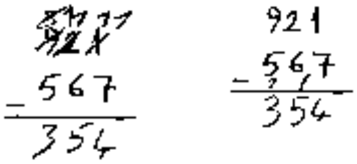
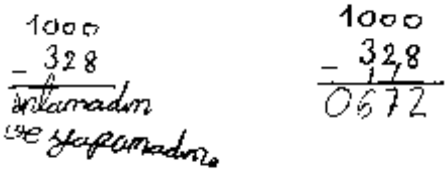


Figure 1. Q3 with both of methods

Question 5 was purposely chosen to look at how the children react. By pretest were all of children confused but by posttest 3 of 16 could answer it true (see Figure 2 and Table 1). One of the children has written under the line: "I have not understood and could not made"



1000
_ 328
anlamadım
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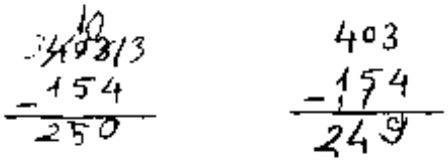
0672

Figure 2. Q5 in pre- and posttest

By pretest, 1 of 16 children answered Q6 correct but by posttest 9 of 16 have been able to create (Figure 3).

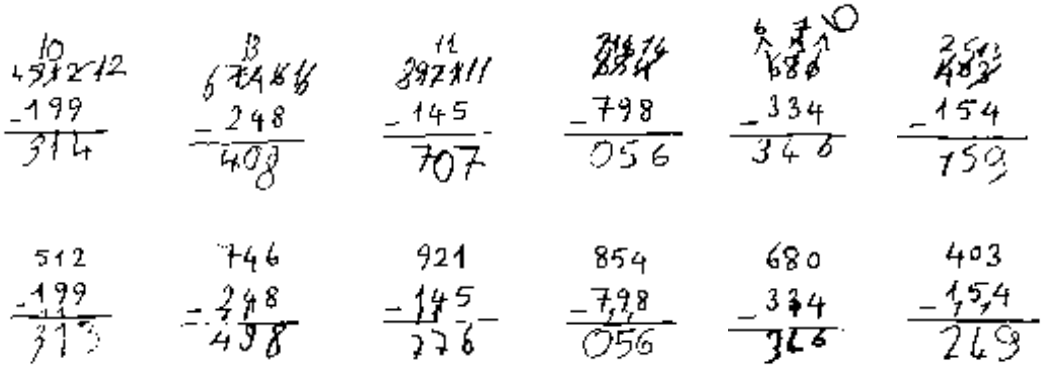


_ 154
250

403
_ 154
249

Figure 3. Q6 in pre- and posttest

Below the examples are given from some of asked questions which from children were answered in the pre- and posttest (Figure 4).



_ 199
314

_ 248
408

_ 145
707

_ 798
056

_ 334
346

_ 154
159

512
_ 199
313

746
_ 248
498

921
_ 145
776

854
_ 798
056

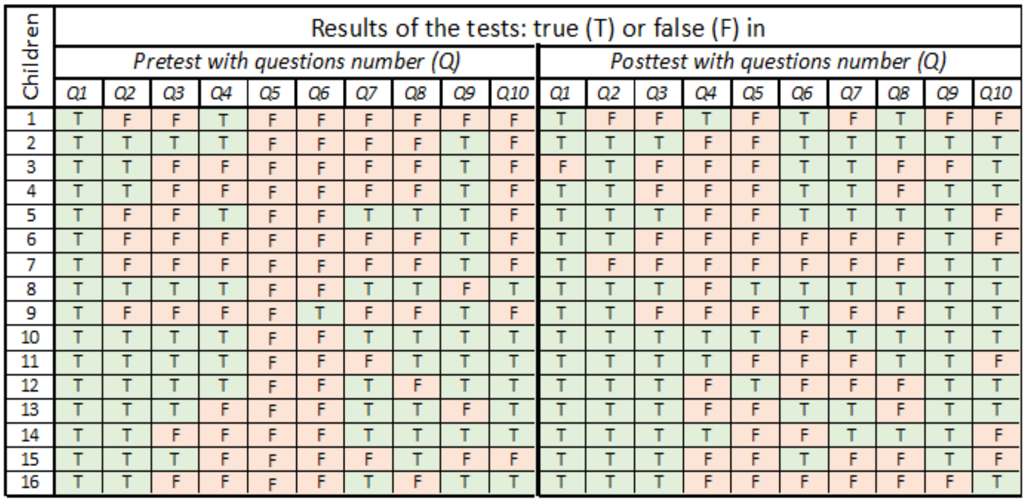
680
_ 334
346

403
_ 154
249

Figure 4. Some examples from pre- and posttest

This method provides a positive effect on the students to be understood subtraction easily. Furthermore, the method is for the primary school teachers seems assisting them for the subtraction more comfortable describe and explain.

Table 1
Pretest – Posttest Result



Children	Results of the tests: true (T) or false (F) in																			
	Pretest with questions number (Q)										*Posttest with questions number (Q)*									
	Q1	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*	*Q1*	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*
1	T	F	F	T	F	F	F	F	F	F	T	F	F	T	F	T	F	T	F	F
2	T	T	T	T	F	F	F	F	T	F	T	T	T	F	F	T	T	T	T	T
3	T	T	F	F	F	F	F	F	T	F	F	T	F	F	F	T	T	F	F	T
4	T	T	F	F	F	F	F	F	T	F	T	T	F	F	F	T	T	F	T	T
5	T	F	F	T	F	F	T	T	T	F	T	T	T	F	F	T	T	T	T	F
6	T	F	F	F	F	F	F	F	T	F	T	T	F	F	F	F	F	F	T	F
7	T	F	F	F	F	F	F	F	T	F	T	F	F	F	F	F	F	F	T	T
8	T	T	T	T	F	F	T	T	F	T	T	T	T	F	T	T	T	T	T	T
9	T	F	F	F	F	T	F	F	T	F	T	T	F	F	F	T	F	F	T	T
10	T	T	T	T	F	F	T	T	T	T	T	T	T	T	T	F	T	T	T	T
11	T	T	T	T	F	F	F	T	T	T	T	T	T	T	F	F	F	T	T	F
12	T	T	T	T	F	F	T	F	T	T	T	T	T	F	T	F	F	F	T	T
13	T	T	T	F	F	F	T	T	F	T	T	T	T	F	F	T	T	F	T	T
14	T	T	F	F	F	F	T	T	T	T	T	T	T	T	F	F	T	T	T	F
15	T	T	T	F	F	F	F	T	F	F	T	T	T	F	F	T	F	F	T	F
16	T	T	F	F	F	F	T	F	T	T	T	T	T	F	F	F	F	F	F	T

For the pretest given true response rates of the students is 47% and posttest is 58%, thus is observed with the proposed method in a short time the increase of the level of success 23%.

In the following tables (Table 2 and Table 3) are presented if there is a statistically significant difference between the dependent groups (paired sample) t-test results between pretest and posttest.

Table 2
Paired Sample Statistics

	M	*N*	*Std. Deviation*	*Std. Error Mean*
Austrian method	5,8125	16	1,93972	,48493
Turkish method	4,6875	16	2,02382	,50595

Table 3
Paired Sample t test

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Dev.	Std. Err. M.	Lower	Upper	t	df	Sig. (2-tailed)
Austrian and Turkish method	1,12500	1,25831	,31458	,45450	1,79550	3,576	15	,003

The paired sample t-test table (Table 3) reveals that there is the significantly scores difference between by pretest used Turkish method and by posttest used Austrian method (p <.005). It determined that the difference is in favor of the posttest and **H$_1$** hypothesis was accepted. In this case, Austrian subtraction method for the students can be expressed as a positive effect on skills and success.

CONCLUSIONS

Especially in this study was used second method because of the subtraction difficulties for students. After short practice sessions was seen this method is more understandable for the children. Moreover, increases the skills and the success of the children in a short time. So second method seems to be better and uncomplicated and could be overcome the difficulties of subtraction understanding in mathematics.

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A Field Research For Profile Evaluation Of Mechanical Engineering Students

Billur KANER
Mechanical Engineering Faculty
Yildiz Technical University Turkey
kaner@yildiz.edu.tr

ABSTRACT

It is very important for educational institutions to recognize the student profile in order to achieve outputs of targets and programmes, and effective use of resources. In Mechanical Engineering education, it is necessary to assess the student profile accurately, to properly analyse the reasons, abilities, and expectations for professional preferences, and to achieve outputs of programmes.

In this study, 520 newly registered students at the beginning of the last two academic years to the Under-Graduate Programme of Mechanical Engineering, Yıldız Technical University were given a multiple-choice questionnaire. Then, data were obtained and interpreted to see whether new students had the essential properties necessary for mechanical engineering education. The study was planned to be continued in the following years, and the possible changes in the student profile were planned to be monitored.

It is thought that the data from the questionnaire will guide the programme evaluation, improvement and enhancement studies continued in the relevant departments of other universities, and thus increase the quality of education.

Keywords: Mechanical Engineering Education, Student Profile, Questionnaire.

1. INTRODUCTION

Many profile research studies are conducted in different fields and scopes with similar purposes. These frequent studies allow for monitoring the changes (Ballack S., Botes A., 2003). In the field of education, also, it is important to know the student profile in order to achieve target and programme outputs and efficient use of the resources. Profile studies for university students are of an important function in showing the basic properties and expectations of people on their way to a specified profession (Şenses F., 2005). In addition, knowing the student profile plays an important role in subjects such as relationships between students and academicians, and personal and social developments and self-confidence of the students (Kuh, G., 1995).

In Mechanical Engineering education, it is targeted that students are trained as mechanical engineers who are able to design and conduct analyses productive, self-confident, with a good sense of team working and capable of international competition. Furthemore, students are planned ro be enterprising and researching with professional and ethical values. In a rapidly changing world, it is necessary to train the students for the future by allowing them to acquire skills to think in a better way and competencies in a way that they can cope not with the conditions of yesterday's world, but with a dynamic new World. It is necessary to evaluate the student profile accurately in order to achieve this goal. For instance, it is an important factor in obtaining success that students should start the engineering education after they investigate consciously the department and the profession, and evaluate their desires, personalities, and abilities. Better analysis of reasons and deficiencies of profession selection of students is necessary to achieve educational outputs.

Over the years, differences can be observed in the student profile registered in the mechanical engineering programme because of the changes in the life conditions, in the world and the increase in the number of students registered in the mechanical engineering programmes in our country. Due to the fact that this is the first study conducted in this subject in Turkey, no comparison was possible to be made with the previous years' research results.

In the present study, data were obtained about the reasons for preferring mechanical engineering, levels of willingness, interests in the active education system at the selection stage, and having or lacking the basic properties necessary for the mechanical engineering of students just registered to under-graduate education. Socio-economic statuses were excluded when determining the student profile.

2. METHODOLOGY

Questionnaire method was employed in determining the student profile at the Mechanical Engineering Department. As a sample area, Mechanical Engineering Department in Yıldız Technical University, accepting 225 students between 12500-26500 in the MF-4 point type ranking accordig to the central student placement exam was selected. The number of students of new registrations became 280 in total as a result of the lateral transfer, vertical transfer, and top student contingents. The relevant questionnaire was circulated among 270 students at the beginning of the 2014-2015 academic year, and to 250 students at the beginning of the 2015-2016 academic year, and the results were evaluated. Since the results were similar in both academic years, average of them was determined. 93% of the students newly registered in the last two academic years in Yıldız Technical University were reached during registration, and a total of 520 mechanical engineering students were applied a questionnaire study with containing 18 multiple-choice closed-end questions. Results of 10 questions containing socio-economic status of the students were excluded from the scope of this article.

3. FINDINGS AND INTERPRETATIONS

In this section, the questions of the questionnaire within the scope of the study, and answers to them in numbers and rates are shown in Tables. .Necessary evaluations and interpretations are made on the findings of the questionnaire.

Table 1. Ranking of mechanical engineering between the professions preferred by students.

Question: What is the ranking of mechanical engineering between the professions that you preferred?

Answer	**Number**	**Rate as percentage**
1st preference	373	71.73 %
2nd-5th preference	138	26.53 %
6th preference and below	9	1.73 %

It is widely thought that when people dislike their jobs, neither they can be successful nor happy in that profession. Therefore, the evaluation on the Table 1 is important. It can be seen that the mechanical engineering is a profession that was first to be preferred by 71.73 % of the students, and in the first 5 preferences for the others. It is known that willing, desiring students who start university education because they like the profession will be successful, and quality of education will increase.

Table 2. Factors affecting the selection of the profession of mechanical engineering of the students.

Question: Which of the following are the factors affecting your selection of the profession of mechanical engineering? (Multiple options are marked.)

Answer	**Number**	**Rate as percentage**
Better occupational opportunities	238	45.77 %
Better educational opportunities	190	36.53 %
Suitable for my point of the university exam	160	30.21 %
The profession I am most interested in	186	35.65 %
Effect of my family and environment	49	9.42 %
Other	36	6.91 %

On the Table 2, it is seen that students believe that in addition to being interested in the profession, they can get a good education in this department, and as a result, they can have a good job. Concerns of finding a job and making profit may be more important than the ideals of the candidates in profession selection. Although multiple options could be marked, it is seen that, they were able to make their own decisions about profession selection, and that effect of family and relatives was minor.

Table 3. Status of willingness for the registered department or university.

Question: Do you want to change your department or university?

Answer	Number	Rate as percentage
No, I don't.	448	86.15 %
Yes, I do.	41	7.88 %
Unsure.	31	5.96 %

Many factors are important to the student candidates of universities in selecting a department, that is a profession, such as the job opportunities and respectedness of the profession, and in addition, university entrance point, the city of the university to prefer, the name of the university to prefer. On the Table 3, it is observed that the students who selected the profession in their first preference was also satisfied that they were registered in Y.T.U.

Table 4. Status of electronic examination and investigation of the relevant departments of the students before making preferences.

Question: Did you examine the web pages of the relevant department before making preferences? Did you find it sufficient?

Answer	Number	Rate as percentage
No, I didn't.	148	28.46 %
Yes, I did, and found it sufficient.	228	43.84 %
Yes, I did, but found it insufficient.	144	27.70 %

We see on the Table 4 that 72.54 % of the new coming students, made their department preferences by electronic pre-investigation and they were conscious. At the same time, we see that, they had the curious, interest and researching personality that is necessary to be successful. 27.70 % of them even find the information provided insufficient. Taking seriously the transfer of information in electronic environment will help the future students of the departments of mechanical engineering be more conscious, more willing, more skilled, and more capable to increase education quality. It is easy to use written, visual social media opportunities and inform the youth through cooperation of universities and T.M.M.O. for introducing the profession.

Table 5. Knowledge of foreign language of the students who preferred Mechanical Engineering.

Question: What foreign languages do you know? At what levels? (Multiple options are marked.)

Answer	Number	Rate as percentage
English- Advanced	244	46.92 %
English- Intermediate	236	45.38 %
English- Basic	16	3.07 %
German- Advanced	20	3.84 %
German- Intermediate	241	46.34 %
German- Basic	168	32.30 %
French- Advanced	6	1.15 %
French- Intermediate	7	1.34 %
French- Basic	166	31.92 %
Other- Advanced	24	46.15 %
Other- Intermediate	56	10.77 %
Other- Basic	197	37.88 %

On examining the Table 5, it is seen that 92.3 % of the registered students, almost all of them, had intermediate and above knowledge of English. In addition, they had intermediate or basic knowledge of a second language, which should be taken into consideration when revising the foreign language preparation term lesson plans.

Table 6. Students knowledge for general use of computers who preferred Mechanical Engineering.

Question: What is your general level of competence of computer use?

Answer	Number	Rate as percentage
Very good.	183	35.19 %
Good.	272	52.30 %
Moderate.	52	10.00 %
Bad.	13	2.50 %
No knowledge.	0	0.00 %

New generations grow hand in hand with technology. Therefore, rate of computer use is high. The data seen on the Table 6 are positive for our youth who are future engineers.

Table 7. Knowledge of office programmes of the students who preferred Mechanical Engineering.

Question: What is your general level of competence of office programmes?

Answer	**Number**	**Rate as percentage**
Very good.	72	13.84 %
Good.	221	42.50 %
Moderate.	183	35.19 %
Bad.	38	7.31 %
No knowledge.	6	1.15 %

Table 7 shows that the students are good at office programmes. The data from the Tables 6 and 7 should be taken into consideration when revising the contents of the relevant lessons.

Table 8. Distribution of the opinions of the students about their post-graduation plans.

Question: What area do you plan to work at after you graduate?

Answer	**Number**	**Rate as percentage**
Academic career.	33	6.34 %
Re- De.	51	9.08 %
Manufacturing.	62	11.92 %
Sale-Marketing.	81	15.57 %
Installation.	12	2.30 %
Other.	63	12.11 %
Unsure.	218	41.92 %

The fact that the students preferred the profession willingly Table 3 implies that they were determined to perform their profession after they graduate. However, as understood from the Table 8, they are unsure about areas. The data on this table will necessarily change in the course of education.

4. CONCLUSION AND SUGGESTIONS

In this research, student profiles were obtained through a questionnaire to 520 students just registered in the department of Mechanical Engineering, Yıldız Technical University in the academic years 2014-2015 and 2015-2016. In this way, beginning competencies of the students were determined. It is thought that the data from the questionnaire will guide the programme evaluation, improvement and enhancement studies continued in the relevant departments of other universities, and thus increase the quality of education.

The below conclusions and recommendations were made:

- It is seen from Table 1 that students were very eager for the profession, and from the Table 2 is understood that they began their under-graduate education with very positive opinions about the university and the department that they were registered in. This is a satisfying situation. It is known that working with young people who begin university education life with positive opinions increase the quality of education.
- Today many young people prioritize their own decisions and desires for their job preferences. However, concerns of finding a proper job and making profit may be more important than ideals in selection of professions. As a consequence, in Table 2, the option of better occupational opportunities was marked at the first rank in the factors of profession selection.
- Transfer of information among the new generation is more through electronic media. In Table 4, insufficiency of webpages were emphasized by 27.70 %. According to this percentage, web pages and social media pages should always be updated, and deficiencies should be eliminated by universities and departments.

- Table 5 shows information about the knowledge of foreign language levels of the students. It should be taken into consideration when revising the foreign language preparation term lesson plans.
- Tables 6 and 7 show the competency of students at office parogrammes. The relevant lessons' contents should be revised in accordance with these results.
- In Table 8, the students are seen to be unsure about the post-graduation profession area selection. Because the students have little knowledge of the profession at the beginning, the result is not surprising. However, it is an important finding to take into consideration. Therefore, the first term of the education plan involves the "Introduction to Mechanical Engineering" course. This course aims the students to know the profession in detail and to establish personal goals. The course has a content to help students to feel themselves as engineers, and also feeling engaged and more efficient adoptation with mechanical engineering with higher motivation.
- Due to the fact that this is the first study conducted in this subject in Turkey, no comparison was possible with the previous years' research results, and its history was not tracked. It is thought that the present research study will draw attention, and form a base for future studies in this field.
- According to the obtained data, it is concluded that the students who preferred Y.T.U. Mechanical Engineering Department were willing, open to scientific and technological developments, greatly adapted to the systematic structure of our age.

ACKNOWLEDGEMENTS

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A Pedagogical Analysis Of Ulvi Cemal Erkin's Impressions "Duyuşlar"

Assist. Prof. Dr. M. Nevra KÜPANA
Sakarya University State Conservatory, Turkey
nkupana@sakarya.edu.tr

ABSTRACT

This study aims to analyze of the work Impressions (Duyuşlar), composed by Turkish composer Ulvi Cemal Erkin for solo piano in 1937, with a pedagogical perspective. Firstly, to emphasize the importance of the study, the paper provides information about the developments in the field of music in the early years of the Republic of Turkey, first generation composers, called "The Turkish Five", including Ulvi Cemal Erkin, as well as Ulvi Cemal Erkin's life and works. The work, Impressions, is analyzed using the content analysis method. The findings obtained as a result of the analysis are expressed in frequencies and percentages. Impressions includes eleven pieces. At the end of the study, it is found that the pieces which included in Impressions are appropriate for different levels (beginner, intermediate, advanced) of piano education.

Keywords: Ulvi Cemal Erkin, Impressions, Duyuşlar, piano pedagogy, pedagogical analysis, piano education, Turkish Five, Turkish piano literature, music education.

INTRODUCTION

Culture and education of the Republic of Turkey, founded in 1923, has been nationalistic. While intending to found a state based on the concept of Turkish nation after the fall of the Ottoman Empire, Mustafa Kemal Atatürk further aimed to create the inventive art of the new state. As being the branch of art, which has affected the peoples in the fastest way throughout history, music was ranked the first among the reforms of Atatürk. It was prescribed to create a music, which was originated from Turkish folk music, but was also giving voice to a contemporary and universal language (İlyasoğlu, 2007).

The first generation in the Contemporary Turkish music, known as "Turkish Five" was composed of composers who had been listening to the traditional Turkish music during their childhood, then got to know polyphonic music by way of education, and all of whom applied the knowledge they had attained in the European countries they had been in their own works. Turkish Five is composed of Cemal Reşit Rey (1904–1985), Hasan Ferid Alnar (1906–1978), Ulvi Cemal Erkin (1906–1972), Ahmed Adnan Saygun (1907–1991), and Necil Kazım Akses (1908–1999). These composers contributed in all dimensions to the music art in the Republican Turkey to gain its identity in terms of global criteria. They served as educator, incorporator of musical institution, instrument master, and maestro. Turkish Five did not carry out collective studies under the roof of a certain institution. The common aim in their individual activities was to make compositions in the western form and technique based on the modal, melodic, and rhythmic structure of Turkish music (İlyasoğlu, 2007).

The element of folklore was adopted as a new dimension of music in the 20th century music. Colors and rhythmic texture of the folk music brought a new dimension in the new music. Turkish folk melodies and the modal character of Turkish music, as well as its structure within *aksak* (halting) rhythms started to draw the attention of the musicians. Introductory studies of the first generation of Turkish composers involved the conversion of not only the melodies and rhythms of Turkish folk music in monophonic structure, but also the modal structure and mystic atmosphere of the classical Turkish music directly into polyphony, and attainment of a system getting closer to European music forms. Collection and notation of folk melodies, and their examination and assessment, too, altogether constituted a significant source. While clearly conveying the traditional elements, the first generation of composers was under the influence of the musical movements from the foreign countries where they had been taught (İlyasoğlu, 2007).

First polyphonic works, having pursued Atatürk's views with regard to national music, emerged mostly in the form of the polyphonic play of the folk melodies in the major composing techniques. Unique works were composed by way of applying folk melodies and the traditional elements of the modal music therein. Among these introductory works, in which French impressionist writing technique was used, may be listed as Cemal Reşit Rey's "*On iki Anadolu Türküsü*" (1926) and "*Enstantaneler*" (1931), Ulvi Cemal Erkin's "*Beş Damla*" (1931), *"Duyuşlar"* (1937) ve "*Köçekçeler*" (1943), Ahmed Adnan Saygun's "*İnci'nin Kitabı*" (1934), and Necil Kazım Akses' "*Minyatürler*" (1936) (Tunçdemir, 2007).

Works of Contemporary Turkish Music, which have not only been derived from the values of traditional Turkish music, but also benefited from the accumulation of the international music, reveal the unique perceptions of their composers. The applicable sound system in this sort of works is not traditional, but of international validity; the structure is not monophonic, but polyphonic; sense of composition is not local-regional-denominational, but national and universal with its dimensions comprising those aforementioned. In these works, metrics, forms, and modal series of Turkish music have been applied in a contemporary perception (Sun, 2007).

Life and Works of Ulvi Cemal Erkin

Ulvi Cemal Erkin was born in 1906. He was introduced to the piano by his mother at an early age. When he was seven he became a private student of Adinolfi. From primary school he was a student at Galatasaray Lyceê. In 1935, after graduating from Galatasaray, he earned a scholarship of the Turkish Ministry of Education and went to study in Paris. At the Paris Conservatory he studied piano under Camille DeCreus and Isidor Philipp; harmony under Jean Gallon and Counterpoint under Noel Gallon. In 1929, he continued his education at the Ecole Normale de Musique where he became a student of Nadia Boulanger. Upon graduation in 1930, he returned to Turkey. His first position was as an instructor of piano and composition at the Musiki Muallim Mektebi (School for Music Instructors). In 1932 he married he married Ferhunde Erkin who was a piano teacher and a celebrated pianist. In 1936 he was appointed head of the piano department at the newly founded Ankara State Conservatory. He also worked as the director of the conservatory from 1949-1951 (İlyasoğlu, 2007). He worked as a piano teacher between 1930-1972 in Ankara State Conservatory. Also he was a piano teacher Gazi Education Institute for twenty five years. Some of his students were Seniha Ark, Ferit Tüzün, Suna Cerrahoğlu (Korad), Oya Köker, Banu Perk, Semra Pekman (Kartal), Bahar Tokay, Ersin Onay and Hilal Apaydın (Dicle) in the conservatory (Çalgan, 2001).

Ulvi Cemal Erkin was a virtuoso pianist as well as the composer of a great works which include ballet music (Keloğlan), orchestral works (e.g. Köçekçeler), chamber music, concertos, voice, choir music (İlyasoğlu, 2007; Kolat, 2007). He also translated many opera librettos to Turkish (Kolat, 2007). He conducted the Ankara Opera Orchestra for a while. He received the following honors and medals: Palm Academique (France, 1950); Légion d'honneur medal "Chevalier" (France, 1959); Ordine Al Merito della Republica Italiano (Italy, 1963); Légion d'honneur "Officier" (France, 1970), State Artist (Turkey, 1971). He was also honored by Sevda Cenap And Foundation's Gold Honor Medal, post-mortem, in 1991 (İlyasoğlu, 2007).

Besides the impact of post-romantics and impressionists, Ulvi Cemal Erkin's music displays the vitality of Turkish folk dances and a mystical atmosphere drawn from the traditional modes. He emphasized rhythmical force in his works, using the Turkish aksak rhythms meticulously. He is the only Turkish composer whose complete works have been performed and almost all of them released on compact discs (İlyasoğlu, 2007). He died in 1972.

Piano Works of Ulvi Cemal Erkin

The works having been composed by Ulvi Cemal Erkin for the piano are listed in the table as follows (İlyasoğlu, 2007):

Piano and Orchestra Music	*Solo Piano*
• Concertino (piano and orchestra) (1931) • Piano Concerto (1942) • Symphony Concertante (piano and orchestra) (1966)	• Five Drops (1931) • Seven Easy Pieces for Children (1937) • Impressions (1937) • Sonata (1946) • Six Preludes (1965-1967)

Duyuşlar (Impressions)

Ulvi Cemal Erkin composed Duyuşlar (Impressions) in 1937. It is a pioneer work of a pioneer composer. The pioneering quality of the work does not only stem from its function as being one of the first mature examples of the Turkish piano literature, but also from its "progressive" compositional approach –which can be felt more evidently in the movements in which the folk tunes are crafted. The work can be considered as a mature work of the composer because it features all characteristics of Erkin's personal style with its pure modal approach, firm formal structure and rhythmic dynamism. Impressions is one of the most performed and admired works of the composer (Kolat, 2007).

This work was premiered ten years later by Ferhunde Erkin, a famous Turkish pianist and wife of Ulvi Cemal Erkin. The composition was printed by Ankara State Conservatory and it was not distributed for general sale. It was republished in 2006 by Sun Yayıncılık. Although it was not distributed properly, *Duyuslar* has been popular among pianists, piano teachers and students. It has been recorded and distributed by Turkish and international labels (Pepperland Recordings, 1994; Hungaraton, 1995; Kalan Müzik, 2008) (Serdaroğlu, 2011). In the album, modes and rhytmic patterns of Turkish folk music are considered quite individually. With its skilful construction and its piano texture which revealing at once that it comes from hands of a mature pianist, Impressions is one of the most outstanding instances of 20. century Turkish piano literature (Kolat, 2007).

Duyuşlar (Impressions) consists of eleven pieces: (1) Oyun (Game), (2) Küçük Çoban (The Little Shepherd), (3) Dere (The Brook), (4) Kağnı (The Oxcart), (5) Oyun (Game), (6) Marş (March), (7) Şaka (The Joke), (8) *Allegro agitato*, (9) *Allegro*, (10) Ağlama Yar Ağlama (Weep Not, My Love), (11) Zeybek Havası (Zeybek Tune). Each piece has different titles and different atmospheres (Kolat, 2007). Each piece provides a range of technical and musical challenges. Depending on the level of the student, one piece may be chosen or it can be performed as a complete group (Serdaroğlu, 2011). According to Gökbudak's (2013) eight graded approach No. 2, No. 3, No. 4 and No. 8 are appropriate for second grade of piano education; No. 5 and No. 7 are appropriate for fourth grade of piano education ; No. 1 is are appropriate for sixth grade of piano education. According to Pamir's (1987) eleven graded approach No. 2, No. 3, No. 4 and No. 8 are appropriate for seventh grade of piano education. At the same time the whole albume is appropriate for eighth grade of piano education (Pamir, 1987).

No. 4 Kağnı (The Oxcart) is among the most frequently performed works in the music departments in Turkey (Aydıner, 2008). Two of the pieces from this group No. 2 Küçük Çoban (*The Little Shepherd)* and No. 11 Zeybek Havası *(Zeybek Tune)* are especially popular. The Little Spepherd is technically very simple. It is composed without a meter and notated without bar lines. It should be performed in an improvisatory manner. The student should feel the soul behind the notes and try to perform accordingly. *Zeybek*, the last piece in *Duyuşlar*, is marked *allegro moderato*. Considering the heroic and solemn character of the dance, the student should restrain from playing it too fast. Following the dance tradition, an irregular meter 4+5/8 is used throughout the composition. The form is based on the repetition of A section. The introduction and the main A section reflects the character of the dance with *forte* and *fortissimo* dynamic level. They should be played in a stately manner. In these sections, playing chords that are made of four notes in open hand position may be challenging for a student with smaller hands. The contrasting sections represent softer melodic lines. In these sections, playing the melody in a musical manner without using *rubato* and playing broken chords in left hand part is also challenging. *Zeybek*, with its epic style would be a good addition to the late intermediate piano repertoire (Serdaroğlu, 2011).

METHOD

Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)* comprises the target population of this study. This work is consisted of eleven pieces. Content analysis was made in this study, in which general screening model was applied. Categorical type of content analysis was preferred as being suitable to the purpose of this study. Categorical analysis in general means to be the division of a specific message into units at first, and having these units grouped in categories in accordance with predetermined criteria thereafter. In the categorical analysis, frequency of the categories is determined. The intensity and significance of a specific element may thereby be understood (Tavşancıl & Aslan, 2001). In accordance with the purpose of this study, Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)* is analyzed by way of splitting it into seven categories, namely as *technique, meter, note value, tempo, harmonic/polyphonic structure, dynamic, difficulty level.*

FINDINGS

In this section, Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)* is analyzed by way of splitting it into seven categories, namely as *technique, meter, note value, tempo, harmonic/polyphonic structure, dynamic, difficulty level.* The data regarding these categories were sorted out in consideration of the features being possessed by each and every piece contained in the respective work, and presented in tables. The attained data were assessed in view of piano pedagogy.

Table 1: Analysis of the Techniques in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

TECHNIQUE		**THE PIECES CONTAINING THEM**	**f**	**%**
Articulation Techniques	Legato	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	11	100
	Staccato	1, 5, 6, 7, 8, 9	6	54
	Tenuto	2, 4, 10, 11	4	36
Other Techniques	Cross Hand Technique	4, 8, 10, 11	4	36
	Left-Hand Chord Playing	1, 5, 6, 8, 9, 10, 11	7	64
	Right-Hand Chord Playing	1, 4, 5, 6, 8, 9, 10, 11	8	73
	Using Sostenuto Pedal	11	1	9

Reviewing the table with regard to the articulation techniques in the work named *Duyuşlar*, the pieces within the work involve legato technique by 100%, *staccato technique* by 54%, *tenuto technique* by 36%. In view of the table with regard to the other techniques involved in the work named *Duyuşlar*, the pieces within the said work involve *cross hand technique* by 36%, *left-hand chord playing* by 36%, *right-hand chord playing* by 73%, *sostenuto pedal using* by 9%. It may thereby be said that, this work may to a large extent be effective on bringing in the *legato* technique in the piano education.

Table 2: Analysis of the Meters in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

METER		**THE PIECES CONTAINING THEM**	**f**	**%**
Simple Meter	2/4	3, 4, 6	3	27
	2/8	5	1	9
	3/8	1, 7, 9, 10	4	36
	4/8	1, 5, 9	3	27
Compound Meter	9/8	8	1	9
	12/8	8	1	9
Aksak Meter	5/8	1	1	9
	7/8	1, 7	2	18
	8/8	10	1	9
	9/8	7, 11	2	18
Metric Change		1 (7/8, 5/8, 4/8, 3/8) 5 (4/8, 2/8) 7 (7/8, 9/8, 3/8) 8 (12/8, 9/8) 9 (3/8, 4/8) 10 (8/8, 3/8)	6	54
No Meter		2	1	9

In view of the table with regard to the number of meters consisted in the work named *Duyuşlar*, the pieces within the work seem to involve the following number of meters: *2/4* by 27,5%, *2/8* by 9%, *3/8* by 36%, *4/8* by 27,5%, *9/8* by 9%, and *12/8* by 9%. Aksak meter 5/8 by 9%, 7/8 by 18%, 8/8 by 9%, and 9/8 (2+2+2+3) by 18%. Metric change by 54% is also seen in Table 2. Piece 2 has no meter. It may further be said according to this table that, the pieces within the work named *Duyuşlar* are written in numbers of simple, compound and aksak meters different from each other.

Table 3: Analysis of the Note Values in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

NOTE VALUE	**THE PIECES CONTAINING THEM**	**f**	**%**
minim	3, 4, 5, 6, 11	5	45
crotchet	1, 2, 3, 4, 5, 6, 7, 9, 10, 11	10	91
quaver	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	11	100
semiquaver	2, 3, 5, 6, 7, 9, 10, 11	8	73
demisemiquaver	2, 6, 9, 10, 11	5	45
dotted crotchet	1, 4, 5, 7, 8, 9, 10, 11	8	73
dotted quaver	2, 6, 9, 10, 11	5	45
dotted semiquaver	11	1	9
double dotted quaver	2	1	9
acciaccatura	1, 2, 5, 7, 8, 10, 11	7	64

In view of the table with regard to the note values consisted in the work named *Duyuşlar*, the pieces within the work seem to involve the following note values: *minim* by 45%, *crotchet* by 91%, *quaver* by 100%, *semiquaver* by 73%, *demisemiquaver* by 45%, *dotted crotchet* by 73%, *dotted quaver* by 45%, *dotted semiquaver* by 9% and *double dotted quaver* by 9%. Additionally *acciaccatura* by 64%. It may thereby be said that, the most frequently used note values are quaver, crotchet, semiquaver and dotted crotchet in this work.

Table 4: Analysis of the Tempo in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

TEMPO (according to the tempo markings)		**THE PIECES CONTAINING THEM**	**f**	**%**
Speed	Slow	2, 4, 10	3	27
	Moderately	11	1	9
	Fast	1, 3, 5, 6, 7, 8, 9	7	64
Tempo Changes	Ritardando	1, 8	2	18
	Rallentando	9, 10	2	18
	Accelerando	5	1	9
	Allargando	11	1	9

In view of the table with regard to the tempo (according to the tempo markings) and changes in tempo involved in the work named *Duyuşlar*, the pieces within the said work involve the slow tempo by 27%, moderately tempo by 9%, fast tempo by 64%, while they involve tempo changes of by *ritardando* 18%, *rallentando* by 18%, accelerando 9% and allargando 9%. It may thereby be said that, the most frequently used tempo is fast.

Table 5: Analysis of the Harmonic and Polyphonic Structures in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

HARMONIC/POLYPHONIC STRUCTURE	**THE PIECES CONTAINING THEM**	**f**	**%**
Modal	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	11	100
Homophonic	1, 2, 3, 4, 5, 6, 8, 9, 10, 11	10	91
Polyphonic	7	1	9

In view of the table with regard to the harmonic and polyphonic structures involved in the work named *Duyuşlar*, the pieces within the said work seem to be of *modal* structure by 100%, and of *homophonic structure* by 91%, and *polyphonic structure* by 9% as well. When they are used in the contemporary music according to the sound system of equal intervals, the modes being accepted as original modes are named as artificial modes generated from the original (Yöre, 2012). Accordingly the harmonic structure of the work named *Duyuşlar* written for the piano is characterized as modal.

Table 6: Analysis of the Dynamics in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

DYNAMIC	**THE PIECES CONTAINING THEM**	**f**	**%**
Piano pianissimo *(ppp)*	10	1	9
Pianissimo *(pp)*	1, 2, 3, 4, 5, 6, 8, 10	8	73
Piano *(p)*	1, 2, 4, 5, 6, 8, 9, 10, 11	9	82
Mezzopiano *(mp)*	4	1	9
Mezzoforte *(mf)*	1, 2, 3, 4, 5, 6, 9, 10	8	73
Forte *(f)*	1, 4, 5, 6, 7, 8, 9, 11	8	73
Fortissimo *(ff)*	1, 5, 6, 8, 11	5	45
Fortississimo *(fff)*	1, 5	2	18
Fortissississimo *(ffff)*	5	1	9
Crescendo	1, 2, 3, 4, 5, 6, 8, 9, 10, 11	10	91
Decrescendo	1, 2, 3, 4, 6, 8, 9	7	64
Accent	1, 5, 6, 7, 8, 9, 11	7	64

Reviewing the table with regard to the dynamic, in the work named *Duyuşlar*, the pieces within the work are seemed to involve *piano pianissimo* by 9%, *pianissimo* 73%, *piano* by 82%, *mezzopiano* by 9%, *mezzoforte* by 73%, *forte* by 73%, *fortissimo* by 45%, *fortississimo* by 18%, *fortissississimo* by 9%, *crescendo* by 91%, *decrescendo* by 64% and *accent* by 64%. In view of this table, in which the dynamics appertained to the work named *Duyuşlar* seem to involve a wide range from *piano pianissimo* to *fortissississimo*, it may be said that, this work may be helpful in order to bring the dynamics in the piano education.

Table 7: Analysis of the Levels in Ulvi Cemal Erkin's work named *Duyuşlar (Impressions)*

LEVEL	THE PIECES CONTAINING THEM	f	%
Beginner	2, 3, 4, 6, 8	5	46
Intermediate	1, 5, 7	3	27
Advanced	9, 10, 11	3	27

Reviewing the table with regard to the difficulty level, in the work named *Duyuşlar*, the pieces within the work are seemed to beginner level by 46%, intermediate level 27% and advanced level 27%. In view of this table, it may be said that, the pieces which included in Duyuşlar are appropriate for beginner, intermediate level and advanced levels of piano education.

CONCLUSION

Ulvi Cemal Erkin's work named *Duyuşlar* is pedagogically analyzed by way of splitting it into seven categories, namely as *technique, meter, note value, tempo, harmonic/polyphonic structure, dynamic, difficulty level.* The following conclusions have been attained from the aforementioned analyses:
Duyuşlar (Impressions) may to a large extent be effective on bringing in the legato technique in the piano education. The pieces within the work named Duyuşlar (Impressions) are written in numbers of simple, compound and aksak meters different from each other. The most frequently used note values are quaver, crotchet, semiquaver and dotted crotchet in this work and the most frequently used tempo is fast. Duyuşlar (Impressions) is a modal structured work. The work is helpful in order to bring the various dynamics (a wide range from *piano pianissimo* to *fortissississimo)* in the piano education. It is found that the pieces which included in Duyuşlar are appropriate for beginner, intermediate and advanced levels of piano education.

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A Phenomenological Study To Fugure Out The Making Abstract Painting

Yasemin ARIMAN
Anatolian University Faculty of Education
Department of Fine Arts Education
yaseminariman@anadolu.edu.tr

ABSTRACT

This study is a phenomenological research to be performed in order to understand the motivations for making abstract paintings; to question the place of the abstract painting within the art education; to contribute new practices which may be applied in all the periods of the art education. As a qualitative research method the phenomenology was preferred by considering its various common characteristics with the abstract art. The semi-structured interviews were achieved with the participants selected among abstract painting tendencies and the data to be obtained were analyzed thematically. The reasons of the participants to make abstract paintings were different from each other and it was seen that the education they had become prominent among those reasons. The participants offered various suggestions on abstract painting applications in art education and these suggestions were included in the conclusion part where they were also discussed.

INTRODUCTION

Art is the most comprehensive field which reflects the person's cultural life and personal experiences. No other lesson, field or experience can make the person gain the values which art can bring in this sense. Dewey (1934) characterizes art as an experience that animates life. This is an intrinsically valued concept which takes the most important place in a person's life and enables the recognition of the highest emotional experiences (Narrator: Kırışlıoğlu,2002,p 47). Every art activity shows the interest between a specific subject and object thus all that are called as a work of art expresses the interpretation towards this interest. This object-subject relationship and artist's interpretation is different in every art style. For example; what the artist of the renaissance and neo-classic art sees when looking at objects, is rather what her/she thinks than the actual image. In impressionism color and light impressions are taken and interpreted on the canvas. So, as a modern sense of art what is the artist's interpretation, grasp of reality in abstract painting? (Tunalı, 1960).

The first incidence of the word "abstraction" happened with the German philosopher Worringer's 1908 doctoral dissertation (Abstraction and Einfühlung) According to him abstract in brief meant, the building on the basis of sensible forms and by demystifying the forms. The abstract-abstraction hypotheses of Worringer will have helped Kandinsky, Mondrian, Malevich and Klee who are regarded as the pioneers of abstract art. Although the identity of the person to have painted the first abstract painting is debated in art history, Kandinsky mentions that he did not understand Monet's "Haystacks" at first glance in the impressionists gallery, but adds that he was very impressed by the light and texture and started thinking on abstract painting. In the same years Daniel Rossie and Czechoslovakian artist Kupka also started abstract experimentations

When art history is examined as well as having many abstract painters there are many art movements (such as non-figurative, abstract expressionism) which share the same understanding but interpret abstraction differently (such as geometric - non-geometric). The artist partaking in these movements tell that despite having different abstract styles, technical processes their core aim is to reach the "essence" We had mentioned that abstract painting concept was being mentioned in art about a century ago. So, how are the art tendencies (abstract painting perceptions, work technique and processes) of

- Artists and art teachers who abstract paint?
- What can be the different activity suggestions regarding abstract painting in art teaching?

The goal of this study is to obtain answers for these questions, provide ideas to artists working with the same style and contribute to the field of art teaching.

THE STUDY

Pattern

The study was realized by phenomenological pattern which is one of the qualitative research methods The research process followed within the scope to this pattern is given in figure 1

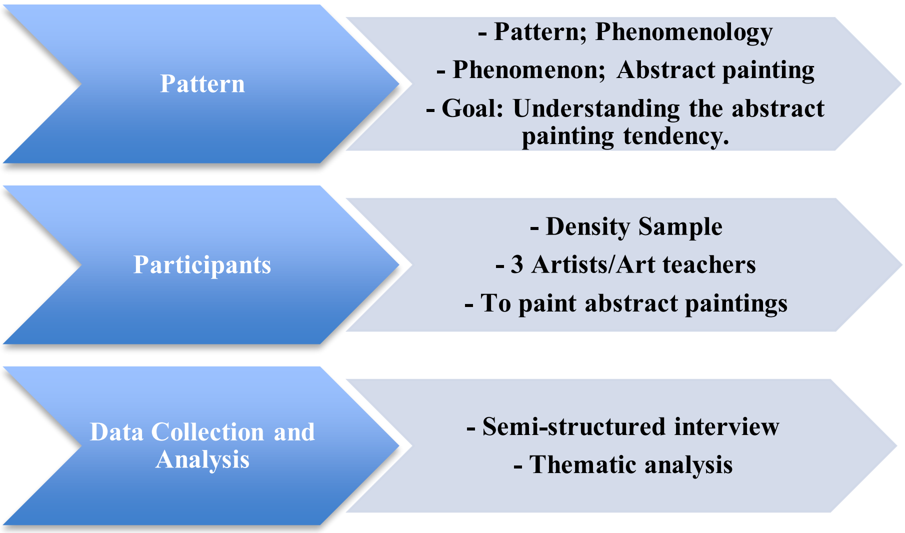

Figure 1. Research Process

According to Patton (2002), there is “ the essence of essence in hypothesis and shared experiences in phenomenological research. These gems are general meanings which are understood through a frequently experienced phenomenon” Phenomenology targets the direct data of knowledge. Targets the examination of phenomenon (something seen when known) and to understand by thoroughly researching the aforementioned “ thing itself” (Lyotard, 2007). According to Creswell answers for two questions are pursued with this method:

- What are the experiences and perceptions regarding this phenomenon?
- What are the settings and conditions of this experience regarding this phenomenon? (Narrator Ersoy, 2014)

While the phenomenon in this study is “ the abstract painting tendency” interviews with three participants were realized in order to learn the “abstract painting” perspective and the work settings-conditions of artist/art teachers who experienced this phenomenon. Because phenomenological interview is the primary data collection method for obtaining the core structure underlying the experience. Firstly the researchers must discover his/her personal judgments and perspectives and set them aside and reconsider the phenomenon accordingly (Merriam,2013)

At the same time this method was chosen for this study in contemplation of similarities between abstract painting and phenomenology. These similarities;

- the aim of extracting essence (the thing itself) rather than style by abstract painting in art and phenomenology in philosophy or as a method,
- being inherently unprejudiced, unpresuppositioned,
- being more subjective in their selves compared with other movements,
- the endeavor of understanding the spiritual by interpreting experiences

etc.

Participants

Qualitative studies are often made with purposeful small samples and sometimes even with one sample (Patton, 2014) Participants in this study have been chosen by the intensity sample method within the purposeful sample methods. An intensity sample includes information loaded situations showing the chosen phenomenon. The researcher seeks sufficiently intense samples to describe the interested phenomenon. Regarding the research’s contribution to art training the participants were chosen among art teachers who paint abstract paintings. Because in addition to understanding the concept of abstract painting performance the study aims to discuss abstract art’s place in art training and to find new application ideas which can be implemented at every level (pre-school, secondary and higher education) of art training.

It was determined that out of 27 instructors performing at the fine arts training department of a university’s education faculty in the 2015-2016 academic year, 5 were working on abstract painting and they were requested to be voluntary participants by giving them information on the research subject. 3 instructors ranging from 30 to 40 years accepted the request for interview and semi-structured interviews took place. In the semi-structured interviews first questions regarding the participants own perceptions, experiences of abstract painting were asked then questions regarding the place of abstract art/painting in art training were asked. The interviews were conducted on different days by different researchers.

Data Collection

The main data collection process within the phenomenological research pattern generally includes interviews conducted with people who have experience regarding the phenomenon (Creswell, 2013) The interview is used as the best shortcut to learn the knowledge, thought and behaviors on various topics and the possible reasons of these While the interview method differs according to the number of participants, research subject and individual or group interview depending on the research, it can be classified as structured or semi-structure or not structured interviews depending on the strictness of the applied rules. Interview are semi-structured in qualitative researches thus must be compromised of open end questions so that the participant can describe the world he/she perceives in his/her own words. This interview type helps opening the subject with different questions and helps shaping new ideas on the subject during the conversation process. For this reason semi-structured interviews were conducted with the participants. Specialist opinion was taken when determining priority interview questions and importance was given to the consistency between research questions and questions asked to the participants. Below are the interview questions asked to the participants as main headings:

- What can you say about abstract art or abstract painting?
- How did you start abstract painting?
- Why abstract painting?
- Are there any abstract artists who you like, be influenced or follow? Who are they?
- What can you say about the place of abstract painting in art training?

The interviews were conducted individually between 25 to 50 minutes. Voice recorders were used as data collection tools during the interview and the notes taken by the researcher during the interview contributed to the study by means of forming new sub questions for following interviews. Questions emerging during the interview are as follows:

- Can you tell us about your paintings, work technique and the materials you use?
- Do you think wok titles are important in abstract painting?
- How is the viewer’s general reaction to your paintings? Would you share your experiences with us regarding this?
- What can you say when figurative painting experience and abstract painting experience is compared?
- How can different applications be made regarding abstract painting in art training?
- Do you think it feeds from different art branches?

Data Analysis

The findings obtained from semi-structured interviews were analyzed thematically. Thematic analysis was realized within the below stages; firstly voice recording obtained from the semi-structured interviews were turned into texts by the researcher. Codes were extracted by reading the texts several times, categories were formed with gathering the codes by associating them within themselves and themes were created.

FINDINGS

The data obtained by semi-constructed interviews within the scope of the study were thematically analyzed and two themes were created with findings which were reached in understanding the participants tendency towards abstract painting. As shown in figure 2, these are the effects of personal areas of interest and received art training

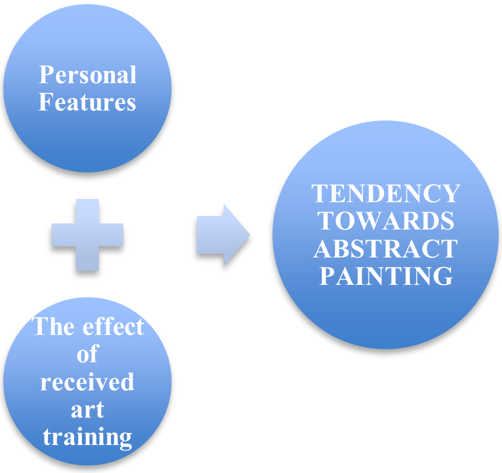

Figure 2. Understanding tendency towards abstract painting

1. Participant; tried to describe his tendency towards abstract painting by firstly touching upon his/her character, mentioned that he chooses to speak less in everyday life and thinks that this effects his/her artistic expression. Addressed that the films that he/she likes to watch and music he/she likes to listen are products that "mention a lot with little things" and this is exactly what he/she wishes to do in painting. Expressed that the art training he received was main graphic art design, graphic has an intense influence in his/her paintings, forms his works by combining only colors and lines.
2. Participant; when explaining the reason for his/her incline towards abstract painting mentioned that he/she was a type who did not like to express his/her feelings and thoughts directly and indicated that he/she thinks abstract painting allows this much more that realist painting. Said that he/she focused on basic design within the received art training and line and spot is a priority for him/her regarding pictorial expression.
3. Participant mentioned that he/she is interested in physics and math's and as the setup these sciences are to tackle abstract objects he/she distanced from reality in painting and inclined towards the endeavor of direct expression of the order. He/she mentioned that he/she was oppressively forced to work in a realistic style in the art training he/she received, has a dissident attitude in life and likes experimentation and added that these were effective in his/her tendency towards abstract painting.

When describing their work processes, participants 1 and 2 stated that they used oil or acrylic paint on mostly canvas or hardboard surface whereas participant 2 mentioned that he/she used earth, glue, various paints on various surfaces as canvas, wood, metal and emphasized that he did not limit himself regarding material. Malevich, Mondrian and Kiefer are the names which outstand regarding the influences of participants. It has been seen that the participants are likeminded regarding the "not being understood" problem during the presentation process and that there is more need for narrative art in the presentation of abstract paintings when compared to realistic paintings. They mentioned the importance of historical knowledge and the cultural environment when abstract painting or understanding abstract painting.

Participant 2. replied to **"What can you say about abstract art or abstract painting?"** as:

" When talking about abstract painting, I think that mm the abstract painting is created without mm an object which is not a figure mm without the concern regarding an emulation to any object or subject mm a shaping of the feelings and thoughts at a given time mm maybe on a canvas on any object. In other words I believe that some things which are hiding under our feelings and thoughts and which are under the psychology feeling thoughts at a given time are transferred there. And mm I think of course color, line, figure, dot every basic design aspect is effective and important in this "

the above answer was given. The answer of participant 3 is like this;

"In general terms from abstract painting I primarily understand non-figurative, non-expressive painting. Mm I understand a painting, a kind of painting type framework which does not intend to show the appearance of tangible mm real objects but mm represents what how the artist mm or the audience understands these.

" Participant 2 gave the below answer to **"Why abstract painting"**

".. abstract art is actually, I mean when we look at it is more convenient in generating different emotions in every person But a realism or when we paint an object the feeling there is very little, of course different thoughts may come up there too but for instance a scene is more or less fictionalized. For instance a war scene, the painful mm expressions there, the expressions gestures of people and the chaos the explosion there can arouse similar feelings in many people. Bu I think different connections can be made in abstract art. Participant 3 gave the below answer to the same question;

" Mm because I especially like math's or mm physics and the setup of these sciences are the objects which they are involved with, these objects are actually abstract Despite physics being seen as the base for reality mm after Einstein mm (laugh) this material reality idea was broken. For instance he showed that two abstract objects never touched and never can touch each other. Has very interesting experiments. In that case where is the substance of this physical reality? Does it really exist? Or is everything a conceptual formation? Mm these questions came up. Mm what was I saying ah yeah my interests coming from physic and math's guided me towards there not from the object directly but from the expression structures of the object in a phenomenal sense independent of its object mm. In solving reality if you're mm in to the perspective of physic laws in fact you're involved in optic laws. I mean you are interested in the objectification, singularisation, illustratisation of such an abstract thing by optic laws. In fact it's the same thing you're doing. Its substantiating on an abstract base. Now you know how they always say abstraction (laugh) In this base mm I was picturing realistic scenes and this time distancing the thing from the object and distancing it from its appearance, I guess I moved into an abstract approach when I tried to express the order directly."

this was his/her reply.

" Participant 3 replied to **"What can you say about the place of abstract painting in art training?"** as;

" Mm now this is important, and important thing What I generally saw in our art training is its towards studying and illustrating the objects physical features, generally our first training is like this. This can be correct I mean according to the externalist view our mental contents mm basically can depend on our external environment, this is a generally accepted view. Mm however even if this is true at the basic level, artistic and aesthetic expression ontologically tries to reach higher layers. Mm how can I put it it's a more supreme value so its abstract it has to have an expressive capacity doesn't it, student? Well you can actually do this with thing too, with reality too mm I mean it is possible to express any abstract entity such as honor, heroism here it is democracy I don't know faith or loyalty by using abstract objects. This is not its only tool of course, it has mm other methods mm too it is possible to establish a giant expression shape I'm sorry style by illustrating objects spiritual features not physical ones. Mm this is a duty which can be performed with a superior cognitive ability mm for students. Therefore mm the goal of our training should be in inverted comas we can say more abstract pictorial mm ability. Here of course I believe under the circumstances we need to mm shift our training from style mm to content with regards to the state today."

gave the above sentences as a reply and when asked **"How can different applications be made regarding abstract painting in art training?** the below recommendations he/she made are worth considering;

" Mm for example despite being and old method phenomenology is developing yet there are thousand types of it now but in its most primitive was since way back from Husserl sorry.. Of course the thing coming out of Husserl mm can be done like I mean applied by students. You know like we just talked can we ask to draw a picture of how does it feel like to be a bat. By teaching them phenomenology method to them directly we can tell them to make something using this, for instance when making a chair we can ask them to paint us what it feels to be a chair instead of what a chair physically looks like. Yes its not that hard is it mm only modern, now it will be sufficiently enough if not more than enough to apply models and approaches mm that gives weight to content and spiritual dimension and motivates them which is not modern anymore (laugh)."

CONCLUSIONS

Upon the analysis of the data collected from semi-structured interviews conducted with the participants in the research, many factors were seen to effect the tendency towards abstract painting It was seen that the artists personal features and the art training they received played a key role among these By describing how their personal features, characters and areas of interests were reflected to their works, the participants gave information on the art braches, artists they were influenced by, the technical materials they used, conveyed the relationship between their abstract painting tendency and the art training processes they received.

The participants mentioned the importance of art history knowledge, the current cultural environment, the cultural development level of individuals when abstract painting or understanding abstract painting. They stated that in art training, from start to higher education the different applications which may be implemented should not only serve to bring up artists, but also contribute to form a good audience. 3. It is worthy of consideration that the participant's suggestion that with a special research, the subject of brain analysis being made with the development of today's technology could be better understood and phenomenology cans be used as an art training method.

As a suggestion that can be brought in consequence of the research; in order to discover the more specific reasons of abstract painting tendency, video recorded interviews can be made where participants can describe their paintings or "clinical interviews" which are used as an interview technique in qualitative researches can be conducted to ask the conveyance of feelings and thoughts during painting. Interdisciplinary common researches (like psychology) can enable a better understanding of the topic by providing different perspectives.

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A Qualıtatıve Study On The Educatıonal Belıefs Of Preservıce Teachers

Ahmet ESKİCUMALI
Sakarya University, Faculty of Education, Turkey
ecumali@sakarya.edu.tr

Zeynep DEMİRTAŞ
Sakarya University, Faculty of Education, Turkey
zeynept@sakarya.edu.tr

Serhat ARSLAN
Sakarya University, Faculty of Education, Turkey
serhatarslan@sakarya.edu.tr

Elif Nur UZUN
Sakarya University, Educational Sciences Institute, Turkey

ABSTRACT

The aim of this study is to determine educational beliefs of preservice teachers. The data were collected by interviews, a method used in qualitative researches. A semi structural interview form was designed by researchers. Final version of the interview form was prepared in accordance with the suggestions of experts. The purposive sampling method was used to select participants who were volunteers. The interviews were carried out face to face with each participant. A voice recorder was also used with the permission of the participants. The audio recordings were transformed into a written text and then they were examined through descriptive analysis. According to the results, most of the participants agree with that " education provides people an opportunity to know themselves and it also supports freedom of individuals". The leading reason is that education contributes to individuals' self actualization process. More than half of the participants disagree with that "education is a process in which teacher transfers unchanging universal values and knowledge to students." The leading reason is that universal values are not impartial and objective. Most of the participants disagree with the idea that education is a student-centered, disciplined and subject-centered process. According to the participants, it is because education leads students to rote learning by this way. The findings were discussed within the framework of the related literature.

Keywords: Educational beliefs, educational approaches, teacher candidates.

INTRODUCTION

The concept of belief can be defined as finally accepted forms of ideas on a certain subject and stereotyped attitudes (Kağıtçıbaşı, 2006). Beliefs are final judgements related to objects, events, facts or situations. While philosophy provides people an opportunity to think about their personal beliefs, values, judgements and moral characteristics, it also helps people to understand matters related to their identity, existence, reason for existence, meaning of existence and future situation. With philosophy, the following question is examined: What is important for a person and a society? Thanks to this question, philosophical views and attitudes are attained and they are associated with the reality (Demirel, 2009). The individual forms the basis of philosophy and education. Both philosophy and education focus on problems that people face in the processes of developing self knowledge and interacting with others and solutions of these problems (Şişman, 2000). In order to train individuals that will become conscious enough about their lives and problems they can face, it is very important to define goals and content of education. Therefore; an individual needs to know the meaning and purpose of life (Büyükdüvenci, 1991). At this point, philosophy of education comes into play. The subject area of philosophy of education includes all the factors that play a role in defining educational goals, solving educational problems and guiding education (Büyükdüvenci, 1987; Fidan and Erden, 1998). There are five educational philosophies that have been accepted as educational beliefs: "Existentialism, Perennialism, Essentialism, Progressivism and Reconstructionalism". According to existentialism, the following concepts stand in the core of education: Individuals become aware of their freedom and with the freedom of choice, individuals are responsible for their own personal development. Education should provide individuals various opportunities during their self actualization process. Teachers should refrain from imposing their own ideas on their students. Instead, they

should provide situations that inspire the students to create their own ideas by using discussion method. According to perennialism, the focus of education is to train individuals in line with unchanging truths and values. Teachers act as the authority. Teaching classics of art and literature is very important.
Essentialism that is believed to follow traditional approach to education aims at adapting individuals to the society via cultural transmission. Subject area stands in the core of essentialism. Knowledge is transferred from teachers to students. Progressivism that occured in reaction to essentialism, emphasizes on student-centered learning. Students reach the information by themselves. In this process, teachers guide the students. On the other hand, according to reconstructionalist approach that is viewed as an extension of progressivism, education is seen as a vehicle for social change (Sönmez, 2008; Gutek, 2006). As people's beliefs shape their behaviours, it is important to get information about the educational beliefs of preservice teachers and the role that they will adopt as an inservice teacher. Turkish education system has moved from teacher-centered model to student-centered model since the implementation of the new curriculum that was developed in line with the constructivist approach in 2006. Although, the curriculum offers student-centered activities during the teaching-learning process, it is proposed that this approach hasn't been adopted adequately in-class activities for some reasons (Önen, Erdem, Uzal and Gürdal, 2011; Demirtaş, 2012). In this case, it is believed that these problems will continue if preservice teachers have teacher-centered educational beliefs. In order to contribute preservice teachers to adopt student-centered education approach, their educational beliefs should primarily be defined. Therefore; the aim of this research is to define educational beliefs of preservice teachers.

METHOD

This is a qualitative study in which the data are collected by interviews, a method that is widely used in social studies in order to examine unobservable behaviours, emotions, attitudes, beliefs, intentions and perceptions of a person (Merriam, 2013; Yıldırım and Şimşek, 2008). After conducting a thorough review of literature, the researchers designed an interview form that consisted of five open ended questions assessing educational beliefs respectively: Existentialism, Perennialism, Essentialism, Progressivism and Reconstructionalism. Views' of Preservice teachers were gathered through the questions including the following themes about education: "Education provides people an opportunity to know themselves and it also supports freedom of individuals", "Teachers transfer unchanging and universal values and knowledge to students", Education is a student-centered process and it trains individuals who will shape the world", "Education is a society-centered process. It shapes social reforms and it creates a sense of world depending on common values." The purposive sampling method was used to select participants who were volunteers. Study group is consisted of 19 preservice teachers. After the final version was prepared in accordance with the suggestions of experts, the interviews were carried out face to face with each participant. A voice recorder was also used with the permission of the participants. The audio recordings were transformed into a written text and then they were examined through descriptive analysis. In descriptive analysis, research questions, dimensions and questions that are asked in interview and observation processes were taken into account and then the data are presented (Yıldırım and Şimşek, 2008; 224). The answers were classified under the categories of " I agree, because..." and " I disagree, because…"

FINDINGS

Preservice Teachers' Views about educational beliefs are illustrated in tables below.

Table 1. Preservice Teachers views about education "It provides people an opportunity to know themselves and it also supports freedom of individuals."

Theme/Category	Codes	n
I agree. Because…	It contributes to the development of the individual's personality. *(T6, T8, T11, T12, T17)*	5
	The Individual explores himself/herself. *(T10, T14, T16, T17, T19)*	5
	The individual shapes his/her own life by himself/herself. *(T1, T5, T13, T19)*	4
	Students' levels of learning increase. *(T3, T6, T14)*	3
	Individuals get rid of the definite patterns of the education system. (*T1, T8)*	2
	The individual realizes his/her interests and abilities. *(T10, T12)*	2
	The student is positioned at the center of education. *(T3, T4)*	2
	The quality of education increases. *(T5)*	1
	The individuals' social interactions increase. (*T9)*	1
	Individuals develop different thinking skills. *(T14)*	1
I disagree. Because…	This is a kind of idea that doesn't fit the education system. *(T7, T15, T18)*	3
	I don't believe that the idea can be put into practice in education. *(T2)*	1

According to table 1, sixteen of preservice teachers agree with the idea about education "It provides people an opportunity to know themselves and it also supports freedom of individuals". In contrast, three of preservice teachers disagre with the idea. The following three views are the most important reasons for agreeing: It contributes to the development of the individual's personality, the individual explores himself/herself. The individual shapes his/her own life by himself/herself. On the other hand, the reasons for disagreeing are depended on the views that the idea doesn't fit the education system and the idea can not be put into practice in education. Below are some examples of expressions:

"A student who knows himself/herself follows a path that is suitable for his/her character. It provides students education of a higher quality. In this way, the student can determine a route map for himself/herself." (T5)

" Self knowledge increases the efficiency in learning. It helps people to improve themselves." (T6)

"Education helps people to know themselves. Thanks to education, people can think in a more different and free way than others and they learn new things about life and themselves." (T14)

" I don't think that today's education system sets students free. In contrast, it puts students in certain, narrow patterns. I don't agree that it gives an opportunity to students for developing a self knowledge as it transfers information directly." (T18)

Table 2. Preservice teachers' views about education " Teachers transform unchanging universal values and knowledge to students."

Theme/ Category	Codes	n
I agree. Because…	Value judgements should be taught by teachers.*(T1, T5, T6, T7, T9, T18)*	6
	Universal values are very significant in training individuals. *(T9, T14)*	2
	Information is transferred everyone in this way. *(T3, T14)*	2
	This information forms universal culture. *(T7, T14)*	2
	In this way, the individual is prepared for the social life. *(T5)*	1
	Individuals are fully trained. *(T6)*	1
	Moral values are stable. *(T1)*	1
I disagree. Because..	Universal values are not impartial and objective. *(T2, T8, T10, T15)*	4
	Teachers are not qualified enough to transfer universal values. *(T11, T12, T13, T19)*	4
	National values should remain in the forefront. *(T8, T16)*	2
	Creativity and Freedom are restricted. *(T15)*	1
	Education should be subjective. *(T17)*	1
	Education should mostly include up to date information. *(T4)*	1

According to table 2, eight of preservice teachers agree with the idea that "Teachers transfer unchanging universal values and knowledge to students." In contrast, eleven of preservice teachers disagree with the idea. The statement of "Value judgements should be taught by teachers" is the most important reason for agreeing. On the other hand, the most important reason for disagreeing is that universal values are not impartial and objective and teachers are not qualified enough to transfer universal values. Below are some examples of expressions:

"Moral values are rules that have survived from past to present and will survive from present to future. This rules are thought by teachers. This is the right thing to do." (T1)

"When today's education system is considered, it is seen that universal values are not impartial and objective." (T2)

"I don't think that teachers are qualified enough in this subject. They teach scientific knowledge and it is not in the scope of universal knowledge." (T12)

" I think that education should be subjective. Each individual should have a chance to learn what he/she wants to learn instead of unchanging universal values." (T17)

Table 3.Preservice Teachers' views about education " It is a student-centered, disciplined and subject centered system."

Theme/ Category	Codes	n
I agree Because…	In some circumstances, education should be in this manner *(T10, T11)*	2
	Students learn subjects better. *(T1)*	1
	Education becomes organized. *(T1)*	1
I disagree Because…	Students should be positioned at the center of education. *(T5, T6, T13, T14, T16, T17, T18, T19)*	8
	It leads students to rote learning and learning can not be achieved *(T2, T3, T4, T9, T12, T14, T19)*	7
	It hinders students' development. *(T3, T12, T18)*	3
	A generation who thinks and searchs can not be trained in this way. *(T5, T15, T18)*	3
	This education system trains monotype people. *(T7, T15)*	2
	Individuals should be trained according to their interests and abilities. *(T17, T19)*	2
	Learning by doing should be emphasized. *(T6, T14)*	2

According to table 3, while two of preservice teachers agree with the idea that education is a disciplined and subject centered system, seventeen of them disagree. As the reasons for agreeing, they stated that in some circumstances, education should be in this manner. In this manner students learn subjects better, education becomes organized. On the other hand, the most important reasons for diagreeing are that students should be positioned at the center of education and It leads students to rote learning and learning can not be achieved. Below are some examples of expressions:

"Actually students must be positioned at the center of the education. Students must learn by doing. Thanks to this learning style, permanent learning can be achieved. Therefore; teachers shouldn't be positioned at the center of the education system." (T14)

"I think education system has problems in achieving knowledge acquisition and it also supports rote-learning."(T2)

"I think that this education system is a failure because it totally leads students to rote learning. This kind of an education causes a system in which only interested students attend the lessons and learning can not be achieved by the others." (T4)

".. a teacher centered, disciplined and subject centered education system can only train students who are monotype, fabrication and don't have the ability to think." (T15)

Table 4. Preservice teachers views about education " It is a student centered system and it trains students who will shape the world."

Theme/ Category	Codes	n
I agree Because…	It is important for personal development. *(T5, T10, T12, T16, T17, T19)*	6
	It trains people who are beneficial to the society. *(T6, T8, T9, T12, T13)*	5
	Learning becomes permanent. *(T3, T4, T11, T14)*	4
	It makes learning easier. *(T3, T4, T15)*	3
	It trains individuals who have different points of view. *(T7, T17)*	2
	It trains qualified individuals. *(T5, T11)*	2
	Education becomes fruitful. *(T6)*	1
	Subjects are learnt better. *(T1)*	1
I disagree Because…	I don't agree this system can be put into practice in education. *(T2, T18)*	2

According to Table 4, while seventeen of preservice teachers agree with that "education is a student-centered system and it trains students who will shape the world", two of them diagree. The most important reason for agreeing is that it paves the way for personal development and it trains individuals who are beneficial to the society. On the other hand, they disagree with the idea because they believe that this system can not be put into practice in education. Below are some examples of expressions:

"In education, student must be positioned at the center of the system. Students must be trained according to their needs, interests and abilities. Only in this way students' development can be supported. Otherwise, the system can not be beneficial to students. Teachers should give a chance to the students for improving self knowledge, self understanding and self expression" (T19)

As the student centered education system will be more beneficial and fruitful, individuals who are trained in this manner will create more beneficial works for the society." (T6)

As the student centered education situates the students as the primarily active role, learning is more permanent and more comprehensible in such a system." (T4)

"Thanks to this system, individuals who have different points of view and a broad perspective can be trained and I think this is what it should be like." (T7)

"I wish such an education system could be put into practice but teacher centered education has been going on and i don't believe that it would change in the future." (T2)

Table 5. Preservice teachers' views about "Education is a society-centered process. It shapes social reforms and it creates a sense of world depending on common values"

Theme/ Category	Codes	n
I agree Because…	It fuels social development in every respect. *(T8, T10, T12, T13)*	4
	Individual becomes effective in life. *(T5, T9, T12)*	3
	Needs of society are met. *(T12, T17)*	2
	Education gets rid of being monotonous. *(T1, T9)*	2
	Social status is acquired. *(T6)*	1
	It is important that common values must be adopted by everyone. *(T3)*	1
I disagree Because…	Education must be individuallized. *(T7, T14, T15, T16)*	4
	Education mustn't only be society centered. *(T18, T19)*	2
	Education isn't enough to shape social reforms. *(T11)*	1
	This idea can not be successful because of pluriformity in society. *(T2)*	1

According to Table 5, ten of preservice teachers agree with the idea that "Education is a society-centered process. It shapes social reforms and it creates a sense of world depending on common values" . In contrast, eight of them disagree. Their most frequent reason for agreeing is that in this way, social development can be achieved in every respect. On the other hand, their most frequent reason for diagreeing is that education must be individualized. Below are some examples of expressions:

" Education must be in relation with the common structures and life styles of the society. Because I think that education must aim to develop society in every respect. Societies are tried to be saved from being degenerate though education" (T10)

"Education is the life itself. A student can find everything related to life in education. Students are prepared for the life through education. In some way, they learn how to live." (T9)

"I think that every individual of a society don't have to share the same ideas but they can live together in spite of their differences. An individualized and a qualified education system shapes the society automatically. I mean that society centered education isn't needed" (T7).

"Of course education is important for the social values but I don't think that society must be positioned at the center of an edution system. People shouln't be limited in order to create a sense of world depending on common values. Everyone must be trained according to their own characteristics." (T15)

CONCLUSION AND DISCUSSION

The results of this study that was conducted in order to define preservice teachers' educational beliefs are as follows:

1. Most of the preservice teachers agree with that " Education provides people an opportunity to know themselves and it also supports freedom of individuals." The primary reason is that education gives people opportunity to reach self actualization.
2. More than half of the preservice teachers disagree with that "Education is a process in which teacher transfers unchanging universal values and knowledge to students." The primary reason is that universal values are not impartial and objective.
3. Most of the participants disagree with that "Education is a student-centered, disciplined and subject-centered process." According to the participants, it is because education leads students to rote learning by this way.

4. Almost all the preservice teachers agree with that "Education is a student-centered system and it trains students who will shape the world". The primary reason is that it paves the way for personal development and it trains individuals who are beneficial to the society.
5. More than half of the preservice teachers agree with that "Education is a society-centered process. It shapes social reforms and it creates a sense of world depending on common values". The primary reason for agreeing is that in this way, social development can be achieved in every respect.

In the analysis of the results, it can be concluded that preservice teachers respectively adopt progressivism, existentialism and reconstructionalism. However, it is seen that they genereally disagree the ideas related to perennialism and essentialism. Therefore, it can be concluded that views of the preservice teachers who form the study group are mostly in relation with the modern education rather than traditional education. When the educational beliefs literature was examined, similar results were encountered. In the studies of Alkın-Şahin and Tunca& Ulubey (2014) it is revealed that preservice teachers adopt modern educational philosophies in high levels in terms of educational beliefs while they adopt traditional educational philosophies in low levels. Moreover, it is found out that there is a significant relationship between educational beliefs and critical thinking tendencies. In addition, a research that was conducted by Altınkurt, Yılmaz and Oğuz (2012) revealed that teachers adopt essentialism less than others. Similarly, a study conducted by Çelik and Orçan (2016) also showed that while the least adopted educational philosophy was the essentialism, the most adopted one is existentialism. Yılmaz and Tosun's study (2013) revealed that while existentialism is the closest educational philosophy for the teachers, essentialism is the farthest one and it is also stated that teachers feel closer to the modern educational philosophies. On the other hand, there are some other studies in which educational beliefs are related to specialities of teachers and teaching-learning approaches. In a study conducted by Okut (2009), it is concluded that there is a signicant relationship between educational beliefs and the degree of having personal characteristics and interpersonal communication of effective teachers. In addition, it is stated that teachers' educational beliefs are based on their experiences and knowledge that they had during their preservice education. On the other hand, another study that was conducted by Biçer, Er and Özel (2013) showed that there is a significant relationship between epistemological beliefs and educational beliefs of preservice teachers. Baş's (2015) study on educational beliefs and teaching & learning conceptions of teachers revealed that teachers who adopt modern educational philosophy have constructivist conception. Similary, it is concluded that teachers who adopt traditional educational philosophy have traditional teaching and learning conception. Educational beliefs of teachers also affect classroom activities. To conclude, approaches implemented during preservice education of teachers may affect their educational beliefs and as a result, they may reflect adopted beliefs to their students through classroom activities during teaching and learning process. With this regard, it may be suggested that teacher training programs should mostly include activities that base on modern educational approaches during teaching and learning process. In addition, further qualitative researches may be conducted by forming a large sample group of teachers from different branches.

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A Research On Instıtutıonal Socıal Responsıbılıty Projects Executed In The Matter Of Educatıon

Gülsüm ÇALIŞIR
Communication Faculty Department of Public Relations and Publicity
Gümüşhane University, Turkey
gulsumcalisir@gumushane.edu.tr; gulsumcalisir@yahoo.com

> *"If there is a belief which can't be figured apart success, that belief is that great success can't be achieved unless one bears great responsibility."* Anthony Robbins

ABSTRACT

Together with developing world, needs, charges and responsibilities also are changing. At the age we are in holdings, enterprises, corporations and organisations had become charged to do community oriented works now. In this regard, those mentioned units had transformed to state that they felt themselves responsible to give they took from people to people again. Corporations especially had tended towards social responsibility stusies to be able to addres their target groups before societ within the context of public relations activities and to establish a bridge in between. As change in time also cause change in expectations, now corporations had concentrated on social responsibility studies to be able to be approved in society and to continue their existing prestiges, instead of contenting teirselves just with commercial activities. Thus, also the importance of the concept called institutional social responsibility had increased in the century we live.

Within this frame, to research efforts made in social responsibility studies executed in the area of "education" is forming the subject of this study. From the point of view of mentioned notion, a sample had been formed through coincidental choice of ten of institutions becoming prominent in society in this study. According to the research done through web sites of these ten institutions included the sample, examples to the studies institutions executed in educational area had been given by telling their institutional social responsibility understandings and policies, and their contents had been tried to be expressed. While existance of institutional social responsibility policies in six institutions included the study had been drawing attention, it had been determined that Business Bank of Turkey's (Türkiye İş Bankası) and Turkcell's institutional social responsibility activities accomplished in educational area were more different than the other eight institution and realized in areas more than one.

KEY WORDS: Institutional social responsibility Project, education, corporate reputation, public relations.

INTRODUCTION

Today making just trade investments had stopped being an accepted idea for enterprises, corporations and organisations. Now an understanding like giving what was taken from society to the society again is in question. Emergence of a philosophy like that had done groundwork fort he concept called institutional social responsibility. So, institutions had become not only having the idea to produce good and service, but also sharing a certain part of the income obtained from mentioned goods and services with their environments (clients, employees; in short society). This situation is both a situation increasing reputations of those institutions and an understanding that contributed studies' being sustainable.

Within this scope, what were done about "education" as part of intitutional social responsibility studies which became one of the popular areas of recent times had been discoursed in this study. With the thought that development level of a society was connected with education, the topic "education" had been preferred in order to primarily and especially put forth what kind of studies institutions did in this area. Thus, ten of institutions which became prominent in recognition level in society under the areas they were in service had been coincidentally chosen. A research had been done over web sites of these institutions, their institutional social responsibility understandings and policies had been surveyed, and activities related institutions realized under the topic "education" had been told with samples.

CONCEPTUAL FRAMEWORK

Effort to etablish a common ground with target market within the scope of public relations applications that adopted materializing the goals of the institutions will be a continuum easing caring the balance of benefits and reaching the goal. In this sense, within the context of public relations studies, out of their benefits, institutions had become accepting existance of society and dealing with social problems. This situation is forming the foundation of social responsibility behaviour.

Balta Peltekoğlu (2012: 189) is pointing out that one of the main tasks of public relations was to establish a connection between social realtions and public relations for enhancing the image of Corporation, institution, organisation etc. Within this framework responsibilities of institutions are stepping in. Hunt ve Grunig had classified institutions' responsibilities as main tasks of the organization, considering the effects of organization's activities on the ones out of the institution, and dealing with the solution of common social problems that were not related with the organization (Balta Peltekoğlu, 2012: 190).

Eren (1987: 110) made a definition widening the area and the extent of social responsibility concept. Hereunder, social responsibility is:

> "An institution's following a labor strategy and policy that were appropriate with economical and legal conditions, work ethics, and expectations of related people and institutions inside and around of the institution, and making happy and satisfied its partners. Institution's developing and following a policy appropriate with eonomical conditions, and using the sources that country commended to it to use efficiently and productive, express the necessity to make production with quantity and quality appropriate with society's needs. Appropriateness to legal conditions is institution's not acting contrarian to the laws, regulations, enactments, manners and customs, and other regulatory provisions of the society it was active in. With respect to work ethics, it includes subjects like keeping prices at reasonable level, abstaining from opportunism, abstaining from unfair competition and advertisements that doesn't reflect the thruth, treat honestly against demanders etc." (Cited by: Geçikli, 2010: 154).

Good and service production is not the only duty of institutions and organisations. There are also responsibilities of them inthe subject to create a more liveable world by the result of goods and services they produced, to make contribution to development of the society they lived in (Güzelcik Ural, 2006: 34). In this regard, institutions should not only be organizations producing goods and services, but also thinking employees' peace and welfare, being sensitive to social events, and aiming to give the best service to the consumer. Briefly, institutions should continue their lives as organizationswhose social dimension also progresses along with being at the forefront in technical and economical meaning (Sabuncuoğlu, 1992: 13). And enhancing this situation a little more, Okay and Okay (2007: 507) approach about the weightiness of social responsibility studies in the activities of the institution. According to this, external studies had become important as well as in house studies. Because, institutions are organizations which not only have an economical value, but also have responsibilities against society as a social entity beside that.

Sönmez (2004: 479) gathered common points emerged in institutional social responsibility definitions in four headlines. Accordingly, institutions also have responsibilities against society in addition to producing good and service to earn profit. There are attempts to contribute to the solution of social problems among these responsibilities. Enterprises have responsibilities against not only shareholders, but also their social environments. And at last, enterprises not only focuse on economical values, but also serve to human values.

In brief, as social responsibility is said; institution's making sacrifice in a certain ratio from the profit it obtained in order to contribute society by thinking the society and acting responsible and sensitive against society come into mind (Kazancı, 1997: 38; Rao, 2010: 165; Yavuz, 2008: 151; Okay, 2008: 198; Özden, 2008: 36). In addition to sensitiveness against society, responsibilities institutions fulfilled against in-hoe and external shareholders (clients and employees) are also understood (Saraf, Singhai, Payasi, 2012: 89). Besides, institutional social responsibility is a notion continuously in change according to the needs of society, interrogating, related with institutional environment (Cited from Chapple and Moon, 2005 by Ertuna and Tükel, 2009: 146).

Together with the increase in sensitiveness against society, social responsibility understanding also had started to enhance. Points among the reasons of enhancement in this understanding had been classified by Geçikli (2010: 155-156) like that:

- Increasing social pressure about preventing environmental pollution,
- Governments' making laws and regulations about social problems,
- Society's and institutions' desire to use natural sources that were poor,
- Institutions' desire to produce good and service that will satisfy society's needs,
- Institutions' will to leave a good impression before society,
- Enhancement in labor unions and their impact areas,
- Particitive management's gaining importance,
- Specialists' getting involved in management with enhancement in professional management,
- Personnel's getting better motivated and increase in productivity,
- Corporates' becoming multi-played,
- Enhancing and changing communication technologies,
- Diversified market tools,
- Costumers that became conscious,
- Institutions' having difficulty against laws introduced about environment, employee, customer, etc.,
- İncrease in case and pressure of society on profit-oriented institutions,
- Corporates' seeing that they were not alone in designating their policies, programmes and values,
- Customers' taking in consideration other features beside quality and cheapness while making product choice,
- Institutions' undertaking social responsibility activities with the wish to increase and continue their reputation.

Together with enhancement in social responibility understanding, social responsibility areas had borned. Accordingly, Balta Peltekoğlu (2012: 191) is summarizing which headlines enter into institutional social responsibility area enhanced by Archie Caroll like that:

> "*Ekonomical responsibilities:* Corporate's use sources efficiently and productive, gain profit, and contribute to national economy. *Legal responsibilities:* Corporate's movement coherent with laws, statutory rules and orders, and also regulatory provisions of the society it is in and carries on the activity. *Moral responsibility:* To keep prices at modest level, to abstain from unfair competition, and corporate's fulfilling its responsibilities against people and institutions around it. *Social responsibilities:* Corporate's paying regard to common interests of the society it owned its existance as well as its own interests, and behaving sensitive against social problems."

As it is seen, now today success of institutions had stared to be evaluated not only with their activities in commercial area, but also with their contribution to the society they live in in terms of legal, moral and social dimensions. When viewed from this aspect, it is understood that there was "social improvement" inside the idea of institutional social responsibility. So, institutional social responsibility is not a kind of charity, but a viable policy supporting the goals in the long term; not a project, but a management approach trying to determine social needs and subjects; not a kind of expenditure, but an investment understanding with recycling; an understanding that will return profit and contribute to its maintainability, beyond the idea to make profit (Işık, 2013: 115; Argüden, 2002: 9).

It is possible to count holdings, great business groups and non-governmental organizations and foundations that were in cooperation with these companies among main actors who were effective in organizational area today in the meaning of institutional social responsibility. Situations emerged as results of internationalization, too, had increased the propagation in this matter. On the other hand, also regulations providing legal basis prepared by government and the European Union to ease the studies of associations and foundations that institutional social responsibility was emerged for had come into prominence. From this aspect, it is possible for institutional social responsibility studies to be evaluated as new propagation area in Turkey (Alakavuklar, Kılıçaslan, Öztürk, 2009: 130).

There are many advantages for institutions to have institutional social responsibility consciousness and continue their way with this consciousness. Geçikli (2010: 168-169) had classified these mentioned advantages like that:

- Creating a better social environment contributes both the society and the institution. Execution of social responsibilities is habitable environment and labor opportunities from the point of society. When viewed the situation from the aspect of the institution, its being an institution appreciated before society means produced goods and services to find customers more easily.
- Institution's voluntary attendancy to social activities will mean government to do less supervision.
- Institutions are extensions of modern societies. Mutual interaction of institution and society won't affect institution's activities. In this sense, institution won't be in danger list in case it executed the wishes of the interest group.
- If an institution having innovative capacity shows tendency to social problems, some studies which seemed to the institution as it is costly in conventional meaning will return as profit.
- In case of institution's giving support to institutional social responsibility studies; a positive public opinio image will be created among its customers, employees and investors; namely their shareholders.
- As institution use its own sources to solve social problems, that causes its reputation rise in the society.
- It is thought that social responsibility feelings of institutions having too much social power would increase, too.
- Institution aiming good relations in society will be beneficial and successfull in the long term in an improved environment.
- Institutions executing their social responsibilities satisfy public opinion's expectations by accomplishing their moral responsibilities and take step that was necessary to solve existing social problems.

Considering preceeding benefits, it is possible to say that institutional social responsibility projects had positive effects on institutional image and reputation. In this respect, while situation in question is supporting enterprices for their social responsibility projects, also mentioned projects will support the needs of society at the same time. On the other hand, social reponsibility projects that would be effectuated being correspond with enterprice's activity area will increase the efficiency degree of the study, too. Thus, a more efective institutional reputation will form. Besides, it is also known that institutions having economic potential achieve social responsibility studies in different areas. This kind of studies are secualr and contribute institution to gain new institutional values. Social responsibility studies have an importantm role in developing a mutual understanding between institution and its target markets.

Like it is in the world, in Turkey, too, growing number of institutions are giving importance to social responsibility concept and studies in that direction. Together with itself, institutional social responsibility is an extensive are which aimed to obey the laws, take responsibility of results of their activities and make contribution to sustainable development. This situation brings institutions obligation to act economic, legal and ethical. Institutional social responsibility also contributes to social and cultural areas. Recently, with the aim to form a more liveable environment, a more educated, rich in social life, a healthy society inclined to the art, projects making contribution to the areas of culture, art, environment, education and sports are realised. In this frame, as institutions' reputation is increasing, many problems, too, are becoming solved at the same time.

Sense of social responsibility institutions had is actually related with their understandings about education, too, to some extent. Because education is one of the most important layers for an institution as well as a person to comply with the society. Knowledge, skill and understanding obtained for being able to keep up with social life is called education. So, if it is necessar to give a broad meaning to education, it is possible to interperete it as adaptation of individuals and institutions to social process. In short, process to gain and improve intended behaviours is called education. Şişman (2007: 51) is mentioning that human being existed in society and so there was an interaction of a social process between education and institutions at the stage of human being's accommodation with institutions of the society he or she lived in.

Education is important to be able to make cotribution to the habitated society. Because, one can only be useful by using gained knowledges at the right time. As evaluated in the manner of institutional social responsibility, activities in educational area become important for institutions to be profitable to the society they existed in, give back what they took from it and make its future sustainable.

METHOD

Education is a concept important for a contry's development. As well as the government, other agencies and institutes are bearing a great charge and responsibility in society's being made conscious on this matter and having equal opportunities. Therefore, to search what kind of "educational" activities were slotted in istitutions within the context of institutional social responsibility understanding is forming the goal of this study. Accordingly, coincidentally choosing institutions that were active within the context of institutional social responsibility projects in Turkey and had come into prominence before society, projects related institutions performed on the subject of "education" had been tried to be briefly told in the study.

Accordingly, 10 institutions which was active in areas like economy, nutrition, communication, technology, etc. and whose familiarness levels were high before society in these activity categories had been coincidentally chosen. These chosen institutions are forming the sample of the study. There are Arçelik, Ciner Group, Doğan Holding, Eti, Koç Holding, Sabancı Holding, Türkiye İş Bankası (Business Bank of Turkey), Turk Telekom, Turkcell and Zorlu Holding in the sample.

What kind of an understanding and policy about social responsibility the said institutions had had been tried to be determined by primarily searching their web sites in the study. Then what kind of a social responsibility project the said institutions performed within the area of "education" had been investigated. In this sense, starting from existing situation, informations gathered through web sites of related institutions had been interpreted.

FINDINGS AND COMMENTARY

Institutional Social Responsibility Project Samples Executed On Education

Institutional social responsibility understandings and policies of ten instituions taking place in the sample of the study had been cited respectively and samples they implemented within the matter of "education" had been told downwards.

Arçelik, had expressed its thoughts about education on its internet page like that and had abstracted its studies done in this area:

> "To reach desired development level across the country, the crucial condition is raising an effective and common awareness about education. Through education, it is possible to solve many social problems in advance and provide significant contributions to the country regarding resources utilization. Knowing that individual development must be supported in the early stages of childhood, the Company started the "Standing United for Education with Arçelik A.Ş." project in 2004. Conducted jointly with the Ministry of Education, this project targets primary school students. With this project, the Company aims to improve the education and development standards of 200 thousand children, who come from disadvantaged families and study at 300 regional primary boarding schools, as well as to ensure that these children become valuable members of society. Focused on the personal development of students, the program consists of the following projects: Our Rooms, They Were Children, Too, Support and Education for Teachers, Arçelik Education Scholarship and Voluntary Family Association." (http://www.arcelikas.com)

Other than this study of Arçelik, "Tiny Hands Holding Pencils" project in which stationery needs of studens were compensated within the body of Educational Volunteers Foundation of Turkey (TEGV) had recently been carried into effect. A great interest was shown to this campaign organized to compensate stationery needs of 155.000 children from eraser to paper, from pencil to scissors. Çelik and Çeliknaz keyholders had been presented to the people who attended the campaign that lasted one month.

It is understood that scholarships given with the aim to contribute the education of children whose financial situations weren't good were at the forefront in the core of the institutional social responsibility Project Arçelik brought out on the matter of education.

As we look at the website of Ciner Group to examine the informations about the Group's institutional social responsibility studies, it had been seen that studies brought out in educational area were presented under three headlines. Accordingly, there headlines "Environmental Education Projects", "Trainings and Coarses" and "Support to Education and Training" take place in the page.

As informations that took place under the headline "Environmental Education Projects", it had been understood that Ciner Group who started off with the slogan "We are Turkey" aimed to contribute to social growth as well as economical and cultural life of the country, realized social responsibility projects in many different areas like environment, education, sports with Sabah Newspaper which was included within the body of this corporate since April of 2007, and there were projects like "One Morning Many Things Change" and "Clean Internet Campaign" among them. However, today any other project hadn't been encountered. It had been seen that in-house and out of the institution educations were mentioned under the headline "Trainings and Coarses". And under the headline "Support to Education and Training", education activities done till today had been told. According to this, rehabilitation centers had been established, school buildings had been supported and 2,5 million TL scholarship had been given to approximately 1000 children of martyrs and 400 students (http://www.cinergroup.com.tr/social/egitim-ve-ogrenime-destek).

From informations given above and narratives in the web site, Ciner Group's institutional social responsibility projects in educational area had been determined that they were mostly carried out with the aim to give scholarships.

As Doğan Holding's institutional social responsibility understanding was reviewed, that statement in its web site is striking:

> "For Doğan Group corporate social responsibility is about managing business processes to create a positive impact on society. Transparency, fairness, accountability and responsibility are central to the processes of all Doğan companies that work for the public interest with a consumer focus. To create economic value for each stakeholder under fair conditions is of great importance to the Group. Doğan Group firmly believes that a strong, respected and modern society can be created through efforts of generations that honor universal values and are able to contribute to the solution of social and economic issues; thus aims to help raise modern generations through its social responsibility activities. Appreciating that a company's value is measured by what it gives back to the society, Aydın Doğan, the founder of Doğan Group, established Aydın Doğan Foundation in 1996. Dedicated to support and improve education, arts and culture, the Foundation has built educational institutions and sports facilities, supported these institutions to provide high quality education, organized national and international competitions and awarded prizes." (http://www.doganholding.com.tr)

Doğan Holding's istitutional social responsibility project implemented in educational area is carrying the name "Daddy Send Me to School". Project had been started with the aim to avail all daughters of education right in 2005. With the mentioned project, progress of dorm managers and responsible teachers had also been aimed while contributions were made to the education of students. An education programme had been organized by Bahçeşehir University within this scope. "Daddy Send Me to School" project had won approximately 30 prizes since the day it started until today.

In consequence of investigating Doğan Holding's web site, it is understood that "institutional social responsibility" understanding was important as there was a special explanation about this headline from the related web site. As explanations about mentioned group's Project on the area of "education" was reviewed, it is especially seen that education of daughters who couldn't go to school because of substance defect was given predicence. But, it had been predicted that not only contributing students' education, but also education programs to raise managers and teachers were cared about at the same time. In this contexxt, different dimensions of the mentioned institution's approach to education in the matter of social sensivity are attracting notice.

As ETİ's internet page was reviewed, it had been determined that no expression explaining their institutional social responsibility projects was seen, but projects were presented under sub-headings. Accordingly, it had been seen that headline of the Project related with education was given as "Yellow Bicycle". This Project that started in Eskişehir in 2014 had continued in Istanbul in 2015. Safe bicycle drive educations given in primary schools had been realized within the scope of the project; while teaching children who didn't know tor ide bicycle how to do it, children who knew how to ride bicycle had practical applications that would improve drive control (http://www.etietieti.com/eti-sari-bisiklet-projesi).

ETİ's institutional social responsibility Project in "education" area have an aim different than other institutions. Because it is understood that going out of social responsibility projects especially focused at giving scholarships, it was aimed to teach how safe riding practice that children performed in their spare times could be.

Reviewing web site of Koç Holding that was active in many areas, it is seen that institutional social responsibility consciousness was explained like that:

> "…With an enrooted corporate culture, Koç Holding is a member of the Turkish business community, especially in one of its strongest social aspects: Each year, Koç Holding supports many various social sharing projects through corporate citizenship awareness. Koç Holding funded many projects to advance society's quality of life where the Holding operates and works with the aim to fulfil our obligations towards our employees and their

> families, our local community, and our other stakeholders. As Koç Holding, we continue being one of themotive forces of our country in economic growth that is among the most important componentsof social responsibility with steps we took for evolution of new sectrors and with our global brands. Alongside with many other matters, the Holding gives important services and invests predominantly in the areas of education, health, culture, arts and environment. We are encouraged by the fact that any investment we make in these areas fills a void in our country's development. Contributing to society and considering our growth as an integral part of the development of our society, constitute our basic philosophy. To create sustainable effects with our studies, we pay attention the projects we supported to be long-running, create benefit in social manner and support permanent virtue. Alongside with supporting and introducing environmental and social projects, we share the studies we implemented with public opinion in accordance with an extension of social sensivity through our Corporate Social Responsibility reports we were publishing since 2007 with the aim to conduce to individuals'improveents, take part in development of local economies and make economic progress sustainable." (http://www.koc.com.tr/tr-tr/kurumsal-sosyal-sorumluluk)

Thanks to "Cooperation Protocol to Advance Vocational Training" realized by Koç Holding on the matter of "education and signed with Ministry of National Education in 2006 especially with the goal to increase qualified workforce, "Vocatıonal Hıgh School, Issue of Country" project is standing out for solution of our country's unemployment issue. Within the context of the Project, it is aimed to create awareness in every section of society in the matter of importance of vocational technical education and taking the lead, to spread seeds of cooperation between government and business world. Scholarship and apprenticeship opportunities had been given to the students by the project. Model created and successes obtained in the end of the project were presented as pilot Project in international arena.

After Doğan Holding, the second institution that made a wide explanation in its internet page about the direction of its institutional social responsibility project understanding had been Koç Holding. This situation is valuable in respect to show that the said institution had social responsibility philosophy and regarded it. Koç Holding also had brought this aspect to forefront in its social responsibility Project, too, as it is doing works especially devoted to industry. Because it is actually aimed to train employees for small and medium sized enterprises (KOBIs) and provide convenience for those trained personnels' employment with "Vocatıonal Hıgh School, Issue of Country" Project. With this aspect, contribution to national economy is indirectly done.

As Sabancı Holding's web site is explored, it is seen that its social responsibility policies were described like that:

> "The Sabancı Group accepts acting in accordance with the social responsibility awareness constituting a part of its core values, such as modesty, respect to humans and being close to the public, as a fundamental and unchangeable element of its management approach. Within this framework, we expect all entities constituting the Sabancı Group to manage their activities within the framework of an understanding of economic, social and environmental responsibility and to keep developing the society on their agenda as a priority. We do not see the scope of our social responsibility approach limited with our business activities and their effects. We define our social responsibility approach and our priorities regarding this matter by taking into consideration what is best for the society and the environment. We pay special care to be pioneers in activities for the protection of democracy, human rights and the environment. As the Sabancı Group, the SA-Ethics we prepared and implement within the framework of the Corporate Social Responsibility Principles guides us in the way we do business." (https://www.sabanci.com/tr/sosyal-sorumluluk/sosyal-sorumluluk-ilkelerimiz)

As it is evaluated within the context of institutional social responsibility policy, it is understood that Sabancı Holding was sensitive like Doğan Holding and Koç Holding. Because it is understood from aforesaid expressions that it made a special explanation about this matter. But as Sabancı Holding's institutional responsibility projects on education are reviewed; it is seen that university, education institution, dormitory, teacher's lodge, acholarship, seminar-conference and fire training center activities came into the forefront. It is understood that mentioned activities showed dissemination to the cities in Turkey-wide and studies continued. No special project item had been encountered beyond this.

In the conclusion of a brief investigation made over Türkiye İş Bankası's internet page, it is seen that it was an institution that had much more institutional social responsibility consciousness than other institutions and permanently made more prospective studies. Institutional social responsibility policy of mentioned institution is explained like that in its internet page:

> "Our Bank that bore pioneer role in evolution of social life as well as economic growth since its establishment, continues its support in this area with its entrenched social responsibility understanding. Our bank stil continues its social responsibility activities created in a long-runner, prevalent and sustainable structurein the areas of education, environment, culture and art. Our Bank is among the institutions which signed Global Norms Compact and Ethics and Reputation Association Membership Declaration." (http://www.isbank.com.tr)

As evaluated within this aspect, it is understood that Türkiye İş Bankası had institutional social responsibilitypolicy and understanding like Doğan Holding, Koç Holding and Sabancı Holding. And this situation helps the value of this institution increase in this manner.

Institutional social responsibility projects that Türkiye İş Bankası realized about education are classified under the headlines "Chess", "81 Students From 81 Cities", "Show Your School Report And Take Your Book" and "Other Education Projects".

As web site of related bank is reviewed, these informations given under the headline "Chess" are remarkable: Bank had undertaken main sponsorship of Turkish Chess Federation. Its goal there is that chess had serious contribution to children's and young ones' mental developments. At the same time, there is the oal to preserve them from harmful habits, too. As a result of this activity of the bank, chess lessons were taken into curriculum in primary schools. While number of chess classes opened Turkey-wide is approaching to 15.000 within this frame, source books had been sent by the Bank for these classes. Other than this, activities like "Chess Festival For Teenies Under the Age of 8", "Turkey Little Ones Chess Championship", "Turkey Stars Chess Championship", "Playing Free Chess Through Playchess.com" and "Türkiye İş Bankası Super Chess League" had been realized.

As details of the project with the headline "81 Students From 81 Cities" is reviewed, it is understood that there was an agreement signed between the Bank and Darüşşafaka (Ottoman Secondary School for Orphans). According to this, it is seen that children whose financial possibility were poor and had no parents were given opportunity to have full scholarship and boarding education from 5th class to the last class of high school.

Bank, had started "Show Your School Report And Take Your Book" project as 2007-2008 school year was ending with the aim to increase the opportunity for more reading children to reach qalified books and the number of rogatory youngsters and so to createequality of opportunity. This Project had become the greatest book campaign realized until today.

Actualized activities of the Bank within the scope of "Other Education Projects" are these: "Firefly Mobile Education Unit" project realized in 2001. There is an education and free activity room with 12 computers within the scope of this project. 6 hours of computer and 6 hours of free activity lessons are given here. Within the context of "Golden Youngs" Project continueing from 1971 till today students up to the amount equal to the age of the bank among the students who got into university are awarded every year. Again within the scope of "Education Grant For Earthquake Victim Students" it is continued to give education grants to the students who were damaged in 1999 Great Marmara Earthquake. Dormitory for girls of 150 people and dormitory for boys of 150 people had been built to bind up wounds after Van Earthquake, within the scope of "Building Dormitory to Van 100th Year University" project. Carrying into effect the project "Building Dormitory to Erzurum Technical University" with a similiar project, dormitory for girls of 150 people had been built.

It is seen that there were too much and various projects producing institution under the headline "education", in consequence of investigating web site of Türkiye İş Bankası. This situation can be perceived both as importance institution gave to institutional social responsibility project and a sign of sophistication of its consciousness level in the matter of education. As evaluated within this aspect, it is seen that mentioned institution not only settled with giving scholarships and remained intensitive against problems emerged with social and geographical reasons, but also aided the needers and gave support to education and science.

Türk Telekom is explaining its institutional social responsibility understanding with these words:

> "As Türk Telekom Group, we offer in use the information technologies that were main driving force for sustainable economic growth and social reconstruction in every corners of Turkey, and contribute all sections which couldn't attain social life because of economical, social and physical reasons to access information with products and services we developed. We support United Nations Sustainable Development goals with our way of doing business

> and Institutional Social Responsibility Perojects. Being the leader of ICT sector that took on an important task in society's access to information, we bring to life social responsibility projects as well as products and services we developed to support disadvantaged groups in accessing information. With our project 'Life is Easy with Internet', we introduce adults over the age of 35 who couldn't utilise opportunities offered by internet to online world in priority cities for development. We carry into effect Accessive Tivibu to offer TV joy, and Telephone Library project to offer experience to comfortably read books at their homes to our visually impaired customers. We help visually impaired ones to be able to wander comfortably in indoors with our Voice Steps application which was a operatör independent application having informating and guiding features. With 'Daylight Project' which involved early intervention training that improved existing visual abilities of underseeing children, we work for all people with need to be able to reach this education." (https://www.turktelekom.com.tr)

Türk Telekom's most known institutional social responsibilty activity in the matter of education consists of 52 schools and 76 Türk Telekom education buildings it opened into service in all four sides of Turkey. These places in where a modern education medium was offered were transferred to National Ministry of Education by Türk Telekom. Thousands of students graduate from these schools and education buildings every year. As evaluated in this regard, it is seen that Türk Telekom, too, had institutional social responsibility understanding like Doğan Holding, Koç Holding, Sabancı Holding and Türkiye İş Bankası. It is understood that deficient aspect beside this positive aspect of this institution was that its social responsibility understanding about "education was limited only with building constructions.

Turkcell's institutional social responsibility understanding has been explained as "*We fulfill our responsibility to society with projects we supported in different areas like education, culture, art and sports since the day we established. There lies the responsibility it felt against its social partners consisted of shareholders, employees, customers, vendors, non-governmental organizations, universities and media in the foundation of Turkcell's social responsibility understanding.*" (http://www.turkcell.com.tr/tr/hakkimizda/sosyal-sorumluluk /egitim).

"Turkcell Big Data Hackathon", "Those Who Wrote the Future", "Snowdrops", "Turkey Money Box For Van", "Turkcell Planethouse and Science Center" are the headlnes attracting attention among Turkcell's education projects.

"Turkcell Big Data Hackathon" project is an activity that lasted 2 days and realized in May the 23rd and 24th, 2015. Accordingly, it is composed of two parts: code and project competitions. "Those Who Wrote the Future" Project has been started in order to offer equality of opportunities through bringing technology to every point of Turkey in 2013. Project continue to widen with its increasing content day by day, participants and increasing potential. Aim of the Project is to make Turkey a pioneer country in the issue of software development. "Snowdrops" Project had been brought to life in 2000. It is aimed within the scope of the project for girls who couldn't continue their education because of their families' financial incapabilities to supply equality of opportunity in education and to make them careerist, open horizoned 'individuals'. More than 100 thousand scholarships were given until now. "Turkey Money Box For Van" project is an activity started with the aim to get life and education back into circulation in Van after the earthquake. A Teacher Campus and a Dornitory had been built and scholarships had been given to 100 students studying in Industrial Vocational High Schools within the scope of the project. In IPRA Golden World 2012 Awarda, this Project won "UN Special Prize" given by United Nations. In addition to being an education center, "Turkcell Planethouse and Science Center" project had started its activities in December 2010 as a center that triggered children's' and young ones' curiosities, increased their interests about science, people of every ages would be able tol ive their spare times with quality and fun, and was supported with social activities.

It is seen that Turkcell that was active in area of communication, too, adopted institutional social responsibility understanding just like Doğan Holding, Koç Holding, Sabancı Holding, Türkiye İş Bankası and Türk Telekom. On the other hand, it is understood that social responsibility awareness under the headline of "education" was varied. It has been determined that it called attention to different units of education like Türkiye İş Bankası with this aspect. Accordingly, it is seen that Turkcell acted sensitive against social events, paid regard for equality of opportunity in education, and strived for technology to become widespread in all mediums with education.

As Zorlu Holding's web site was reviewed, no information has been encountered directly devoted to institutional social responsibility projects. A part related with the headline "Social Responsibility" is drawing attention there. And as informations given under this part were reviewed, it has been seen that there were given informations mainly about scholarships about education given to the students and schols built in various cities. It has been determined that there was no special project headline further to that (http://www.zorlu.com.tr/tr/toplumsal-sorumluluk).

Although Zorlu Holding is an institution which became famous in Turkey, it can be seen as a diminution that there existed no explanations about institutional social responsibility policy in its web site. Similiarly, remaining limited the responsibility projects in the area of "education" just with giving scholarships and constructing buildings, too, can be interpreted as the said institution didn't leave enough time for its activities in this area.

CONCLUSION

Institutional social responsibility understanding can be outlined as giving back again what you took from society. As evaluated within this framework, institutions are obliged to not only produce good and service, but also make studies in areas the society they lived in needed at the same time. Increasing the reputation of the institutions at the same time, this obligation helps them about being sustainable.

After sharing literatüre informations about institutional social responsibility concept, what kind of activities those ten institutions totally chosen indiscriminatingly on the area of "education" within the scope of institutional social responsibility projects were investigated on their web sites. Activities in question are tried to be summarized with samples.

It is seen that institutions examined within the scope of the study were different from each other in terms of institutional social responsibility policy and understanding. Accordingly, it is understood from special explanations six of the ten institutions taken into examination in their internet pages that mentioned policy and understanding were settled in them. Those six institutions are Doğan Holding, Koç Holding, Sabancı Holding, Türkiye İş Bankası, Türk Telekom and Turkcell. However, there encountered no explanation for institutional social responsibility understanding by no means in four institutions (Arçelik, Ciner Grup, ETİ and Zorlu Holding) included in the study.

On the other hand, it had been determined that a social responsibility project about "education" was executed in all institutions included in the study. However, as activities realized in educational area were investigated in detail, differences between institutions attracts notice. Accoordingly, it is seen that education understanding in institutions was mostly limited with giving scholarship and building constructions. It was understood that Türkiye İş Bankası and Turkcell came into prominence among the institutions enriching social responsibility understanding about edcation. It was determined that more than one headline of educational activities were realized in mentioned two institutions. With this aspect, these two institutions become different than the others.

While explaining institutional social responsibility, Capriotti and Moreno (2007: 85) are calling attention to an institution's relation with different target groups it addressed in fulfilling its certain responsibilities and economical, social and environmental duties; executiong its responsibilities in terms of clearness and ethical conduct in informing; management; development in goods, services and jobs; and evalution and control in fulfilling these responsibilities. As evaluated within this context, it is possible to say that institutions included in the study were in an effort to create a consciousness in their target groups and worked for making their reputations sustainable in their studies about "education" they performed under the name of social responsibility.

With this study, what kind of activities institutions realized under the headline of "education" was investigated within the context of institutional social responsibility projects through ten institutions. However, either number of institution chosen or issue headline can be extended in similiar studies after this one. Thus chance to reach more information can be obtained. Institutional social responsibility undrstanding is a very important situation for institutions and organizations for their studies' permanence and for their perception by society to go in positively. So, it is thought that activities that would be done in these areas after this would be more attention grabbing.

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A Research On The Contribution Of Primary And Secondary Education To Human Rights Consciousness Level Of High Scool Graduates In Turkey

Gülden Gök
Selçuk University
guldengok@selcuk.edu.tr

ABSTRACT

Human rights, regardless of nationality, residence, gender, ethnic origin, color, religion, language, disability, age or status, are the rights of all human existence. Since the first person, respect for human rights has been important in every age but the states which violate the human rights have been at the stage of history for many years. Continuing search for human rights was often due to riots. The first written document with an emphasis on human rights published in the United States' Declaration of Independence in 1776. Then, in 1789 'Declaration of Human Rights' was published. About human rights practices between countries, the publication of these papers did not bring the desired standards. Individual objections and resist in this regard was not effective.

Today, it seems that states's assurance to the human rights is not sufficient. As a result of globalization and advances in communication technologies, people around the world react to a breach in the world's most remote corner. International civil society organizations monitor human rights violations by showing activity, documenting, distribute and constitute a response to the international arena. Human rights are excluded from the territory of the states by several agreements. European Convention on Human Rights System is an example of this. Thus, human rights, has been the problem of the international community of states from being a domestic job. Human rights practices have become an item for limiting the sovereignty of the states. The international community bearing a collective responsibility to protect human rights can make an armed intervention if necessary. NATO in Kosovo in 1999, on this basis, bombed Belgrade to end human rights violations. Nowadays, the international community's got to be a party in Libya to end human rights violations in this country is based on the grounds. Nowadays, the intervention of the international community in Libya is based on the grounds to end human rights violations in this country.

The first step in the protection of human rights in a country is a knowledge-based better understanding of human rights. At first glance, this suggests 'school'. Courses related to human rights in public schools in Turkey with the contribution to the students' daily lives are a matter to be investigated. The purpose of this study is to search answers for "How students perceive the basic concepts of human rights? How they interpret today's developments in terms of human rights? To what extent the students are adjusting the concepts of human rights in their lives? "questions and to share needs to be done to educate the students with better understanding about human rights.

Keywords: Key words: Human Rights, Education, School, Democracy

INTRODUCTION

Generally, the term "human rights" refers to those rights that are considered universal to humanity, regardless of citizenship, residency status, ethnicity, gender, or other considerations. (Tanör, 1994: 14; Uygun,1996, Kocaoğlu 1997; Donnelley, 1995: 22; Duman, Yavuz ve Karakaya, 2010: 77).

The Universal Declaration of Human Rights (UDHR) is a milestone document in the history of human rights. Drafted by representatives with different legal and cultural backgrounds from all regions of the world, the Declaration was proclaimed by the United Nations General Assembly in Paris on 10 December 1948 The Universal Declaration of Human Rights (UDHR) as a common standard of achievements for all peoples and all nations. It sets out, for the first time, fundamental human rights to be universally protected. The Universal Declaration of Human Rights (UDHR) was also approved by Turkey at 6 April 1949 (Resmi Gazete,1949:1020).

Today, human rights are more commonly viewed as basic to our identity as human beings; they are no longer typically framed in monarchial *or* theological terms. And they are mutually agreed upon on a flexible basis, not dictated by a permanent authority. Under the auspices of the U.N. High Commissioner for Human Rights, there are nine fundamental human rights treaties to which all signatories have agreed to hold themselves accountable. In practice, there is no fully binding enforcement mechanism for these treaties; they are aspirational, much as the Bill of Rights was prior to the adoption of the incorporation doctrine. And, much like the Bill of Rights, they may gain power over time.

Differences between human rights and civil liberties are not always especially clear. This allows for a great deal of disagreement regarding what human rights are, and whether basic quality-of-life concerns such as housing and health care should be considered part of the human rights framework.

The aim of this study is to measure human rights knowledge and conscious level of the first grades students of Selçuk University in Konya to find out the contribution of human rights related courses in the secondary schools to the students. 378 first grades students from various faculties of Selçuk University attended face to face interview to answer 25 items of the survey.

2. THE RELATION BETWEEN HUMAN RIGHTS AND EDUCATION

Rights in education conceptually refer to the necessary frameworks such as curricula, democratic governance structures and equal provision of resources in the education system etc. that are needed in the creation of an educational process of teaching and learning which guarantees the individual the benefits of the right, for example the acquisition of skills, competencies and abilities needed to live a meaningful life. The right to education and rights in education are important for the outcomes and effects on society obtained through education. This refers to the potential benefits of shared democratic values and commitment in a society with active, critical and socially responsible people. It is important to note, however, that there are many other factors (family life, gender, culture etc) than school that can influence the outcomes and effects on society. (Bowen,1977, Başaran,1982:15,16)

2.1 Basic Principles and Objectives of Human Rights Education

The World Conference on Human Rights considers human rights education, training and public information essential for the promotion and achievement of stable and harmonious relations among communities and for fostering mutual understanding, tolerance and peace” (Vienna Declaration and Programme of Action, Part II.D, para. 78).

In accordance with these instruments, which provide elements of a definition of human rights education as agreed upon by the international community, human rights education can be defined as education, training and information aiming at building a universal culture of human rights through the sharing of knowledge, imparting of skills and moulding of attitudes directed to:

1. The strengthening of respect for human rights and fundamental freedoms;
2. The full development of the human personality and the sense of its dignity;
3. The promotion of understanding, tolerance, gender equality and friendship among all nations, indigenous peoples and racial, national, ethnic, religious and linguistic groups;
4. The enabling of all persons to participate effectively in a free and democratic society governed by the rule of law;
5. The building and maintenance of peace;
6. The promotion of people-centred sustainable development and social justice.

Human rights education encompasses:

(a) Knowledge and skills — learning about human rights and mechanisms for their protection, as well as acquiring skills to apply them in daily life;

(b) Values, attitudes and behaviour — developing values and reinforcing attitudes and behaviour which uphold human rights;

(c) Action — taking action to defend and promote human rights.

With a view to encouraging human rights education initiatives, Member States have adopted various specific international frameworks for action, such as the World Public Information Campaign on Human Rights, focusing on the development and dissemination of human rights information materials, the United Nations Decade for Human Rights Education, 1995-2004 and its Plan of Action, encouraging the elaboration and implementation of comprehensive, effective and sustainable strategies for human rights education at the national level, and the International Decade for a Culture of Peace and Non-Violence for the Children of the World (2001-2010). http://www.unhchr.ch/huridocda/huridoca.nsf/(Symbol)/A.52.469.Add.1%20and%20Corr.1.En?

In 2004, the Economic and Social Council, welcoming Commission on Human Rights resolution 2004/71, requested the General Assembly to proclaim, at its fifty-ninth session, a world programme for human rights education, to begin on 1 January 2005 and to be structured in consecutive phases, in order to further focus national human rights education efforts on specific sectors/issues periodically identified by the Commission on Human Rights.

2.2. Human Rights Education in The World

After the Universal Declaration of Human Rights Resolution was adopted by the United Nations in 1948, the first establishment to give an international focus to human rights education was by UNESCO in 1974 and Human rights education has now come to the fore (Alfredsson, 1997, 219).

An international congress, entitled "Human rights teaching", was held in Vienna in 1978. At this congress, it was clarified that human rights could not be dealt with separately from citizenship, political, economic and social rights. This congress suggested that the aims of human rights education should be as follows (Muntarbhorn, 1998,281):

1. Improvement of attitudes that support cooperation, respect for human rights and tolerance.
2. The foundation of national and international institutions that can provide information on human rights
3. Development of methods and tools for improving individual consciousness by taking the human rights up from both social and political aspects in national and international arena.

Furthermore, in the Vienna congress, it was suggested that human rights education should be thought as an interdisciplinary approach integrating its subjects within various lessons and disciplines. (Gülmez,1998, 31-57) Human rights education was analysed in its content and documentation dimensions at the international Malta Conference in 1987, and discussed comprehensively. Decisions regarding the principles of improvement of human rights education were made at the Malta conference and it was determined that formal and informal education should be improved with regard to human rights subjects (Muntarbhom, 1998). Human rights education was taken up comprehensively at the "International Montreal Congress on Human Rights and Democracy Education" and some important relationships between human rights and democracy were established.

At this congress, it was declared that objective characteristics of people should be taken into account while determining the scope of formal and informal education programs. it was reported that individuals, groups and societies in different parts of the world having different needs, may need different education programs in the area. Taking these differences into account, it was reported that information, documentation and education materials should be arranged in various ways to satisfy the various needs. It was also suggested that human rights education should be started with the comprehensive participation of individuals, groups, families, societies, educators, and entire institutions in the areas of education, students, youngsters, the mass media, employers and labour unions, political parties, parliamentarians, officials, independent national and international organizations, the united Nations, Human rights headquarters, and UNESCO etc "It was also declared that it would be convenient that the human rights, humanitarian laws, democracy, and rules of law should form the contents of formal and informal education programs" (Alfredsson, 1997, 219).

After the Montreal congress, which was participated in by 171 countries, an action plan on human rights education was read, and the participants developed a special program for human rights education and also a number of strategies in Vienna in 1993. Furthermore, it was determined that studies for formal and informal education program encouraging tolerance and consciousness raising should be practised and educational opportunities should be provided (Nowak, 1997). Suggestions and findings were collected under the title "decisions made in human rights education." This convention resulted in agreement "to develop activities in human rights education - the decision made for the declaration for JO Years in United Nations on Human Rights Education" (Gülmez, 1994, 171). With the decision of United Nations general committee, the period from 1st January 1995 to 2004 was proclaimed the " 10 Years in United Nations on Human Rights Education. 1995-

2004". Within this framework (10 Years in United Nations on Human Rights Education), an activity plan related with human rights and democracy was prepared. Countries' responsibilities were determined with regard to how democracy and human rights education should be presented in this activity plan.

Human rights education is not an independent course and is generally included in other courses in the world. Rather than human rights, individual responsibilities were emphasised in these courses. Many countries in the world give human rights education at primary school level. Special programs were prepared in Canada and in the United States and these countries cover human rights generally in the history and politics lessons in the secondary education curriculum. On the other hand, European countries cover it in history, religion, geography, citizenship, literature, language and social science courses. Human rights courses are given in citizenship courses in Middle East, Asian and Pacific countries (Muntarbhorn, 1998, 286-87). In higher education, human rights education is either mandatory or optional in the law faculties of universities in many countries. Optional human rights education (as an elective course) tends to be more popular. As a matter, of course human rights subjects are attached to many law courses. Human rights education has also been included in the courses at social sciences, teacher training faculties, as well as health and medical faculties, and the Human Rights institutes of various institutions and master's programs in university institutes (Muntarbhorn, 1998, 289-293).

2.3. Human Rights Education in Turkey

Improvements in human rights in Turkey have been affected by those in the world but they are very slow in comparison. In the republican period of Turkish democracy, rights and freedoms were considered part of courses on "Civics (as a subject taught in schools)", "Natural and Social Science", "Social Science" and "Turkish". Issues of rights and freedoms were attempted in "Civics", "Knowledge of Citizenship", "Citizenship and Human Rights Education", and "Democracy and Human Rights" courses in secondary education. However, importance was only given to rights and freedoms in these courses until 1998. Human rights were also attached to courses such as "Natural and Social Science", "Social Science", "Turkish", "Painting", "Religion and Ethics. Human rights as a subject has been included in the primary and secondary school curriculum as an independent course since 1998. Amongst higher education programs, it can be seen that human rights subjects and education arc either mandatory or optional courses at law faculties. However, human rights education at university, in post graduate programs and institutes is insufficient. In some divisions of teacher training faculties, human rights issues were covered under the title of "democracy education". The week that includes the 10th December has been commemorated as human rights week at schools since 1983. The main purpose of this commemoration is to raise consciousness of teachers, students, and parents. Informal education is given by government and private institutions for special purposes outside of the curriculum of the schools to satisfy educational demands of specials groups. Examples of informal education arc "in-service training, driving courses, education given through media, and family education. Institutes, political parties, mass media, local administrations, clubs, unions, employers, public institutions and other independent organizations mostly arrange informal education in countries throughout the world (Muntarbhorn, 1998). Because it is designed to meet the needs of special groups, informal education curriculums vary. For example, human rights education curriculums have been arranged for people subjected to violence, gamins, soldiers, members of the police, civil servants, high level managers in private institutions, and workers at all levels. This variety of human rights education is also seen in the variety of materials available. Human rights education has been provided through cartoons, plays, advertisements and commercials, newspapers and magazines, posters, special telephone lines, radio, television, and other audio visual media tools, besides seminars and courses. Because informal curriculums arc in separate pieces and are not systematic, developing and improving them is very difficult. Curriculums prepared by inexpert people and institutions cannot be helpful (Muntarbhorn, 1998).

The promotion of democratic citizenship and human rights in the education system is vital for all countries in Europe, including Turkey. From heightening awareness of both rights and responsibilities to developing critical thinking, such competencies need to be continuously developed and promoted. Education for human rights and fundamental freedoms are therefore important in order to create a democratic society which must be guaranteed to all new generations from pre-school age onwards. Turkey has committed itself to the promotion of democratic citizenship and human rights education not only in international and regional declarations and conventions but also in its national legislation. Internationally, Turkey has carried out various activities during the United Nations' Decade for Human Rights Education (1995-2004). Turkey is also party to related Council of Europe political agreements, including Recommendation 12 (2002) of the Committee of Ministers and Recommendation 1849 (2008) of the Parliamentary Assembly. Nationally, the National Education Basic Act directly refers to respect for human rights among the general aims of education. Furthermore, National Council of Education have highlighted time and again in its recommendation documents the importance of the development of democratic behaviour, free thinking and tolerance through curriculum and extracurricular activities.

(http://ec.europa.eu/enlargement/pdf/turkey/ipa/2009/tr2009_013601-democratic_citizenship_and_human_rights_education_en.pdf)

The Turkish National Committee for the Decade for Human Rights Education has established a framework for human rights education and suggests a need for sub commissions to investigate human rights education at all level of formal and non-formal education. Projects arc needed in citizenship, democracy and human rights education to attain the following objectives:

- Developing curriculums for pre-school, primary school, secondary school, higher education and teacher training education,
- Developing in-service teacher training courses for human rights education,
- Training curriculum developers for human rights education,
- Developing human rights materials for all school levels.

Democracy and human rights education affects the school curriculum, teacher training programs, educational materials, and the whole educational system. Preparing a good curiculum is not in itself sufficient. Suitable teachers and the system itself require development.

The National Committee on the Decade for Human Rights Education was responsible for drafting the Human Rights Education Programme of Turkey for 1998-2007, which included the introduction into the curriculum of “Citizenship and Human Rights” courses in primary school and “Democracy and Human Rights” courses in secondary schools. The former course was made compulsory and introduced into the curriculum in 1998. It is taught for one hour a week in both grade 7 and 8. The latter elective course was introduced in 1999 and is taught for the same amount of time. An examination of these courses, in light of the previous scrutiny of the National Security Course, reveals further tensions between the Turkish notions of democracy, human rights and the Turkish national identity. These tensions can be seen at a basic level within the concept of democracy as it is taught in schools, but also in the gaps between what is taught, what is practiced and what is legislated. Republicanism, which is the one of Kemalism’s Six Arrows, states that sovereignty of the people is absolute and is the “only legitimate power over the nation represented in a parliamentary system” (Arjmand, 2008, p. 156). Democracy in Turkey is constructed in this fashion and is taught explicitly in schools today in the course “Democracy and Human Rights and implicitly taught in the “Citizenship and Human Rights” course. An analysis of the textbooks used reveals a high emphasis on rights, democracy, tolerance and responsibilities (Kepenekçi, 2000), further reflecting the ideology of the nation (Suarez & Ramirez, 2007) and the ideology of the supranation in education.

2005 also marked the year where a major curriculum reform initiative was launched. Of the eleven objectives listed, none of them mention human rights education. On the other hand, one of the stated objectives is “to enhance citizenship education” (Aksit, 2007, 134), demonstrating that concerns over national identity (especially in the face of the rise in human rights discourse in education) remain strong, at least at the primary and secondary levels. These contradictions illustrate the tensions in the discourse between human rights and citizenship based on a national identity. Nevertheless, in the national curriculum, both the traditional citizenship education courses and the more recent human rights education courses exhibit distinct flaws (Çayir, 2007; Altınay, 2004), which fail to address global and local concerns. Many universities have thus reacted to this perceived failure of the primary and secondary levels by implementing courses for their students, which seek to provide both knowledge and skills of human rights and citizenship.

3. METHOD

3.1. The Sample

The sample of the survey contains 367 students which were selected randomly from various faculties of Selçuk University. Like similar studies, easy sampling method was used to collect data in this study because of providing quick access to a large amounts of data sampling (Cui vd., 2003; Zhou, 2004). The universe of the study was limited to the students of some faculties of Selçuk University in Konya. During the implementation of the application of the survey for two months, 367 questionnaires were achieved.

3.2. The Hypothesis of the Survey

To find out the contribution of primary and secondary education to human rights consciousness level of students who attend first grades of the faculties, following hypothesises are developed:

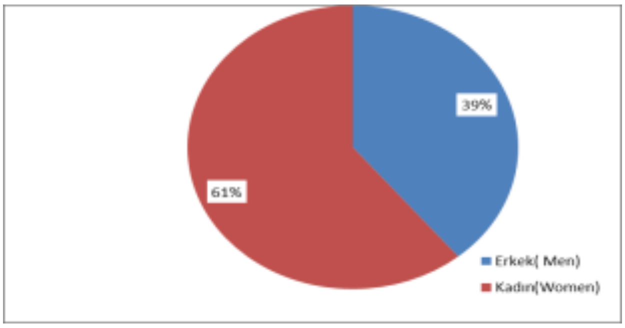
Hypothesis 1: Students who attend the first grades of the faculties of Selçuk University have enough awareness and consciousness of human rights.
Hypothesis 2: Education of the families of the students affects consciousness of human rights of the students
Hypothesis 3: Living place of the families of the students affects consciousness of human rights of the students
Hypothesis 4: Gender of the students affects consciousness of human rights of the students

4. FINDINGS

4.1. Sample

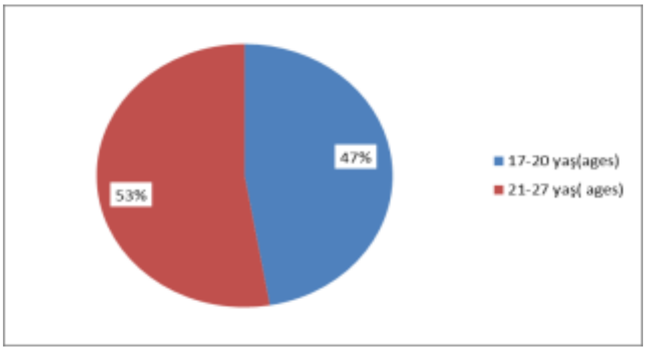
Demographic statistics of the sample are given in the following graphs and tables which summarizes the properties of the sample:

Graph 1: Gender distribution of the sample (%)



Gender distribution of the sample is adjusted to be proportional to total number of the students in first grades of faculties of Selçuk University. Because of this, the percentage of women in the sample is taken as %61

Graph-2 : Age groups of of the participants

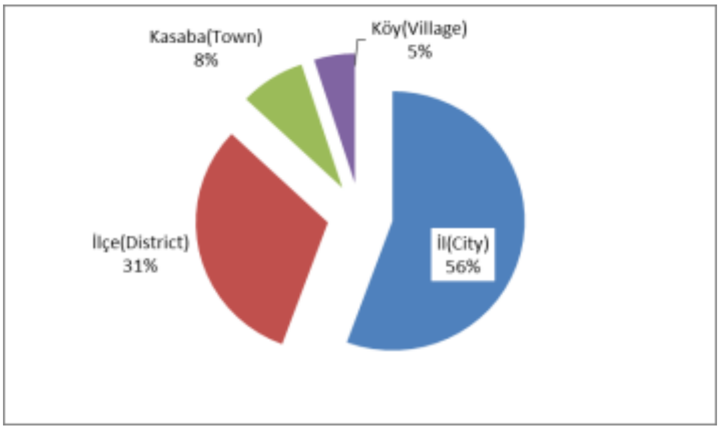


New graduates of secondary schools in Turkey are between 17-20 age groups in Turkey. 47% of the participants is new graduates. More than half of the survey is between 21-27 ages.

Table 1: Marital status distribution of the participants (%)

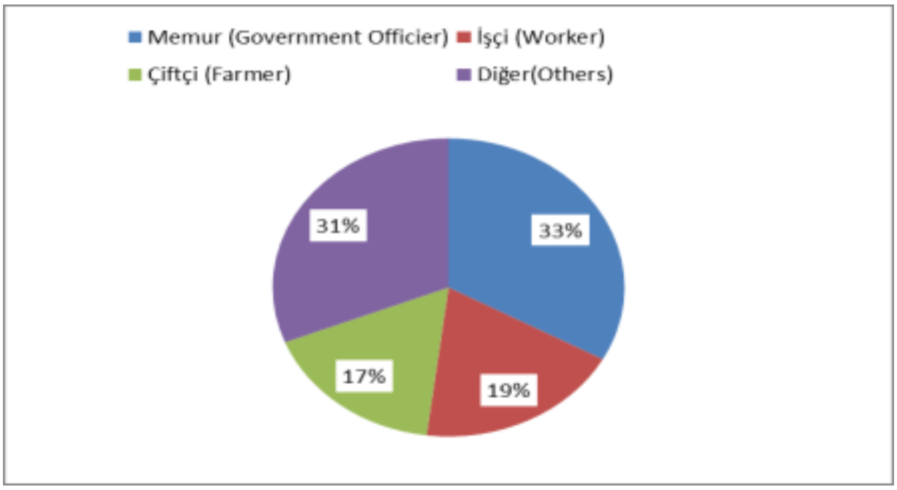
Evli (Married)	Bekar(Single)	Boşanmış(Divorced)
1%	98%	1%

Graph -3 : Home city distribution of the participants



Only %5 of the participants lives in villages. As to statistics of Education Ministry of Turkey, %4 of the family of the graduated students from secondary schools lives in villages in 2012. When considered from this point of view, the sample represents whole country. (http://sgb.meb.gov.tr/www/milli-egitim-istatistikleri-orgun-egitim-2012-2013/icerik/79)

Graph-4 : Family job distribution of the participants



4.2. Reviews on the Hypothesis of the Survey

In order to determine knowledge and consciousness of human rights of the sudents, 20 items were asked to the participants. First 15 items were in the form of a 5 -likert scale. As to the evaluation criteria of this likert scale "Strongly disagree" shows 1 point, "disagree" shows 2, "undecided" shows 3, "agree" shows 4 and "strongly agree" shows 5 point. Items 5,8,11,13 and 15 are negatives so they are evaluated reversely from 5 to1. Last 5 items of the survey are" Yes-No" questions which designed to measure human right awareness of the participants.

Hypothesis 1: Students who attend at the first grades of the faculties of Selçuk University have enough awernasses and consciousness of human rights.

Firstly, to reveal whether the hypothesis is true or not, the answers of the participants for items that measure awareness of human rights have been analasied.

Table 2 : The pergentages of the answers of the participants for the items which measure awareness of human rights

No	Items	Participants (367 students)		
		Yes	No	No Idea
16	Is Turkey one of the countries that approved Europe Human Rights Declaration?	78%	7%	15%
17	Have you ever read Universal Declaration of Human Right?	22%	73%	4%
18	Do you exactly know your fundamental rights and liberties	81%	12%	7%
19	Do you believe that everybody should appeal to top level in case an obstackle when he/ she uses a legal right?	90%	7%	3%
20	Do you know that you may directly appeal to Human Right Office or send your complaint using a request box when you are subject to a violation of right?	44%	44%	12%

Students are not responsible for Universal Declaration of Human Right in secondary schools. Item 17 is intentionally replaced in the survey to measure truthfulness of the participants. So the low score of the item 17 had been expected. By looking the scores of the items 16, 18 and 19, we can say that students know their fundamental rights and liberties.

But as to the low score (44%) of 20th item, half of them don't know how they use their rights. 12 % of "No Idea" answer of this question shows that students are not sure about appeal procedures. In secondary schools, to give performance homework including to appeal to Human Right Office may be useful to remedy this before they come to universities.

As a result, students have enough awareness about human rights but they don't sufficiently know true way to follow when they face a violation of right.

Secondly, the answers of the participants for items that measure consciousness of human rights were analasied. These items were evaluated with 5- likert scale starting from 1 to 5. Arithmetical means and standard deviations of these items are given at the following table.

Table-3: Arithmetical means and standard deviations of the questions that measure human rights consciousness level (Item 5, 8, 11, 13 and 15 is evaluated from 5 to1 and other items are evaluated from1 to 5)

No.	Items	367 students		Comment
		A.M	S.D	
1	Do you believe that "Everyone is entitled to all the rights and freedoms without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status"	4,28	1,22	
2	"Everyone has the right to freedom of communication. The exercise of this freedom may be subject to the interests of national security, territorial integrity or public safety, for the prevention of disorder or crime." As to this, do you approve the interceptions for preventing bribery and corruptions?	3,68	1,28	
3	"No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks. " As to this article, do you feel confidence in laws that they will save you from violation of right in your daily life?	3,19	1,21	
4	"Everyone has the right to freedom of thought, conscience and religion" Do you agree that schools and work places should reserve a room for prayers of all religions?	3,35	1,52	Individual differences are high.
5	Do you agree with the idea that covered head women can attend at universities or workplaces at the state by following the directives of legal authorities?	3,75	1,51	Individual differences are high.
6	Do you agree the article "Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay"?	4,14	1,15	
7	"Men and women of marriageable age have the right to marry and to found a family, according to the national laws governing the exercise of this right." As to this article, do you think that marriage for honour is a violation of a human right?	4,34	1,08	
8	*Do you agree with the idea that s*ending only boys to universities is an acceptable idea for low income level families	4,46	1,10	
9	"No one shall be required to perform forced or compulsory labour." *Do you agree with the idea that governments don't follow this rule in case in the situations of disasters or big crises?*	3,02	1,41	Individual differences are high.
10	Depending on your daily life experiences, do you believe that there is enough respect to human rights?	2,46	1,16	
11	Do you agree with the idea that having different political opinion with a friend finishes friendship relation?	4,21	1,15	
12	Do you give money as a loan to a foreign national man or woman who is in your class or lives next to your home?	4,10	1,08	
13	There is no need for anybody who charged with a criminal offence to be informed promptly. Because he or she will be informed at the trial. Do you believe that above idea is fit with human rights declerations?	4,20	1,24	
14	"Everyone has the right to freedom of movement and residence within the borders of each State." As to this article, foreign nationals have the right to occupy and freedom of movement in the country as to legal procedures. Do you agree with this?	2,59	1,33	.
15	There are 80 passengers in a ship at the sea. 79 of the passengers are killer. You have the possibility to sink this ship into the water. Do you believe that the sink of this ship is a good idea?	3,75	1,59	Individual differences are high.
	Average	**3,70 (%74)**	**1,27**	Good consciousness

As can be seen from the table that the average point of the student for the items that measure consciousness of human rights is 3,7 (74 %). This average level shows that students have good consciousness when they come to university.

By looking the low scores of item 3 and 10, we can say that students are skeptical about human rights abuses. Similarily, the low score of item 9 shows that human rights violations done by governments can be acceptable sometimes.

By looking the high scores of item 7 and 8, we can say that students are opposed to gender apartheid.

Item 4,5,9 and 15 has higher standart deviation that means some students have extraordinoryt opinions about the use of human rights. Consequently, we can say that students who attend the first grades of the faculties of Selçuk University have enough awareness and consciousness of human rights. So the first hypothesis of the survey is true.

Hypothesis 2: Education of the families of the students affects consciousness of human rights of the students

To reveal the truthness of the hypothesis2, participants divided into two distinct groups. First group contains the students who one of the parents of them has a bachelor degree (101 students), second group contains the students who one of the parents of them has not got a bachelor degree (266 students).

The answers of two groups of the items that measure consciousness of human rights were analasied. Two groups were subjected to Independent Samples t-test using SPSS 17.0 program as to the total points of the students. After controlling the normality of the sample, the independent two-sample t-test is used to test whether the means of two samples are significantly different from each other. Statistics of t – test are given in the following tables.

Table-4 : Group Statistics as to total point

Education	N	Mean	Std. Deviation	Std. Error Mean
Group 1	101	75,3	7,158	,712
Group 2	266	73,5	8,489	,521

The mean for each of the two groups in the "Group Statistics" section shows that the average point for group 1 is 75,3, versus 73,5 for group 2.

Table-5 : Independent Samples Test as to total point

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	3,220	,074	1,654	365	,099	1,575	,952	-,298	3,447
Equal variances not assumed			1,785	212,446	,076	1,575	,882	-,164	3,314

For equality of variances, sig value is 0,74 >0,050, so we say that two groups have equal variences. If we find the p-value for the hypothesis test for the difference in means, we look in the column labeled "Sig. (2-tailed)" in the "t-test for Equality of Means" section, and in the first row (labeled "Equal variances assumed"). Sig. (2-tailed) = 0,099 >0,050 implying that the difference in means is not statistically significant.

In addition to this, two groups were subjected to Independent Samples t-test using SPSS 17.0 program as to item points whether groups are significantly different from each other based on items.

Table-6: Arithmetical means and standard deviations of the items that measure consciousness of human rights as to the groups (Item 5, 8, 11, 13 and 15 is evaluated from 5 to1 and other items are evaluated from1 to 5)

No.	Items	Group 1		Group 2		Comments
		A. M	S.D	A. M	S.D	
1	Do you believe that “Everyone is entitled to all the rights and freedoms without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status”	4,35	1,17	4,25	1,24	
2	“Everyone has the right to freedom of communication. The exercise of this freedom may be subject to the interests of national security, territorial integrity or public safety, for the prevention of disorder or crime.” As to this, do you approve the interceptions for preventing bribery and corruptions?	3,86	1,26	3,61	1,28	
3	“No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks. “ As to this article, do you feel confidence in laws that they will save you from violation of right in your daily life?	3,02	1,22	3,25	1,20	
4	“Everyone has the right to freedom of thought, conscience and religion” Do you agree that schools and work places should reserve a room for prayers of all religions?	3,55	1,45	3,27	1,54	
5	Do you agree with the idea that covered head women can attend at universities or workplaces at the state following the directives of legal authorities?	3,84	1,52	3,72	1,51	
6	Do you agree the article “Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay”?	4,35	1,03	4,07	1,18	
7	“Men and women of marriageable age have the right to marry and to found a family, according to the national laws governing the exercise of this right.” As to this article, do you think that honour marriage is a violation of a human right?	4,36	1,15	4,34	1,05	
8	*Do you agree with the idea that* sending only boys to universities is an acceptable idea for low income level families	4,74	0,81	4,35	1,17	Sig<0,05 Sig. (2-tailed) <0,05
9	“No one shall be required to perform forced or compulsory labour.” *Do you agree with the idea that governments don't follow this rule in case in the situations of disasters or big crises?*	3,17	1,44	2,96	1,40	
10	Depending on your daily life experiences, do you believe that there is enough respect to human rights?	2,36	1,20	2,50	1,15	
11	Do you agree with the idea that having different political opinion with a friend finishes friendship relation?	4,19	1,19	4,21	1,14	
12	Do you give money as a loan to a foreign national man or woman who is in your class or lives next to your home?	4,18	1,07	4,08	1,09	
13	There is no need for anybody who charged with a criminal offence to be informed promptly. Because he or she will be informed at the trial. Do you believe that above idea is fit with human rights declerations?	4,30	1,25	4,17	1,24	
14	“Everyone has the right to freedom of movement and residence within the borders of each State.” As to this article, foreign nationals have the right to occupy and freedom of movement in the country as to legal procedures. Do you agree with this?	2,51	1,30	2,62	1,34	
15	There are 80 passengers in a ship at the sea. 79 of the passengers are killer. You have the possibility to sink this ship into the water. Do you believe that the sink of this ship is a good idea?	3,68	1,62	3,78	1,57	
	Average	3,76	1,21	3,67	1,25	

As can be seen from above table that,

- Two groups have good consciousness of human rights
- Two groups have different opinions only at item 8. We can say that students who one of the parents of them has a bachelor degree is more sensitive about educational rights of women.
- “Education of the families of the students affects consciousness of human rights of the students “hypothesis is rejected. There is no statistically significant difference between two groups.

Hypothesis 3: Living place of the families of the students affects consciousness of human rights of the students

To reveal the truthness of the hypothesis3, participants divided into two distinct groups. First group contains the students whose families live outside a city (163 students), second group contains the students whose families live in a city (204 students), The answers of two groups of the items that measure consciousness of human rights were analasied. Two groups were subjected to Independent Samples t-test using SPSS 17.0 program as to the total points of the students. After controlling the normality of the samples, the independent two-sample t-test is used to test whether the means of two samples are significantly different from each other. Statistics of t – test are given in the following tables.

Table-7 : Group Statistics as to total point

Living place of family	N	Mean	Std. Deviation	Std. Error Mean
Group 1	163	72,9	9,210	,721
Group 2	204	74,9	8,400	,588

The mean for each of the two groups in the "Group Statistics" section shows that the average point for group 1 is 72,9, versus 74,9 for group 2.

Table-8 : Independent Samples Test as to total point

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	,267	,606	-2,218	365	,027	-2,0435	,9212	-3,8550	-,2319
Equal variances not assumed			-2,196	331,91	,029	-2,0435	,9307	-3,8743	-,2126

For equality of variances, sig value is 0,606 >0,050, so we say that two groups have equal variences. If we find the p-value for the hypothesis test for the difference in means, we look in the column labeled "Sig. (2-tailed)" in the "t-test for Equality of Means" section, and in the first row (labeled "Equal variances assumed"). Sig. (2-tailed) = 0,027 < 0,050 implying that the difference in means is statistically significant. To find item differences between two groups, they were subjected to Independent Samples t-test using SPSS 17.0 program as to item points.

Table-9: Arithmetical means and standard deviations of the items that measure consciousness of human rights as to the groups depending on living places (Item 5, 8, 11, 13 and 15 is evaluated from 5 to1 and other items are evaluated from1 to 5)

Item No	Living place of family				Comment
	Group 1 Outside City		Group 2 City		
	A.M	S.D	A.M	S.D	
1	4,25	1,24	4,29	1,21	
2	3,61	1,30	3,74	1,25	
3	3,12	1,16	3,24	1,24	
4	3,17	1,57	3,49	1,48	Sig (0,91) > 0,05 and Sig.(2-tailed)= 0,046< 0,050 There is difference between groups
5	3,66	1,52	3,82	1,51	
6	4,09	1,20	4,19	1,11	
7	4,42	1,01	4,29	1,13	
8	4,56	0,94	4,37	1,20	Sig(0,01)< 0,05 and Sig.(2-tailed)= 0,98 > 0,050
9	2,77	1,38	3,21	1,41	Sig(0,553) > 0,050 and Sig.(2-tailed)=0,003 < 0,050 There is difference between groups
10	2,56	1,09	2,38	1,21	
11	4,20	1,09	4,22	1,20	
12	3,97	1,18	4,21	0,99	Sig(0,036) <0,05 and Sig.(2-tailed)= 0,038 <0,050 There is difference between groups
13	4,13	1,27	4,26	1,22	
14	2,50	1,35	2,67	1,31	
15	3,66	1,60	3,83	1,57	
Mean	3,64 (%73)	1,26	3,75 (%75)	1,27	Sig(0,267)<0,05 and Sig. (2-tailed)=0,029 < 0,050 There is difference between groups

As can be seen from above table that,

- Two groups have good consciousness of human rights
- Two groups have different opinions at items 4, 9, 12.
- Living places of the families of the students affects consciousness of human rights of the students. That is hypothesis 3 is accepted. There is statistically significant difference between two groups.

To explain the differences between two groups, items which imply the differences are given at following table.

Table-10: Arithmetical means and standard deviations of the items that measure consciousness of human rights as to the groups (Item 5, 8, 11, 13 and 15 is evaluated reversely)

Item No	Living place of family				Items which have difference
	Group 1 Outside City		Group 2 City		
	A.M	S.D	A.M	S.D	
4	3,17	1,57	3,49	1,48	"Everyone has the right to freedom of thought, conscience and religion" Do you agree that schools and work places should reserve a room for prayers of all religions?
9	2,77	1,38	3,21	1,41	"No one shall be required to perform forced or compulsory labour." *Do you agree with the idea that governments don't follow this rule in case in the situations of disasters or big crises?*
12	3,97	1,18	4,21	0,99	Do you give money as a loan to a foreign national man or woman who is in your class or lives next to your home?

Above items measure disagreements on implementing of some human rights. Students whose families live in a city (Group 2) got higher points than group 1 from above items. As a result, we can say that students whose families live in a city are more tolerant on implementation differences of human rights than another group.

Hypothesis 4: Gender of the students affects consciousness of human rights of the students

To reveal the truthness of the hypothesis 4, participants divided into two distinct groups. First group contains male students (142 students), second group contains female students (225 students). The answers of two groups for the items that measure consciousness of human rights were analasied. Two groups were subjected to Independent Samples t-test using SPSS 17.0 program as to the total points of the students. After controlling the normality of the samples, the independent two-sample t-test is used to test whether the means of two samples are significantly different from each other. Statistics of t – test are given in the following tables.

Table-11 : Group Statistics as to total point

Gender	N	Mean	Std. Deviation	Std. Error Mean
Men	142	72,93	8,910	,748
Women	225	74,68	8,710	,581

The mean for each of the two groups in the "Group Statistics" section shows that the average point for men is 72,93, versus 74,68 for women.

Table-12 : Independent Samples Test as to total point

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1,182	,278	-1,82	365	,070	-1,711	,942	-3,563	,141
Equal variances not assumed			-1,81	294,86	,072	-1,711	,947	-3,574	,152

For equality of variances, sig value is 0,278 >0,050, so we say that two groups have equal variences. If we find the p-value for the hypothesis test for the difference in means, we look in the column labeled "Sig. (2-tailed)" in the "t-test for Equality of Means" section, and in the first row (labeled "Equal variances assumed"). Sig. (2-tailed) = 0,070 >0,050 implying that the difference in means is not statistically significant.

To find whether there are item differences between two groups, they were subjected to Independent Samples t-test using SPSS 17.0 program as to item points.

Table-12: Arithmetical means and standard deviations of the items that measure consciousness of human rights as to the groups depending on living places (Item 5, 8, 11, 13 and 15 is evaluated from 5 to1 and other items are evaluated from1 to 5)

Item	Men		Women		Comments
No.	Mean	Std. Deviation	Mean	Std. Deviation	
1	4,19	1,271	4,33	1,187	
2	3,69	1,385	3,68	1,205	
3	3,24	1,232	3,15	1,193	
4	3,47	1,570	3,27	1,492	
5	3,82	1,545	3,71	1,495	
6	4,12	1,158	4,16	1,146	
7	4,01	1,268	4,56	,880	Sig. (2-tailed) <0,05 There is difference between groups
8	4,06	1,309	4,71	,847	Sig. (2-tailed) <0,06 There is difference between groups
9	2,96	1,513	3,05	1,347	
10	2,59	1,178	2,38	1,147	
11	4,04	1,248	4,31	1,074	Sig. (2-tailed) <0,05 There is difference between groups
12	4,07	1,115	4,12	1,066	
13	4,14	1,230	4,24	1,249	
14	2,58	1,421	2,60	1,271	
15	3,76	1,646	3,75	1,550	

As can be seen from above table that,

- Two groups have good consciousness of human rights
- Two groups have different opinions at items 7,8,11 which are related with individual rights. Women got higher points from those items than men. So, we can say that women are more sensitive about their rights.
- "Gender of the students affects consciousness of human rights of the students" hypothesis is rejected. There is no statistically significant difference between two groups.

5. CONCLUSION

The study was implemented in faculties of Selçuk University in Konya with 367 first grade students to find out their awareness and consciousness of human rights. Firstly, we found out that first grades students have enough awareness about human rights but they don't sufficiently know true way to follow when they face a violation of right. Consequently, hypothesis 1 "Students who attend the first grades of the faculties of Selçuk University have enough awareness and consciousness of human rights." is accepted. Depending on this finding, we can say that graduates of secondary schools in Turkey, come to universities by carriying enough knowledge, awearesness and consciousness of human rights. We also found out that human rights violations done by governments can be more easily acceptable by the students. We can say that students are opposed to gender apartheid and students may propose extraordinoryt opinions about the use of human rights.

As to the education of the families of the students (Hypothesis 2), students were divided two indepentend groups. First group contains the students who one of the parents of them has a bachelor degree (101 students), second group contains the students who one of the parents of them has not got a bachelor degree (266 students). Two groups were subjected to Independent Samples t-Test by using SPSS**.** According to the results of t-test, there is no statistically significant difference between two groups about consciousness of human rights of the students. The hypothesis "Education of the families of the students affects consciousness of human rights of the students "is rejected. But it became clear that students who one of the parents of them has a bachelor degree is more sensitive than group 2 about educational rights of women.

As to the living place of the families of the students (Hypothesis 3), students were divided two independentend groups. First group contains the students whose families live outside a city (163 students), second group contains the students whose families live in a city (204 students). Two groups were subjected to Independent Samples t-Test by using SPSS**.** According to the results of t-test, it is found that living places of the families of the students affects consciousness of human rights of the students. That is, hypothesis 3 is accepted. There is statistically significant difference between two groups. After examining the items of the survey to clear differencies, we found out that students whose families live in a city are more respectful of foreign settlements and are respectful of different beliefs. We can also say that students whose families live in a city would be more tolerent about applications of local authotories than other groups in case a big crise.

As to the gender of the students (Hypothesis 4), students were divided two independentend groups as men(142 students) and women(225 students). Two groups were subjected to Independent Samples t-Test by using SPSS**.** According to the results of t-test, "Gender of the students affects consciousness of human rights of the students" hypothesis is rejected. There is no statistically significant difference between two groups. But it became clear that female students are more sensitive than male students about woman's rights.

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A Study Of Augmented Reality Technology Acceptance In Nursing College

Ziwapon CHAROENWONG
Police Nursing College
Thailand
mscs.rsu46x@nursepolice.go.th

Sunchi PUTTHANASITH
Kasetsart University
feduscps@ku.ac.th

ABSTRACT

The study's objectives are 1) To study factors influencing augmented reality technology perception in nursing colleges 2) To study factors influencing augmented reality technology acceptance in nursing colleges 3) To study the relationship and impact of factors influencing augmented reality technology perception and acceptance in nursing colleges. Samples (random sampling) comprise 296 nursing students of 4 nursing colleges (Army, Navy, Air Force, Police, each contributing 74), second semester, 2015 academic year. Data are collected via questionnaires and subjected to statistical analysis to find mean ($\bar{X}$), standard deviation (S.D.), Pearson Correlation Coefficient, and Multiple Regression Analysis. The result reveals total factors influencing augmented reality technology perception are at a high level ($\bar{x}$ =4.8). The most influential factor is ease of use ($\bar{x}$ =4.54), followed by playfulness ($\bar{x}$ =4.53), usefulness ($\bar{x}$ =4.46), compatibility with past values, desires and experiences ($\bar{x}$ =4.44), and comparative advantage to prior technology ($\bar{x}$ =4.44).Relationship between technology acceptance and perception is positive with p-value less than $\alpha = 0.01$ while perception factors influencing augmented reality technology acceptance in learning activities is less than $\alpha = 0.05$. In conclusion, comparative advantage and compatibility with past value/experience are the most influential factors in technology acceptance followed by playfulness, usefulness and ease of use. The equation can be written as:

Technology acceptance = 0.104 + 0.797(ease of use) + 0.125 (usefulness) + 0.203 (compatibility) + 0.262 (comparative advantage) + 0.130 (playfulness)

Key words: Acceptance / Augmented Reality / Nursing College

INTRODUCTION

Education is the key to develop people. To make people capable of learning, having desirable traits and living happily in society, teaching and learning activities must be constantly adapted to the changing technologies. Learners must learn to search knowledge and information outside the classroom as well. Education institutions must make sure that teaching and learning activities incorporate appropriate technology in line with the nature of learners in the 21st century.

Prof.Dr. Vijarn Panich (2012)'s book "How to Teach Learners in the 21st Century" noted that people in the 21st century must start learning since kinder garten to university and throughout their lives. Learning activities comprise 3R x 7C; 3R being Reading, wRiting, aRithmetic and 7C being Critical thinking & problem solving, Creativity & innovation, Cross-cultural understanding, Collaboration, teamwork & leadership, Communications, information & media literacy, Computing & ICT literacy, and Career & learning skills. Education framework for the 21st century must incorporate modern technologies into learning/teaching activities to keep pace with globalization.

Augmented Reality (AR) is a variation of immersive virtual reality is augmented reality where a see-through layer of computer graphics is superimposed over the real world to highlight certain features and enhance understanding (Isdale, 2001). Azuma (1999) explains, "Augmented Reality is about augmentation of human perception: supplying information not ordinarily detectable by human senses." And Behringer, Mizell, and Klinker (2001) explain that "AR technology provides means of intuitive information presentation for enhancing the situation awareness and perception of the real world." So AR is an advanced technology developed by integrating the real world and the virtual world together via software and related hardware interface such as webcam, PC and others. The augmented reality pictures and animation can be displayed on computer's screen, smartphone's screen, projector's screen and other display devices. The display can be easily manipulated by users for still 3D image, animation and it can be accompanied by sound, depending on the media type. The technology can be used to design an interactive learning course, which is interesting, convenient and entertaining. It can be accessed via a smartphone which is a mobile device, enabling users to learn at any time, any place.

From this perspective, the researchers are interested in the study of augmented reality technology acceptance with the purpose of adopting this technology to design an interactive course in the context of nursing colleges.

OBJECTIVES

1) To study factors influencing augmented reality technology perception in nursing colleges
2) To study factors influencing augmented reality technology acceptance in nursing colleges
3) To study the relationship and impact of factors influencing augmented reality technology perception and acceptance in nursing colleges.

HYPOTHESIS

H_1: Factors influencing augmented reality technology perception are related to technology acceptance in nursing colleges in Bangkok.

H_2: Factors influencing augmented reality technology perception can impact technology acceptance in nursing colleges in Bangkok.

METHODS

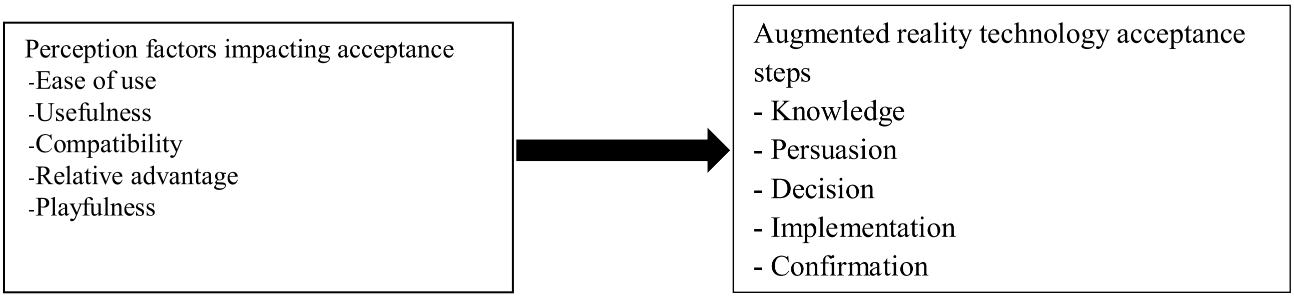
The study is a quantitative research, utilizing survey. The population are 1,120 students in 4 nursing colleges (Army, Navy, Air Force, Police) at a Bachelor degree level, from Year 1-4 who were studying 2nd semester, 2015 academic year. Samples (random sampling) are 296 students (each nursing college contributing 74) derived from Taro Yamene method at a confidence level at 0.95 and sampling deviation at 0.05.

The research tool is a questionnaire with 5 level rating scale to reflect samples' opinions on factors influencing augmented reality technology acceptance in learning activities. The tool's scale reliability of internal consistency is measured by Cronbach's alpha = 0.75.

Once the questionnaire has been checked for reliability, the questionnaire is sent to targeted samples to be answered online. The data collection period is about 1-2 weeks. The data are then subjected to statistical analysis using SPSS program to find frequency, percentage, mean and standard deviation.

To test the perception factors in relation with technology acceptance, Pearson correlation is performed. To test the perception factors impacting technology acceptance, Multiple Regression Analysis is performed.

RESEARCH FRAMEWORK



Perception factors impacting acceptance
-Ease of use
-Usefulness
-Compatibility
-Relative advantage
-Playfulness

Augmented reality technology acceptance steps
- Knowledge
- Persuasion
- Decision
- Implementation
- Confirmation

Adapted from Technology Acceptance Model (Davis, 1992)

RESULTS

1) There are 300 students replying to the questionnaires, 284 females (94.70%), 16 males (5.30%), most are 18 years old (116 students or 38.7%), the youngest are 17 (16 students or 5.30%). The majority is 2nd year students (117 or 39%), followed by 3rd year students (100 or 33.33%) while 1st year students comprising only 33 or 11%. All respondents (100%) have had prior E-learning experiences.

Note: Only 296 sampled students are used.

Table2: Factors influencing augmented reality technology perception**.**

Factors influencing augmented reality technology perception	**x̄**	**(S.D.)**	**Rating scale**	**Level**
Ease of use	4.54	0.62	very high	1
Playfulness	4.53	0.55	very high	2
Usefulness	4.46	0.57	high	3
Compatibility with past values, experiences	4.44	0.55	high	4
Relative advantage	4.44	0.54	high	5
Total	**4.48**	**0.57**	**high**	

From table 1, the samples' total factors influencing augmented reality technology perception are at high level (x̄ =4.8). Considering individual factor, at the very high level the most influential factor is ease of use (x̄ =4.54), followed by playfulness (x̄ =4.53), at the high level is usefulness (x̄ =4.46), compatibility with past value, desire and experiences (x̄ =4.44), and comparative advantage to prior technology (x̄ =4.44).

Table2: Result of augmented reality technology acceptance.

Augmented reality technology acceptance	**x̄**	**(S.D.)**	**Rating scale**	**Level**
Decision	4.53	0.57	very high	1
Implementation	4.53	0.55	very high	2
Knowledge	4.50	0.55	very high	3
Persuasion	4.47	0.59	high	4
Confirmation	4.40	0.56	high	5
Total	**4.49**	**0.56**	**high**	

From table 2, total factors influencing augmented reality technology acceptance are at a high level (x̄ =4.49). Considering individual factor, at the very high level the most influential factor is decision (x̄ =4.53), followed by implementation (x̄ =4.53) and knowledge (x̄=4.50), at the high level is persuasion (x̄ =4.47), and confirmation (x̄ =4.40).

Testing hypotheses results

Testing H_1: Factors influencing augmented reality technology perception are related to technology acceptance in nursing colleges.

H_0: Factors influencing augmented reality technology perception are not related to technology acceptance in nursing colleges.

H_1: Factors influencing augmented reality technology perception are related to technology acceptance in nursing colleges.

Table 3: Result of relationship between technology acceptance and perception

		Acceptance	Ease of use	Usefulness	Compatibility	Comparative advantage	Playfulness
Acceptance	Pearson Correlation	1	.433**	.522**	.542**	.627**	.509**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	296	296	296	296	296	296
Ease of use	Pearson Correlation	.433**	1	.329**	.247**	.360**	.292**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	296	296	296	296	296	296
Usefulness	Pearson Correlation	.522**	.329**	1	.386**	.406**	.407**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	296	296	296	296	296	296
Compatibility	Pearson Correlation	.542**	.247**	.386**	1	.358**	.304**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	296	296	296	296	296	296
Comparative advantage	Pearson Correlation	.627**	.360**	.406**	.358**	1	.395**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	296	296	296	296	296	296
Playfulness	Pearson Correlation	.509**	.292**	.407**	.304**	.395**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	296	296	296	296	296	296

**. Correlation is significant at the 0.01 level (2-tailed).

From table 3, Relationship between technology acceptance and perception is found with the following factors: Ease of use, playfulness, usefulness, compatibility with past experiences, and comparative advantage to prior technology. Relationship coefficient (r) ranges from 0.247 to 0.627 on the positive side. Samples (N=296) and p-value Sig (2-tailed) = 0.000 which is less than prescribed $\alpha = 0.01$ Therefore, relationship between technology acceptance and perception is positive at the significant level .0.01

Testing H_2: Factors influencing augmented reality technology perception can impact technology acceptance in nursing colleges.

H_0: Factors influencing augmented reality technology perception do not impact technology acceptance in nursing colleges.

H_1: Factors influencing augmented reality technology perception can impact technology acceptance in nursing colleges.

Multiple regression analysis is performed to test the hypothesis to find regression coefficient value (p-value).

Table 4: Result of regression analysis to test the hypothesis

Factors influencing augmented reality technology acceptance	B	Beta	t	p-value
Constant	0.797		4.360	0.000
Ease of use	0.104	0.137	3.347	0.001
Playfulness	0.125	0.157	3.561	0.000
Usefulness	0.203	0.267	6.398	0.000
Compatibility	0.262	0.343	7.801	0.000
Comparative advantage	0.130	0.189	4.421	0.000
R= 0.773	**Adj R^2 =0.59**		**Std Error of Est =0.192**	
F= 87.176	**Sig.= 0.000**		**Durbin Watson=1.832**	

*Statistically significant at 0.05

From table 4 , Adjusted R Square) Adj R^2 (=0.59 when multiplied by 100 resulting = 59 , signifying that perception factors can accurately predict technology acceptance 59%. Durbin Watson =1.832 , ranging from 1.5 to2.5 , signifying deviation value conforming to regression analysis scope. Considering p-value with Sig = 0.000 less than prescribed α =0.05 , H_0 is rejected. In conclusion, equation of regression analysis predicting technology perception factors impacting technology acceptance can be written as:

Technology acceptance 0.104 + 0.797 =(ease of use) + 0.125 (usefulness) + 0.203 (compatibility) + 0.262 (comparative advantage) + 0.130 (playfulness)

From the equation, B is Regression Coefficient at constant value at the Y intersection = 0.797, with ease of use = 0.104, a positive value. It can be interpreted that when controlling acceptance factors (ease of use, usefulness, compatibility, comparative advantage, playfulness) with the rise of 1 standard unit of opinions, the acceptance factor changes ,0.203 ,0.125 ,0.1040.262 and 0.130 respectively. In conclusion, comparative advantage and compatibility can impact technology acceptance at a very high level, followed by playfulness, usefulness, and ease of use.

DISCUSSION

The study of augmented reality technology perception and acceptance in the context of learning and teaching activities in nursing colleges yields the following:

(1 The samples' total factors influencing augmented reality technology perception are at high level. When considering each factor, sampled students' opinions give a very high level rating for ease of use, followed by playfulness, while giving a high level rating for usefulness, compatibility and comparative advantage respectively. This result is in line with Jirawat Wongthongchai's "Study of 2d Barcode Technology Perception Factors on Technology Acceptance" yielding a high level for Gen Y users, with the highest rating for comparative advantage, followed by playfulness, compatibility, ease of use, and usefulness respectively. The study found that there is a relationship between perception and acceptance and that perception can impact 2d barcode technology acceptance.

(2 Total factors influencing augmented reality technology acceptance in nursing colleges are at a high level. When considering individual factor, sampled students' opinions give a very high level rating for decision, implementation, and knowledge, while giving a high level rating for persuasion and confirmation. This result is in line with Nawaphon Kaewsuwan, Chanthana Viriyavejjakul and Krissana Khiddee's "Study of Factors Impacting Acceptance of Education Technology of Teachers in Maung Phatthalung Municipality Schools" which found 1) Technology acceptance by the teachers is at a high level 2) Factors impacting technology adoption are also at a high level, comprising school's social environment, school administrators' support, media facility availability 3) Factors, impacting technology adoption and statistically significant at .05 level, comprise school's social environment) x_1 , (school administrators' support) x_2, (media facility availability) x_3 ,(all together can predict with accuracy 59.20%. There was also a study by Narin Damnui, Sunthorn Vithoonphot and Sureena Matayong "Factors Impacting Games Platform Acceptance of Blind Students" found that Technology Acceptance Model has good potential to impact teacher's attitude. The factors are 1) hardware/software ease of use 2) perception of usefulness in learning activities. Other theories don't consider these 2 factors. Orathai Luenwan's study "Personal and Work-related Factors Impacting IT Technology Acceptance in the Workplace" found that ease of use and usefulness impacting acceptance at a high level while gender and income factors also have acceptance impact but work-related factors have no impact on technology acceptance.

RECOMMENDATION

The study reveals that technology perception factors influence sampled nurses' technology acceptance. Therefore, an interactive course should utilize appropriate technology that yields comparative advantage, ease of use, and convenient access for the learners' lifestyles.

RECOMMENDATION for FUTURE STUDY.

1. Select new sample group with different lifestyles such as teachers and learners in private institutions.
2. Study other factors and variables that influence perception such as satisfaction, socio-economic status and culture.

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A Study of Gifted Students' Motivation for Achievement in Mathematics

Yasemin DERİNGÖL
Hasan Ali Yücel Faculty of Education
İstanbul University
Turkey
yderingl@gmail.com

ABSTRACT

Mathematics is a science or a subject faced by everyone during their compulsory education, which either they like or hate or perhaps suffer anxiety because of it. Achievement motivation; is a desire, a need, an expectation for achievement, and unfortunately reaching achievement may not always be easy (Umay, 2002). In case of gifted students, the condition is to prepare and apply programs that appeal to their characteristics and requirements. This study was conducted with the aim of determining how a differentiated curriculum would affect their motivation for achievement in mathematics. In this study, "Achievement Motivation Scale" developed by Umay (2002) was used, validity and reliability studies of the scale were completed. The scale is made up of two parts. The first part is made up of seven items, the second part which aims at evaluating the level of achievement motivation is made up of triple rated fourteen items. The sampling of the study made by using control group pre-test final-test design model is made up of by 20 gifted students in 5th grade, 10 of which took part in experiment, while the other 10 in control group. Analyses were made in accordance with the sub-problems of the research and it was established that a differentiated curriculum that is prepared according to levels, interests and requirements of gifted students increases their achievement motivation.

Keywords: Gifted student, differentiated mathematics teaching, achievement motivation.

INTRODUCTION

Achievement motivation and the desire to succeed are needs and expectations. Once a person is successful, he/she will always want to be successful. The way to success requires effort, patience and endurance (Umay, 2002). According to achievement motivation theory, there are two basic requirements for an individual to be motivated. One of these requirements is to avoid failure, the other is the need for success (Göc, 2010).

McClelland defines achievement motivation as, "an endeavour for doing things in a better way by taking as well, perfectionism standards into consideration" (McClelland and Koestner, 1992). In cases where hope for achievement is high and fear of failure is low, achievement motivation of the individual tends to be high. When powers of these two feelings are equal, achievement motivation level is medium, and achievement motivation is low when fear of failure is high (Umay, 2002).

Students relate their success to the efforts they make and when they fail, they believe that they will be more successful if they study more. On the contrary, students who relate their success and failure to external and uncontrollable variables end up explaining their success with easiness of the task and luckiness factor, and their failure with their lack of skills or their unluckiness. As a result, they don't make more effort to be successful (Erden and Akman, 1995). A student who is successful at school and is proud of himself/herself would also want to maintain his/her achievements out of school (Göc, 2010).

All children have various needs. Gifted children however, have needs both similar to their peers and special needs peculiar to them which are very important for them. At school, they want to study at a level that will appeal to their intelligence, and usually they end up spending most of their time at school with activities that meet their needs at a minimum level (Dağlıoğlu, 2004). Gifted students' education is very important all over the world, for the future of any country and of humanity. Gifted students are significantly different from their peers in terms of their characteristics and needs so, they need to be supported with different educational programs (Hunsaker, 1994; Feldhusen, 1997; Renzulli, 1999; Clark, 2002; Horn, 2002; Retrieved from Bakioğlu and Levent, 2013).

When our motivation for achievement is high, we participate in any activity voluntarily. When our tendency to

avoid failure is high, we avoid the activity and if we are obliged to do the activity, we do it in a way that will minimalize the possibility of failure (Brophy, 1998; Retrieved from Selçuk, 2004). The case of gifted students is not very different either. The purpose of the study, is to prepare a differentiated mathematics program for gifted students in accordance with their characteristics and to analyse the effects of this program on gifted students' motivation for achievement. With this purpose, the questions below were asked.
Problems of the Research:

1. What are the students' achievement motives like?
2. Are there differences between students' pre-test scores?
3. Are there differences between students' final test scores?
4. What is the improvement of control group students' achievement motivation in mathematics like?
5. What is the improvement of control group student's achievement motivation in mathematics like?

METHODS

This section includes detailed information about this research's model, sample, procedure, data collection instrument, and data analysis.

Research Model

Control Group Pre-Test Final-Test Experimental Design Model was used in this study (Balcı, 1997; Kaptan, 1998; Karasar, 2005). In the experiment group, a differentiated mathematics curriculum was applied by using educational materials, while there was no interference with the instruction of the control group. The effect of learning with the help of differentiated program on gifted students' achievement motives in mathematics was attempted to be defined. The experiment design used in the research is shown in Table 1.

Table 1. Experiment Design

Groups	Pre-test	Experiment Design	Post-test
G1 (Experiment)	AMS	Differentiated curriculum	AMS
G2 (Control)	AMS	Program of MEB	AMS

Population and Sample

The population of the research was made up of 5th grade gifted students studying in two different classes in a formal education primary school in Turkey. Groups were matched and students were divided into two groups which are; experiment group and control group. The distribution of the sampling is shown in Table 2.

Table 2. Frequency and Percentage Distribution of Students Participating in the Research According to Gender

GROUPS	FEMALE		MALE		TOTAL
	f	%	f	%	
EXPERIMENT	3	30	7	70	10
CONTROL	2	20	8	80	10
TOTAL	5		15		20

Procedure

When 5th grade achievements targeted by National Education Ministry was studied; it was observed that these achievements were quite below the achievements that must have been acquired by gifted students. It is possible to say, when cognitive developments of gifted and skilled students are considered, that readiness levels of these students are two or three grades higher than this grade. Instead of activities that are simple for their level, these students were given open-ended activities that are more extensive and complex, requiring high level thinking about 'Fractions', which is a subject in 5th grade curriculum. The models used in differentiation dimension of the program (content, process and product) are Grid Curriculum Model developed by Kaplan (Kaplan, 1986) and Parallel Curriculum Model developed by Tomlinson et al. (2009)

Data Collection Instrument

Achievement Motivation Scale (AMS) developed by Umay (2002) was used in the study, the reliability and validity studies were conducted. Achievement Motivation Scale is made up of two parts. The items in the first part of the scale were questions written by Umay (2002), in order to question basic concepts about achievement motivation. In the second part of the scale used in the survey, there are fourteen items that have choices such as; "often", "sometimes", "never" out of which the students are expected to choose the one that suits them. These items are used to assess achievement motivation levels of students who are expected to have high levels of achievement motives. Reliability coefficient was indicated as α =, 75 and the reliability coefficient in the survey was found to be .80.

Data Analysis and Interpretation

In accordance with the general aim of the study, SPSS 16.0 was used for the statistical processing of the data collected. Mann Whitney-U test and Wilcoxon Signed Rank Test techniques were used in data analysis.

FINDINGS AND INTERPRETATION

The findings will be analysed based on the five basic questions which make up the problem of the research.

The findings with regards to the first problem are explained in Table 3.

Table 3. Defining Values of Group Achievement Motivation Scale Scores

Achievement Motivation Scale		N	X	Ss
Pre-test	**Control**	10	15,60	3,27
	Experiment	10	15,00	3,43
Post-test	**Control**	10	14,90	4,65
	Experiment	10	21,70	5,63

As seen in Table 3, Achievement Motivation Scale pre-test score average of gifted students in the experiment group is 15, 00, final-test score average is 21,70. Control group students' achievement motivation pre-test score average is 15,60, final-test score average is 14,90.

The findings as to the second problem are shown in Table 4.

Table 4. Results of Mann- Whitney U Test Made for Achievement Motivation Scale Pre-test Scores of the Groups

Pre-test	N	Mean Rank	Sum of Ranks	U	Z	P
Control	10	11,00	110,00	45,000	-,381	,704

Experiment	10	10,00	100,00			

As a result of non-parametric Mann Whitney-U Test, conducted with the aim to define whether groups differ significantly in terms of pre-test Achievement Motivation Scale score averages or not, no significant difference was found (U=45,000; p>.05). Depending on this data, it is possible to say that the groups are equal in terms of Achievement Motivation Scale pre-test scores.

The findings concerning the third problem are shown in Table 5.

Table 5. Results of Mann- Whitney U Test Made for Achievement Motivation Scale Final-test Scores of the Groups

Post-test	N	Mean Rank	Sum of Ranks	U	z	P
Control	10	7,25	72,50	17,500	-2,466	,014
Experiment	10	13,75	137,50			

As seen in Table 5, as a result of non-parametric Mann Whitney-U Test, conducted with the aim to define whether groups differ significantly in terms of final-test achievement Motivation Scale score averages or not, statistically significant difference (U=17,500; p<.05) was found between control and experiment groups, which is to the advantage of the experiment group.

The findings concerning the forth sub-problem are shown in Table 6.

Table 6. Results of Wilcoxon Test Made for Control Group Achievement Motivation Scale Pre-test Final- Test Scores

	Ranks	N	Mean Rank	Sum of Ranks	Z	P
Control Group Pre-test- Post-test	Negative Ranks	5	5,30	26,50	-,476	,634
	Positive Ranks	4	4,62	18,50		
	Ties	1				
	Total	10				

As seen in Table 6., as a result of the non-parametric Wilcoxon Test, conducted with the aim to define whether there is a significant difference between Achievement Motivation Scale pre-test and final-test score averages of control group students or not, no statistically significant difference (z=-,476;p>.05) was found.

The findings concerning the fifth sub-problem are shown in Table 7.

Table 7. Results of Wilcoxon Test Made for Experiment Group Achievement Motivation Scale Pre-test Final- Test Scores

	Ranks	N	Mean Rank	Sum of Ranks	Z	P
Experiment Group Pre-test-Post-test	Negative Ranks	1	1,00	1,00	-2,547	,011
	Positive Ranks	8	5,50	44,00		
	Ties	1				
	Total	10				

As seen in Table 7, as a result of the non-parametric Wilcoxon Test, conducted with the aim to define whether there is a significant difference between Achievement Motivation Scale pre-test and final-test score averages of experiment group students, the difference between sequencing averages *($z=-2,547;$* $p<.05$) was found to be statistically significant.

CONCLUSIONS AND RECOMMENDATIONS

It has been observed that, the differentiated mathematics program applied, has increased scores of experiment group, however, there was a decrease in final test scores of control group students. This result makes us think, when this group with different characteristics and educational requirements is not within the suitable educational environments, there is a decrease in their achievement motives, which will affect their success. People who experience success once, always want to be successful (Umay, 2002). This is the same in the case of gifted students, however as indicated, when they are not within the learning environment which is suitable to their characteristics, unfortunately their achievement motivation will decrease.

When intergroup final test results are analysed, a significant difference to the advantage of experiment group was found and it is possible to say that, the differentiated instruction method applied to the experiment group is much more effective for students' achievement motives than the National Ministry curriculum applied to the control group. So, it can be said that the differentiated curriculum increased experiment group student's motives for achievement in mathematics.

As Yeh (1991) reported from Atkinson, there is a positive correlation between academic success and achievement motivation, in other words; the higher achievement motivation is, the better the academic success is. Achievement motivation affects academic success positively, and provides the student to be successful, not only at school but during any period of his/her life. As Açıkgöz (2000), reported from Gage and Berliner, it was established in a study that of students with same IQ levels, but different success levels, the ones with better success levels had also higher achievement motives. As achievement motivation is not an innate and unchangeable "characteristic" (Heckhausen, 1967; Veroff and Velloff, 1980; Retrieved from Umay, 2002), the indicators must be carefully followed in order for teachers who regulate the learning environment, to be familiar with student's achievement motives and increase them. The result of the research supports this condition. Then, the necessity for specially designed differentiated instructional programs for this group of students whose learning is faster than ordinary students is obvious.

Suggestions:

1. Further research can be made as to how differentiated mathematics programs specially prepared for gifted students affect success and affective factors
.
2. Educational environments that will meet gifted students' requirements must be provided.

3. Expectations of the family and the society are factors that affect achievement motivation (Turner, Johnson, 2003; Li, 1993). High expectations as to gifted students such as "He/She will do it anyway!" affect their achievement motivation negatively. This must be emphasized during parent instruction.
4. Teachers of gifted students must be experts in this issue.

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A Study On Awareness And Demands Of Parents Concerning Career And Vocational Education Of Special-Classes In Middle And High Schools

Soonyoung HWANG
Pusan National University
special-hsy@pusan.ac.kr

Hoohee LEE
Pusan National University
lhoohee@hanmail.net

ABSTRACT

The purpose of this study is to provide direction for interrelated career and vocational education between school and family by investigating awareness and demands of parents concerning career and vocational education of special-classes in middle and high schools. Based on the subjects above, this study conducted questionnaire on 216 parents of middle and high schools in Busan Metropolitan City and Gyeongsangnam-do, and used 214 copies on research analysis. To this end, this study set research subjects as awareness of parents for career and vocational education of special-classes in middle and high schools and demands of parents for career and vocational education of special-classes in middle and high schools. The questionnaire used in this study was modified and supplemented according to the purpose of this study by referring to precedent studies that it contains total 35 questions of 6 questions on basic background, 11 questions on awareness of career and vocational education, and 18 questions on demands for career and vocational education. Data was analyzed using SPSS 22.0 Statistical Program and conducted X2(Chi-Square) test by grade level of middle and high schools. The results are as follows. First, for awareness of parents for career and vocational education of special-classes in middle and high schools, most parents knew about the career and vocational education and were aware of the importance of conducting the career and vocational education. Secondly, for demands of career and vocational education of special-classes in middle and high school, hours of career and vocational education, educational objective, and priority area showed significant difference by grade level. Then, parents of middle school students wished for aptitude, disability characteristics, and demands of students and parents to be applied when setting goals of the career and vocational education. Furthermore, the demands – regarding teacher, school, and institutional framework - for career and vocational education are as follows. They demanded professional knowledge in career and vocational education and evaluation ability for career and occupation from teachers, increased hours of field training and professional vocational skill education from school, and expanded employment opportunities as an institutional framework.

INTRODUCTION

After graduating from high school career and vocational education is emphasized that even limited career, and seems to be the low employment rate of students with disabilities. For the financial independence of disabled students to figure out what the cause of low employment and vocational training, careers and parties and host of opinions and systematic and education. There is a need for effective vocational education and career(Yi, Seong-Yong & Kim, Kyeong-Hwa, 2010).

In a career and vocational education for successful operation of the family environment, disabled students of school environment should be considered, and the community environment, their parents and families of disabled students Members participating in education and supporting important(Kim, Ga-In, 2012).

The purpose of this study is to provide direction for interrelated career and vocational education between school and family by investigating awareness and demands of parents concerning career and vocational education of special-classes in middle and high schools. To this end, this study set research subjects as awareness of parents for career and vocational education of special-classes in middle and high schools and demands of parents for career and vocational education of special-classes in middle and high schools.

METHOD

Subject of study

Based on the subjects above, this study conducted questionnaire on 216 parents of middle and high schools in Busan Metropolitan City and Gyeongsangnam-do, and used 214 copies on research analysis.

Table 1: Characteristics of the parents surveyed

	Sortation	Middle School	High School	Total
Relationship with children	Father	24(24.0%)	21(18.4%)	45(21.0%)
	Mother	72(72.0%)	82(71.9%)	154(72.0%)
	Grandparents	4(4.0%)	6(5.3%)	10(4.7%)
	Etc(Facility Chief)	0(0.0%)	5(4.4%)	5(2.3%)
Parents' age	20s	0(0.0%)	2(1.8%)	2(0.9%)
	30s	5(5.0%)	1(0.9%)	6(2.8%)
	40s	73(73.0%)	60(52.6%)	133(62.1%)
	50 and above	22(22.0%)	51(44.8%)	73(34.1%)
The gender of the children	Male	63(63.0%)	83(72.8%)	146(68.2%)
	Female	37(37.0%)	31(27.2%)	68(31.8%)
Children's school year	First grade	24(24.0%)	34(29.8%)	58(27.1%)
	second grade	35(35.0%)	55(48.2%)	90(42.1%)
	Third grade	41(41.0%)	25(21.9%)	66(30.8%)
Type of disability in children	visual impairments	1(1.0%)	1(0.9%)	2(0.9%)
	Deaf	5(5.0%)	2(1.8%)	7(3.3%)
	Intellectual disability	57(57.0%)	76(66.7%)	133(62.1%)
	Physical disability	6(6.0%)	8(7.0%)	14(6.5%)
	Emotional and behavioral disorder	6(6.0%)	3(2.6%)	9(4.2%)
	Autism	11(11.0%)	14(12.3%)	25(11.7%)
	Communication disorders	1(1.0%)	0(0.0%)	1(0.5%)
	Learning disorder	13(13.0%)	10(8.8%)	23(10.7%)
		100	114	214

Data analysis

The questionnaire used in this study was modified and supplemented according to the purpose of this study by referring to precedent studies that it contains total 35 questions of 6 questions on basic background, 11 questions on awareness of career and vocational education, and 18 questions on demands for career and vocational education. Data was analyzed using SPSS 22.0 Statistical Program and conducted X2(Chi-Square) test by grade level of middle and high schools. The results are as follows.

RESULTS

Table 2: Cognitive level on the career and vocational education

Cognitive level / In accordance with the school division		Familiar	Somewhat familiar	Normal	Do not know	Don't know a stroke	M (SD)	t
Middle School (N=100)	N	36	40	18	6	0	4.06	0.011
	(%)	(36.0)	(40.0)	(18.0)	(6.0)	(0.0)	(0.89)	
High School (N=114)	N	38	56	11	7	2	4.06	
	(%)	(33.3)	(49.1)	(9.6)	(6.1)	(1.8)	(0.91)	
Total	N	74	96	29	13	2	4.06	
	(%)	(34.6)	(44.9)	(13.6)	(6.1)	(0.9)	(0.90)	

First, for awareness of parents for career and vocational education of special-classes in middle and high schools, most parents knew about the career and vocational education and were aware of the importance of conducting the career and vocational education. Also, there were many opinions that special teacher needs to be a main agent of the career and vocational education.

Table 3: Career start between vocational education and time

In accordance with the school division / Period		Middle School (N=100)	High School (N=114)	Total	χ^2
From kindergarten	N	5	3	8	13.216**
	(%)	(5.0)	(2.6)	(3.7)	
Special classes in elementary school	N	40	32	72	
	(%)	(40.0)	(28.1)	(33.6)	
Special classes in middle school	N	50	55	105	
	(%)	(50.0)	(48.2)	(49.1)	
Special classes in high school	N	5	24	29	
	(%)	(5.0)	(21.1)	(13.6)	

** p<.01

On the other hand, we could find the difference in awareness by grade level about the beginning period and the place of career and vocational education. Parents of middle and high school students perceived that the career and vocational education needs to start from middle school, and in contrast, many parents of high school students answered that career and vocational education may start from high school. For place of education, parents of middle school students wanted for it to be conducted in job training institutions outside of school and parents of high school students wanted for it to be conducted in real workplace.

Table 4: Career and Vocational Education of time

In accordance with the school division **Time**		**Middle School (N=100)**	**High School (N=114)**	**Total**	**χ2**
1 to 3 hours	N	41	28	69	8.175*
	(%)	(41.0)	(24.6)	(32.2)	
4 to 6 hours	N	41	51	92	
	(%)	(41.0)	(44.7)	(43.0)	
7 to 9 hours	N	12	22	34	
	(%)	(12.0)	(19.3)	(15.9)	
More than 10 hours	N	6	13	19	
	(%)	(6.0)	(11.4)	(8.9)	

* p<.05

Secondly, for demands of career and vocational education of special-classes in middle and high school, hours of career and vocational education, educational objective, and priority area showed significant difference by grade level. For hours of education, parents of middle and high school students demanded 4~6 hours and many parents of high school students demanded more than 7 hours.

Table 5: Career focus between vocational education and content

In accordance with the school division **Priority content**		**Middle School (N=100)**	**High School (N=114)**	**Total**	**χ^2**
Professional life	N	46	46	92	0.912
	(%)	(46.0)	(40.4)	(43.0)	
Job search	N	18	20	38	
	(%)	(18.0)	(17.5)	(17.8)	
Job readiness	N	16	21	37	
	(%)	(16.0)	(18.4)	(17.3)	
Design course	N	20	27	47	
	(%)	(20.0)	(23.7)	(22.0)	

Then, parents of middle school students wished for aptitude, disability characteristics, and demands of students and parents to be applied when setting goals of the career and vocational education. On the other hand, parents of high school students responded that aptitude, disability characteristics, and efficacies of education as employment and entering school need to be considered. Also, many parents of both middle and high school students responded that training of daily living and social adjustment are the areas that career and vocational education needs to focus on. Especially, more parents of high school students demanded the support of employment than the parents of middle school students.

CONCLUSIONS

Furthermore, the demands – regarding teacher, school, and institutional framework - for career and vocational education are as follows. They demanded professional knowledge in career and vocational education and evaluation ability for career and occupation from teachers, increased hours of field training and professional vocational skill education from school, and expanded employment opportunities as an institutional framework.

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A Study On Teacher Motivation Levels Based On Intrinsic And Extrinsic Motivation Factors

Necmi GÖKYER
Firat University
Department of Educational Sciences
ngokyer@firat.edu.tr

ABSTRACT

The aim of this study was to examine the motivation levels of elementary, secondary and high school teachers from public schools in Elazığ, Turkey based on intrinsic and extrinsic motivation factors. The degrees of impact that intrinsic and extrinsic motivation factors have on teacher motivation were investigated in different work places and places of duty. Teachers' motivation levels were studied based on Herzberg's dual factor theory. As the intrinsic factor, teacher views on motivation factors and their satisfaction levels were measured. The study group included 771 randomly selected teachers who were working at public elementary, secondary and high schools located in the center, districts and villages of Elazığ. These teachers were asked to respond to Kelecioğlu, Bilge and Akman's (2006) Teaching Staff Work Satisfaction Scale (TSWSS). The findings showed that male teachers had higher intrinsic and extrinsic motivation than females. There was no difference between the intrinsic and extrinsic motivation levels of teachers aged differently. Single teachers had higher intrinsic and extrinsic motivation levels than married teachers. Furthermore, social sciences teachers had higher intrinsic satisfaction scores than science teachers. Both intrinsic and extrinsic motivation levels were higher among teachers with 1-5 years of work experience than those with 6-10 years of experience. Finally, teachers working at the city center had higher intrinsic and extrinsic motivation levels than those located in villages.

Anahtar sözcükler: Job satisfaction, motivation, instinct Motivation, Extrinsic Motivation

INTRODUCTION

Turkey follows global changes, has adopted EU membership as a national goal, and keeps abreast of educational developments by making necessary regulatory adjustments for international exams such as the TALIS, PISA, TIMMS and PIRLS. The importance given to the education sector is particularly on the rise to be able to raise the human power needed to meet the country's development goals. As a result, the number of teachers in employment is also increasing quickly. Work satisfaction is a prerequisite for teachers to function adequately. Sergiovanni and Starratt (1998) emphasized the association between teacher work satisfaction and student success (Bilge, Akman and Kelecioğlu, 2007). Work satisfaction is the relaxing and comforting emotion that individuals seek to derive from their total work environment, such as from the work itself, administrators, other staff and work organization (Cribbin, 1972). The match between the expected rewards from work and the actual ones may reveal the level of work satisfaction. Work satisfaction occurs when the characteristics of the job corresponds to the wishes of an employee (Davis, 1982:96; Gülşen and Gökyer, 2016:298).

THE STUDY

The concept of motivation has been derived from the English and French word "motive". Its Turkish equivalent is *güdü* or *saik*. Motive is a power with three basic qualities: mobilizing, continuing the motion, and pushing it in the positive direction. Motivation is the sum of the efforts to continuously mobilize one or more people in a certain direction (Eren, 1989:388). It includes values, needs, tensions, and expectations (Sikula, 1973; Eroğlu, 1996:246). The relationship between motivation and satisfaction is a mutual interaction. A satisfied person has the environment needed to be motivated. In the same vein, a motivated person can find peace of mind and pleasure as a result of his efforts and actions (Eroğlu, 1996:252).

Robbins (1998: 145) evaluates motivation in two different dimensions: individual and organizational. Accordingly, motivation has been defined from the individual perspective as the effort made to reach aims, and from the organizational perspective as one’s desire to display the utmost effort to reach organizational goals and meet various organizational needs. One of the most important duties of an administration is to identify and eliminate the hardships faced by individuals whose needs are not met (Gökçe et al., 2010: 233).

It is very common in the fields of industrial and organizational psychology to explain work satisfaction based on employees’ motivation levels. According to this, as motivation level increases, so do work performance and satisfaction (Smither, 1998). Herzberg’s motivation-hygiene theory stands out among other theories that emphasize the importance of individual motivation levels for work satisfaction (Hampton, 1972; Smither, 1998; Bilge, Akman and Kelecioğlu, 2007).

In the motivation-hygiene theory, the factors that have a role in work satisfaction are gathered in two clusters: Herzberg maintains that the motivating factors that guide actual behavior and bring motivation and satisfaction are placed in the first cluster. The presence of this type of factors encourages employees and enables them to embrace their job and workplace. Examples of such motivating factors include success and due recognition from seniors; increased self-esteem and confidence; control over work; increased responsibility, authority and power as an indicator of trust in the employee; finding the job appropriate and fit for one’s personal qualities, knowledge and skills; and an organizational structure that allows promotion (Robbins and Judge, 2013). The motivating factors may also be seen as “intrinsic factors” owing to their relationship with basic psychological needs (Davis, 1982). The hygiene elements in the second cluster are related to work environment and conditions. Meeting the hygiene factors does not have a motivating effect per se. It only prevents dissatisfaction. Their existence makes one’s life conditions healthy, while their absence leads to dissatisfaction. These factors are also known as “extrinsic factors” (Bilge, Akman, Kelecioğlu, 2006). They include company rules and policies, type and quality of methods, relationships with employees, salaries, other benefits, work conditions and safety (Gökyer, 2015:172).

Social, economic and psychological factors play a major role in selecting the teaching profession. Professional success it depends on the social class and character of the teacher, as well as other school-related factors (Havighurst and Neugarten, 1967; Bursalıoğlu, 2010:42). Daily interactions with students and co-workers, as well as never-ending educational needs lead to pressure and stress (Frieseron et al., 1988). Teachers today are expected to prepare students for a fast-changing technological society and tackle the various problems of this society. In return for this difficult and challenging job, teachers are generally not presented with opportunities to develop themselves professionally and remain underpaid in many countries (Scwap et al., 1986; Akçamete et al., 2001). Without a doubt, teacher motivation is affected negatively by their unmet needs and expectations, and lacking job satisfaction (Gökay and Özdemir, 2010). Teacher expectations are one of the factors that shape their role. The expectations of teachers from administrators, students, parents, and the state make up one part of the school’s social climate. These expectations depend particularly on the leadership behaviors of the school principal (Bursalıoğlu, 2010). Nartgün, Kocabay and Aksay (2004) found that the most significant negative effects on teacher job satisfaction were caused by being underpaid, poor economic conditions in schools, and neglecting success.

In this study, work motivation was examined with a view to Herzberg’s dual factor motivation theory. Herzberg’s theory links intrinsic motivation to the content of work, and views them as tools that motivate individuals for work. The other factor, extrinsic motivation, is categorized under the heading tools that reduce work-related dissatisfaction (Dündar et al., 2007: 6;Yıldırım and Arslan, 2015).

The study sought answers to the following research questions about teachers’ intrinsic and extrinsic motivation:

1. What are the intrinsic and extrinsic motivation levels of teachers?
2. Do the intrinsic and extrinsic motivation factors of teachers working at Elazığ city center, districts and villages vary based on gender, marital status, age, experience, title, branch, workplace and place of duty?
3. What is the direction of the relationship between intrinsic motivation and extrinsic motivation factors?

METHOD

This study was conducted with 771 randomly selected teachers who were working at public elementary, secondary and high schools located in the center, districts and villages of Elazığ during the Fall term of the 2015-2016 school year. Of the participants, 43,1% were females, 56,9% were males; 69,4% were married, 30,6% were single. The age distribution of respondents showed that the biggest group, 35,4%, was those aged 21-30. Teachers with 5 years and less work experience comprised 33,9% of the participants. Considering title, the biggest group (73,5%) was teachers, followed by specialist teachers (14%). Of the participants, 12,5% were teacher candidates. Those teaching social sciences comprised 63,3% of the sample. While 53,6% were working at city centers, 40,2% were working in districts, and 49,2% were working at high schools, 27,4% at elementary schools and 23,5% at secondary schools.

The data collection tool consisted of two sections. The first included questions to identify participant demographics, and the second included Kelecioğlu, Bilge and Akman's (2006) "Teaching Staff Work Satisfaction Scale" based on Herzberg's dual factor theory. The scale was used on receiving permission. It has two dimensions: intrinsic and extrinsic. The scale included a total of 25 items, 14 in the intrinsic dimension and 11 in the extrinsic dimension. Responses to the TSWSS made use of the Porter approach. Respondents replied to each item in two stages: (a) to what extent the situation in each item is currently present in the workplace and (b) what the ideal situation should be. TSWSS has been graded from 1 to 5, with 1 indicating the least and 5, the most. A smaller difference between (a) and (b) shows high work satisfaction. Findings about the reliability of the TSWSS are as follows: The Cronbach Alpha coefficients for internal consistency were .92 for the intrinsic dimension, and .90 for the extrinsic one. At the end of the first factor analysis, item 14 in the intrinsic dimension (my work is not a routine) was removed from the scale as it had a factor loading value below .30. The second factor analysis showed that the scale had a single dimension and 13 items (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). The KMO of this dimension was ,938, Bartlett's Test of Sphericity 5143,504 and the variance accounted for 51,44% The factor loading values of the items in this dimension varied between .40-.59. The factor analysis involving the extrinsic dimension led to the removal of item 25 (my work brings me extra pay as incentive) from the scale as its factor loading value was below .30. The second factor analysis showed that the scale had only one dimension and 10 items (15, 16, 17, 18, 19, 20, 21, 22, 23, 24). The KMO of the dimension was .933, Bartlett's Test of Sphericity 3754,147 and the variance accounted for, 54,48%. The factor loading values of the items in the dimension varied between .36-.63.

The form devised by the researchers included questions about participants' gender, age, marital status, experience, titles, branches, workplace and places of their duty. The data collected in the study were analyzed by using SPSS 21.0. To begin with, the responses yielded intrinsic and extrinsic satisfaction scores. The intrinsic and extrinsic mean scores and standard deviations of groups were calculated based on the variables in the personal information form. In comparing the groups, Mann-Whitney and Kruskal Wallis H-Tests were used (Büyüköztürk, 2009). Prior to the analyses, whether intrinsic and extrinsic satisfaction scores were distributed normally was tested by using the Kolmogorov-Simirnov (K-S) test. The results showed that the scores on the scale were not normally distributed and that non-parametric tests would be used.

FINDINGS

Research Question 1: What are the intrinsic and extrinsic motivation levels of teachers?
The arithmetic means and standard deviations of intrinsic and extrinsic satisfaction scores in relation to the variables in teachers' personal information forms are given in Table 1.

Table 1: Arithmetic means and standard deviations of intrinsic and extrinsic satisfaction scores in relation to the variables

Variables	n	Intrinsic		Extrinsic	
		Means	Ss	Means	Ss
Gender					
Female	332	3,5312	,79566	3,5208	,81080
Male	439	3,5628	,79749	3,5660	,78139
Marital status					
Married	535	3,5453	,77912	3,5195	,77280
Single	236	3,5581	,83570	3,6079	,83847
Age					
21-30	273	3,4819	,81673	3,4915	,83410
31-40	272	3,5407	,78705	3,5501	,74854
41-50	179	3,6257	,78562	3,5693	,77919
51 and over	47	3,6976	,74888	3,7582	,84991
Seniority					
1-5 year	261	3,5463	,78508	3,5712	,83687
6-10 year	145	3,3335	,81136	3,3843	,72306
11-15 year	124	3,6308	,77654	3,5924	,72953
16-20 year	109	3,6435	,80874	3,5096	,84333
21 year and over	132	3,6374	,77594	3,6632	,77942
Tıtle					
Candidate teacher	96	3,6086	,79721	3,6629	,77689
Teacher	567	3,5239	,80458	3,5317	,79436
Expert teacher	108	3,6290	,74969	3,5210	,80554
Branch					
Science sciences	283	3,4783	,78978	3,5047	,77382
Social sciences	488	3,5903	,79804	3,5708	,80523
Workplace					
City center	413	3,5547	,80685	3,5030	,78178
District	310	3,5839	,75883	3,6352	,78701
Waist	48				
Positions					
Prımary School	211	3,6425	,72490	3,6588	,71728
Middle School	181	3,5150	,73660	3,5063	,75656
High school	379	3,5136	,85721	3,5032	,84622

Research Question 2: Do the intrinsic and extrinsic motivation factors of teachers working at Elazığ city center, districts and villages vary based on gender, marital status, age, experience, title, branch, workplace and place of duty?

The Mann-Whitney U test was conducted to compare teachers' intrinsic and extrinsic satisfaction scores in relation to gender, marital status, and branch, which appeared in two categories in Table 1. The results are shown in Table 2. The MWU value obtained by comparing teachers' intrinsic satisfaction scores according to their branches was significant (62834,000; $p<0.05$). The intrinsic satisfaction scores of social sciences teachers were higher than those of natural sciences teachers. The intrinsic satisfaction scores of both groups were higher than their extrinsic satisfaction scores. Significant differences did not exist in the intrinsic and extrinsic satisfaction scores of teachers when other variables were concerned**.**

Table 2. MWU Values

Variables	Intrinsic				Extrinsic			
	Mean Rank	Sum of Ranks	U	p	Mean Rank	Sum of Ranks	U	p
Gender								
Female	378,48	125655,50	70377,500	,415	378,20	125561,50	70283,500	,397
Male	391,69	171950,50			391,90	172044,50		
Marital status								
Married	383,41	205123,50	61743,500	,626	376,08	201202,50	57822,500	,062
Single	391,88	92482,50			408,49	96403,50		
Branch								
Science sciences	364,03	103020,00	62834,000	,037	372,85	105517,50	65331,500	,212
Social sciences	398,74	194586,00			393,62	192088,50		

Table 3. Kruskal Wallis H results concerning the intrinsic and extrinsic satisfaction scores of teachers with different years of experience

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ^2	p	Sig. Difference	Mean Rank	$\chi 2$	p	Significant difference
Seniority										
1-5 year	261	214,72	1	6,686	,010	1-2 MWU= 15994,500	216,09	8,423	,004	1-2 MWU= 15636,500
6-10 year	145	183,31					180,84			

The Kruskal Wallis H test was performed to test whether the mean scores of two or more unrelated samples varied significantly, and the Mann Whitney U test was performed to determine which group caused the significant difference (Table 3). The mean of ranks showed that the intrinsic motivation levels of teachers with 1-5 years of experience (mean of ranks = 214,72), was higher than those with 6-10 years of experience (mean of ranks = 183,31), and similarly, the extrinsic motivation levels of teachers with 1-5 years of experience (mean of ranks = 216,09) was higher than those with 6-10 years of experience (mean of ranks = 180,84).

Table 4: The Kruskal Wallis H-Test results of the intrinsic and extrinsic satisfaction scores of teachers with different years of experience

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ^2	p	Sig. Dif.	Mean Rank	$\chi 2$	p	Sig. Difference
Seniority										
6-10 year	145	122,53	1	8,093	,004	2-3 MWU= 7181,500	124,37	5,883	,015	2-3 MWU= 7448,500
11-15 year	124	149,58					147,43			

Table 4 reveals that the intrinsic motivation levels of teachers with 6-10 years of experience (mean of ranks =122,53) were lower than those with 11-15 years of experience (mean of ranks = 149,58), and similarly, the extrinsic motivation levels of teachers with 6-10 years of experience (mean of ranks = 124,37) were lower than those with 11-15 years of experience (mean of ranks = 147,43).

Table 5: The Kruskal Wallis H-Test results of the intrinsic and extrinsic satisfaction scores of teachers with different years of experience

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ^2	p	Sig. Dif.	Mean Rank	$\chi 2$	p	Sig. Diffirence
Seniority										
6-10 year	145	115,90	2	11,441	,003	2-4 MWU= 6221,000 P=,004	124,37	6,250	,044	2-4 MWU= 6960,000 p=,104
16-20 year	109	142,93					147,43			

It can be seen in Table 5 that the intrinsic motivation levels of teachers with 6-10 years of experience (mean of ranks =115,90) were lower and more meaningful than those with 16-20 years of experience (mean of ranks = 142,93), but no difference existed between their extrinsic motivation levels.

Table 6. The Kruskal Wallis H-Test results of the intrinsic and extrinsic satisfaction scores of teachers with different years of experience

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ2	p	Sig. Dif.	Mean Rank	χ2	p	Sig. Diffrence
Seniority										
6-10 year	145	125,20	3	13,427	,004	2-5 MWU= 7569,000 p=,004);	123,08	12,629	,006	2-5 MWU= 7261,500p =,006
21 year and over	132	154,16					156,49			

Table 6 shows that the intrinsic motivation levels of teachers with 6-10 years of experience (mean of ranks =125,20) were lower and more meaningful than those with 21 years and more experience (mean of ranks = 154,16), and similarly, the extrinsic motivation levels of teachers with 6-10 years of experience (mean of ranks =123,08) were lower and more meaningful than those with 21 years and more experience (mean of ranks = 156,49). The Kruskal Wallis H- Test performed to see whether teachers' intrinsic and extrinsic motivation levels varied with respect to age and title showed that the scores of groups did not vary significantly.

Table 7. The Kruskal Wallis H-Test results of the intrinsic and extrinsic satisfaction scores of teachers from different workplaces

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ2	p	No Sig. Dif.	Mean Rank	χ2	p	Sig. Diffrence
Workplace										
City center	413	357,27	1	,495	,482	MWU= 62061,000p= ,482	347,07	4,931	,026	1-2 MWU= 57847,000 p=,026
District	310	368,30					381,90			

As can be seen from Table 7, no significant difference existed between the intrinsic motivation levels of teachers working at city centers and those working in districts. However, the extrinsic motivation levels of the former (mean of ranks = 347,07) were lower than the latter (mean of ranks = 381,90), and the difference was in favor of district teachers. A significant difference was not detected between the intrinsic and extrinsic motivation levels of this latter group of teachers.

Table 8. The Kruskal Wallis H-Test results of the intrinsic and extrinsic satisfaction scores of teachers from different workplaces

Variable	Intrinsic						Extrinsic			
	n	Mean Rank	sd	χ2	p	No Sig. Dif.	Mean Rank	χ2	p	No Sig. Diffrence
Workplace										
District	310	184,34	1	5,057	,025	MWU= 5940,500	183,95	4,277	,039	MWU= 6061,000
Waist	48	148,26					150,77			

Table 8 shows that the intrinsic motivation levels of teachers working in districts (mean of ranks = 184,34) and those of teachers working in villages (mean of ranks = 148,26) varied significantly in favor of the former. Similarly, the extrinsic motivation levels of teachers working in districts (mean of ranks = 183,95) varied significantly from those of teachers working in villages (mean of ranks = 150,77) in favor of the former. Regarding workplace, no significant difference existed between the intrinsic and extrinsic motivation levels of elementary, secondary and high school teachers. However, both intrinsic and extrinsic motivation levels of elementary teachers were higher than those of secondary and high school teachers. High school teachers had higher intrinsic and extrinsic motivation levels than secondary school teachers.

Research Question 3: What is the direction of the relationship between intrinsic motivation and extrinsic motivation factors?

Table 9. Correlation between intrinsic and extrinsic motivation

		Internal	External
Internal	Pearson Correlation	1	,684**
	Sig. (2-tailed)		,000
	N	771	771
External	Pearson Correlation	,684**	1
	Sig. (2-tailed)	,000	
	N	771	771

Correlation is significant at the 0.01 level (2-tailed).

Table 9 shows that there was a moderate, positive and significant relationship between teachers' intrinsic and extrinsic motivation. r=0.684, p<.01. Accordingly, it may be concluded that as intrinsic motivation increases, so does extrinsic motivation. Considering the determination coefficient (r^2=0.46), 46% of the total variance in extrinsic motivation seems to stem from intrinsic motivation.

CONCLUSIONS

The study found that male teachers had higher intrinsic and extrinsic motivation levels than women. Brown (2007), on the other hand, concluded otherwise when he observed higher levels of intrinsic motivation among female teachers. While certain studies have concluded that women have higher work satisfaction (Hodson, 1989; Kelly, 1989), others maintain that males have higher levels (Friesen, Holdaway and Rice, 1983; Mccaslin and Mwangi, 1994; Varca, Shaffer and McCauley, 1983; Bilge, Akman and Kelecioğlu, 2007). Bilge, Akman and Kelecioğlu (2007) state that the work satisfaction of male and female academics did not vary. The variable of age did not lead to any difference in intrinsic and extrinsic motivation levels. Sloane and Ward (2001), on the other hand, age and gender varied the work satisfaction of academics. Young male academics were found to have higher levels of work satisfaction than their female counterparts, while female academics over 35 had higher work satisfaction levels than their male counterparts. These results contradict with those of the present study. While some studies did not find a significant relationship between age and work satisfaction (Karlıdağ, Ünal and Yoloğlu, 2000; Yıldız, Yolsal, Ay and Kıyan, 2003), others have found an association between them (Çetinkanat, 2000; Esen, 2001; Öncel, 1998). Bilge, Akman and Kelecioğlu (2007) found higher intrinsic satisfaction among older academics than younger ones. In this study, single teachers were found to have higher intrinsic and extrinsic motivation levels than married ones. However, Kemaloğlu (2001) concluded that married instructors had more work satisfaction than single ones, and those with children had more work satisfaction than childless ones. Öncel (1998) found higher work satisfaction among single instructors than others (Bilge, Akman and Kelecioğlu, 2007). Öncel's results corroborate those of the present study. Bilge, Akman and Kelecioğlu (2007) concluded that the work satisfaction of academics did not vary with respect to marital status. In this study, the intrinsic satisfaction scores of social sciences teachers were higher than those of natural sciences teachers. Considering branch of teaching, Öncel (1998) also found that social sciences instructors had higher work satisfaction than those in natural sciences. This result reflects those of this study. However, Bilge, Akman and Kelecioğlu (2007) reported lower work satisfaction levels among social sciences workers than among science and engineering workers due to extrinsic factors.

Teachers with 1-5 years of experience have higher intrinsic and extrinsic motivation levels than those with 6-10 years of experience. Also, teachers with 6-10 years of experience have lower intrinsic and extrinsic motivation levels than those with 11-15 years and 21 years or more. The intrinsic motivation levels of teachers with 6-10 years of experience are lower than those of teachers with 16-20 years of experience. Similarly, while there are studies that have reported a positive relationship between experience and work satisfaction (Çetinkanat, 2000; Esen, 2001; Kasapoğlu, 1999), there are also others that claim no such relationship exists (Musal et al., 1995; Yıldız et al., 2003; Bilge, Akman and Kelecioğlu, 2007).

Teachers' intrinsic and extrinsic motivation levels do not vary with respect to their title. While some previous studies have concluded that increased academic title also increases work satisfaction and the lowest levels of work satisfaction exist among research assistants (Çetinkanat, 2000; Esen, 2001; Karlıdağ et al., 2000; Kasapoğlu, 1999; Oran, 1989), others have found no such relationship between academic title and work satisfaction (Tosunoğlu, 1998; Yıldız et al., 2003; Bilge, Akman and Kelecioğlu, 2007). The results are contradictory. Considering that teachers were given the legal right to the titles of specialist and head teacher only once with an exam in 2005, that there is no systematic career rise opportunities, and that these titles do not bring and social or career benefits other than a minimal pay rise, it is no surprising finding that teachers see no link between having a title and performance or work satisfaction.

No significant difference was found between the intrinsic motivation levels of teachers working in districts and city centers. On the other hand, district teachers had higher intrinsic and extrinsic motivation levels than village teachers. This may have been due to the low life standards, limited social activities and unmet expectations of teachers in villages. The extrinsic motivation levels of district teachers were also higher than those working in the city center. Kaya, Yıldız and Yıldız (2013) observed that teachers working in the district of Princes Islands had higher extrinsic motivation levels than those in Güngören. These results mirrors those of the present study. They may be attributed to factors such as the short distance between school and the home, being far from crowded cities and traffic noise, small classroom size, better communication in smaller schools, closer friend relations, more solidarity between employees, ease of meeting responsibilities, equal distribution of work, and clear expectations. Though not significant, a difference was found between the intrinsic and extrinsic motivation levels of elementary teachers and secondary and high school teachers. Elementary teachers had higher intrinsic and extrinsic motivation levels than both others, and high school teachers had higher intrinsic and extrinsic motivation levels than secondary teachers.

According to the results of the Teaching and Learning Study Turkish National Report (2008), evaluation and feedback has very little financial impact and bears no relation to career development in many countries, including Turkey. Many teachers have stated that successful and effective education does not bring rewards or get appreciated. It has also been stated that the lack of feedback after teacher evaluation may hinder benefits from the "evaluation" process. Therefore, evaluation needs to be more clearly related to teacher performance, career development, development activities and financial rewards. More than half of the teachers state that principals do not use effective methods of teacher evaluation. They also state that feedback and incentives such as monetary rewards, salary rise, attendance in professional development activities, promotion, or a positive change in the profession are never used. Evaluation and feedback have been reported to have positive influence on teachers' work satisfaction and instruction.

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A Study On The Environmental Perception And Knowledge Levels Of Pre Service Science Teachers According To Their Class Level

E.Berna GÜCÜ
** Eğitim Fakültesi Fen Bilgisi Eğitimi*
Hacettepe Üniversitesi, Türkiye
gucum@hacettepe.edu.tr

Seren ERTEN
Eğitim Fakültesi Fen Bilgisi Eğitimi
Hacettepe Üniversitesi, Türkiye
seren.erten@windowslive.com

SUMMARY

Environmental education; is the development process of a world community which possesses sensitivity and interest towards the environment in its entirety and problems related to the environment, and the knowledge, behavior, motivation and skills to work towards solving current problems individually and collectively and for future prevention. (Öztürk et al, 1998:98). It is inevitable that programs with the essential element of education instruction and teachers who are the practitioners of these programs contribute to the formation of students' environmental literacy. On this point, the program applied by pre service teachers, during the process of teacher training, is also of great importance. This study was carried out with the objective of presenting the perceptions of the pre service teachers about the environment and determining their level of knowledge about the environment. The study was on 251 officially registered teacher candidates conducted on the 1st, 2nd, 3rd and 4th grades in the academic year 2015-2016 at the Faculty of Education's Department of Science Teaching at Hacettepe University. In the study the Environmental Literacy Scale's sub-dimensions for knowledge and perception was used as a data collection tool. This study was descriptive. In the result, no significant differences in the level of knowledge and perception according to the candidates' parental educational level and class level were observed. It emerged that the candidates' being members of environmental organizations was low, it was judged that the organizations need to promote themselves.

INTRODUCTION

It can be said that the concept of the environment first began to be widely used in the field of education in the second half of the 1960s, with the increase of environmental problems and the threat that they began to pose to humankind. The concept of the environment has a complex structure and it is difficult to define the limit of this concept in some respects (Uşak, 2006:3; Özdemir, 1997:17). Overall, the meaning of the environment is the external environment in which living being live and maintain relations. (Çepel, 1992:38; Ertürk, 1994:6, Ministry of Environment, 1998:1). The environment; it encompasses both people's mutual relations with other living beings, as well as the economic, social, cultural, historical, etc., relations with one another. As a whole we can consider the environment as external factors which affect and are effected by people.

People, who are an integral part of the environment, are of crucial importance in establishing an environmental balance. People's benefit and harm to the environment cannot be ignored. In this framework/context, the education of individuals at every level has gained importance in order to have a livable environment. Changing and developing technologies, human behavior is having an affect the natural order of the environment, at the end results that will be to the detriment of individuals once again will be presented. On this point, the objective of this study is to determine how people perceive the environment and whether it is necessary to reveal/present information about the environment. The group of the study conducted; they are teacher candidates of Science, both who have received university level education and also those who are closely interested in the environment, and those who are responsible for improving the level of environmental knowledge and awareness of students in later life.

METHOD

The environment is one of the main titles of Science Education. Within the scope of the curriculum of pre service science teachers, the main objective of this study was to determine the environmental knowledge and past knowledge gained according to values and perceptions of their class levels, their genders and the educational levels of their parents. The Environmental Literacy Scale was used as a data collection instrument in this study. This scale consists of 4 sub-tests including knowledge, attitude, behavior and perception. In the study the lower dimensions of the scale were used for knowledge and perception. In the study the lower dimensions of the scale were used for knowledge and perception. For the reliability of the sub-tests of the Turkish version of the Environmental Literacy Scale it was calculated at values between 0.71-0.78 by the Wisconsin High School Environmental Survey by Karatekin (2011). 11 questions related to date size are included within the scope of the study. Within the dimension of perception, there were questions related to the frequency of activities carried out by teacher candidates and their level of concern about environmental issues. In this study, it is demonstrated whether people are a member of environmental organizations and are subscribed environmental organizations. The study was on 243 officially registered teacher candidates conducted on the 1st, 2nd, 3rd and 4th grades in the academic year 2015-2016 at the Faculty of Education's Department of Science Teaching at Hacettepe University.

The study seeks to answer the following questions:

1) Is there a statistically significant difference in the perception levels of the environment of the students who are studying at the Department of Science Teaching depending on the class level?

2) Is there a statistically significant difference in the level of the environmental knowledge of students studying at the Department of Science Teaching according to their class level, mother's educational level, and father's educational level?

3) What is the level of participation in environmental activities depending on the class level of students studying at the Department of Science Teaching?

4) What is the situation of membership of an environmental organization depending on the class level of students studying at the Department of Science Teaching?

TABLE 1: . Distribution according to the class levels of pre service teachers and parental educational level

Class level	Father's level of education				Mother's level of education				Total
	Primary school Graduate	Middle school Graduate	High school Graduate	University Graduate	Primary school Graduate	Middle school Graduate	High school Graduate	University Graduate	
1	8 %11,6	12 %17,4	27 %39,1	22 %31,9	27 %39,1	8 %11,6	27 %39,1	7 %10,1	69 %100
2	14 %19,4	15 %20,8	24 %33,3	19 %26,4	29 %40,3	14 %19,4	16 %22,2	13 18,1	72 %100
3	14 %25,9	5 %9,3	21 %38,9	14 %25,9	21 %38,9	9 %16,7	18 %33,3	6 %11,1	54 %100
4	8 %18,1	13 %27,1	8 %16,7	19 %39,6	17 %35,4	12 %25	14 %29,2	5 %10,4	48 %100

A total of 243 pre service teachers participated in the study. Upon looking at the parental education pArofile of the participating teacher candidates, it was determined that their mothers are mostly primary school graduates, whereas their fathers are often high school graduates.

Descriptive Statistics and Anova Results for Knowledge Level Descriptives

		N	Mean	Std. Deviation	Std. Error
Mother level of education	1.Class	69	3,20	1,08	,12
	2. Class	72	3,18	1,15	,13
	3. Class	54	3,17	1,08	,14
	4. Class	48	3,15	1,038	,14
	Total	243	3,16	1,09	,06
Father level of education	1. Class	69	3,91	,98	,11
	2. Class	72	3,67	1,07	,12
	3. Class	54	3,65	1,14	,15
	4 Class	48	3,7917	1,14777	,16
	Total	243	3,7572	1,07695	,06

TABLE 2: Knowledge level according to parental education level

No significant differences were observed in the level of knowledge of the pre service teachers according to their parental education level

RESULTS

Question Title	Class Level				Total
	1	2	3	4	
Habitats	66 %95,7	69 %95,8	48 %88,9	48 %100	235 %95,1
Source of carbon monoxide	7 %10,1	5 %6,9	6 %11,1	9 18,8	27 %11,1
Source of electricity production	26 %37,7	10 13,9	24 %44,4	16 %33,3	76 %33,3
Fluvial and marine pollution	58 %84,1	63 %87,5	48 %88,9	48 %100	217 %89,3
Renewable sources	61 %88,4	44 %61,1	31 %67,4	38 %79,2	174 %71,6
The ozon layer	42 %60,9	39 %54,2	28 %51,9	31 %64,6	140 %57,6
Rubbish	48 %69,6	49 %68,1	38 %70,4	33 %68,8	168 %69,1
Environment-related government agencies	36 %52,2	44 %61,1	36 %64,8	30 %62,5	145 %59,7
Household waste	61 %88,4	56 %77,8	38 %70,4	38 %79,2	193 %79,4
Extinction	60 %87	60 %83,3	46 %85,2	39 %81,3	205 %84,4
Nuclear waste	19 %27,5	15 %20,8	24 %44,4	15 %31,3	73 %30

TABLE 3: The percentages of answering to the questions presented in the knowledge dimension based on the class level of pre service teachers

11 questions were posed to test the knowledge of pre service teachers. Approximately 89% and higher of all the students answered correctly the question about animal habitats, 84% and over the question about how rivers and seas are polluted, and approximately 81.3% and higher the question about what could be the reasons for the extinction of animals. Whilst the correct answer percentage of the teacher candidates to the question related to renewable energy was 88.4%, it is noteworthy that this ratio was 61, 67 and 79 percent for the 2nd, 3rd and 4th grades respectively. While they are knowledgeable about household waste and rubbish (79% average), the vast majority appear to be inadequately informed about sources of carbon monoxide and nuclear waste. 4. This ratio was determined as 18.8% and 31.3%, even among students. There was no significant difference between class levels in the results of the one-way Anova analysis.

Question Title	Mother's level of education				Father's level of education			
	Primary school Graduate	Middle school Graduate	High school Graduate	University Graduate	Primary school Graduate	Middle school Graduate	High school Graduate	University Graduate
Habitats	89 %94,7	41 %95,3	71 %94,7	30 %96,8	42 %95,5	43 %95,6	77 %96,3	69 %93,2
Source of carbon monoxide	8 %8,5	6 %14	9 %12	4 %12,9	5 %11,4	5 %11,1	10 %12,5	7 %9,5
Source of electricity production	34 %36,2	10 %23,3	26 %34,7	6 %19,4	13 %29,5	16 %35,6	25 %31,3	22 %29,7
Fluvial and marine pollution	82 %87,2	41 %95,3	65 %86,7	29 %93,5	39 %88,6	43 %95,6	68 %85	67 %90,5
Renewable sources	68 %72,3	29 %67,4	57 %76	20 %64,5	29 %65,9	33 %73,3	53 %66,3	59 %79,7
The ozon layer	58 %61,7	25 %58,1	40 %53,3	17 %54,8	25 %56,8	25 %55,6	43 %53,8	47 %63,5
Rubbish	59 %62,8	29 %67,4	57 %76	23 %74,2	23 %52,3	35 %77,8	63 %78,8	47 %63,5
Environment-related government agencies	59 %62,8	23 %53,5	43 %57,3	20 %64,5	30 %68,2	21 %46,7	49 %61,3	45 %60,8
Household waste	71 %75,5	34 %79,1	58 %77,3	30 %96,8	32 %72,7	36 %80	64 %80	61 %82,4
Extinction	83 %88,3	37 %86	61 %81,3	24 %77,4	38 %86,4	42 %93,3	67 %83,8	58 %78,4
Nuclear waste	29 %30,9	13 %30,2	21 %28	10 %32,3	14 %31,8	13 %28,9	19 %23,8	27 %15,5

TABLE 4: The distribution of correct answers given to the questions presented in the knowledge dimension based on the class level of pre service teachers

Upon looking at the table, it can be observed that the fathers of the teacher candidates who gave the most correct answers were university graduates and their mothers were primary school graduates. In the results of the one-way Anova analysis, there was no significant difference between parental educational levels and the candidates answering correctly.

Environmental pollution	**states of concerns**			
	1	**2**	**3**	**4**
Air pollution	65 %94,2	62 %86,1	51 %94,5	45 %93,7
Noise pollution	54 %78,3	53 %73,6	41 %75,9	36 %75
Automobile emissions	64 %92,8	62 %86,1	48 %88,9	44 %91,7
Harmful waste	68 %98,5	69 %95,8	53 %98,2	47 %99.9
Unhealthy drinking water	68 %99,9	69 %95,	853 %99,9	47 %99,9
Global warming	67 %97,1	69 %95,8	53 %99,9	47 %99,9
Industrial pollution	68 %98,5	68 %94,4	53 %99,9	46 %99,5
Depletion of the ozon layer	66 %99,8	70 %99,8	53 %99,9	47 %99,8

TABLE 5: The distribution of the states of concern about environmental pollution by the pre service teachers according to class level

In the table above, it can be seen that the teacher candidates were quite concerned about being opposed to environmental pollution. While almost all of the candidates are concerned about environmental pollution, they are most concerned with the depletion of the ozone layer. However, there was no significant difference in the results of analyses done between the class levels.

Activity	**Situation of participation in activities**			
	1.Class	**2.class**	**3.Class**	**4.Class**
Camping	4 %5,7	6 %8,3	4 7,5	2 %4,2
Outdoor walking	63 %91,3	64 %88,9	48 %88,9	48 %88,9
Bird watching	31 %44,9	19 %26,3	12 %22,3	12 %25
Fishing	6 %8,6	4 %5,6	4 %6,3	3 %6,3
Hunting	3 %4,3	2 %2,8	3 %5,6	4 %8,3
Watching environmental documentaries	39 %56,5	53 %73,6	37 %68,5	32 %66,7
Reading environment-related books and magazines	32 %46,3	40 %55,6	37 %68,5	28 %58,3
Visiting environmental websites	31 %44,9	42 %58,3	38 %70,3	29 %60,5
Participating in activities of civil society organisations working on the subject of the environment	13 %18,8	10 %13,9	5 %9,3	4 %8,4

TABLE 6: Distribution according to class level of the situation of participation of pre service teachers in the activities

Upon referring to the table, the condition of participation in activities of second grade teacher candidates appears to be more. While it can be observed that the activity which the candidates did the most was outdoor walking, the number of candidates who engaged in fishing, camping and hunting was low.

Organization	Situation being a member			
	1.Class	2.Class	3.Class	Class
TEMA	10 14,4	14 %19,5	14 %25,9	14 %29,3
AKUT	1 %1,4	0 %0,0	4 %7,5	0 %0,0
GREENPEACE	2 %2,9	2 %2,8	5 %9,3	4 %8,3
WILDLIFE PROTECTION	6 %8,7	5 %7,0	5 %9,3	8 %16,7
ÇEVKO	2 %2,9	0 %0,0	3 %5,6	1 %2,1
TÇV	1 %1,4	1 %1,4	4 %7,4	3 %6,3
TÜRÇEV	1 %1,4	1 %1,4	4 %7,4	10 %4,1

TABLE 7: The situation of pre service teachers being a member of an organization according to class level

According to the table, the participation of teacher candidates in any environmental organization is extremely low. It appears that students are most interested in TEMA as an environmental organization. The rate of participation was determined to be approximately 26% and 29% among 3rd and 4th grade students.

CONCLUSIONS and RECOMMENDATIONS

This study was limited to the teacher candidates of the Department of Science Teaching at Hacettepe University. Within the scope of the course at Hacettepe University, the lessons along with the education that the students were receiving had a great influence on the answers given by them. In spite of the 3rd grade receiving an environmental educational course in the second semester, the answers given by the 4th grade differed from other grades. The pre service science teachers who are interested in the environment have been effective in the level of concern. Membership of organizations is very low. Some of the organizations were not known. Although significant differences occurred according to grade level. The educational level of the families did not make a noticeable difference in the environmental opinions of the candidates. It was aimed to demonstrate the differences between other subject teachers of the study and department in which it was carried out.

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A Study On The Relatıonshıp Between Conflıct Resolutıon Behavıors & Empathy Levels Of Unıversıty Students

Ülkü TOSUN
Fatih University, Guidance & Counseling Department/Turkey
ulkutosun@hotmail.com

Celal GÜLŞEN
Fatih University, Faculty of Education, Educational Sciences Department/Turkey
celalgulsen@gmail.com

Yadigar KOCAMAN
Fatih University, Guidance & Counseling Department, MA Student/Turkey
kocamanyadigar@gmail.com

Ayşenur CUCİ
Fatih University, Guidance & Counseling Department, MA Student/Turkey
a_cuci@hotmail.com

ABSTRACT

Conflicts in interpersonal relations are inevitable. When conflicts are solved in a negative way the interrelations is deteriorate whereas solving them in a positive way strengthes the interrealtions among people. While the empathy levels of people are increasing the probability of conflict resolutions in a poaitive way progresses as well. In the present study, the conflict resolution styles & empathy levels of university students were examined in terms of different variables & the relationship between them. The data gathered from 451 students from five different univerities & 8 different departments during 2014-2015 academic year Spring semester in İstanbul. The personal information form, empathy trend scale (Bora & Bayson,2007) and conflict action styles inventory (Karadağ & Tosun, 2014) were utilized. Data analyses were done by using SPSS-21 computer software program, and Kruskal Wallis, Mann Whitney U & Spearman Product Moment Correlation techniques were used. As a result, there were statistically significant positive relations between high level of empathy and assertive conflict resolution styles of participants that are called as 'facilitator, negotiator, & confrontator.' The findings are paralel to the other research results in the literature (Karahan, 2008; Türnüklü et.al., 2009).

INTRODUCTION

Interpersonal conflicts are real and inevitable. (Gerzon, 2006). Conflicts ocur while people try to satisfy their own needs & demands for their personal success & happiness the move to assume that the connected people around them will prevent their satisfactions (Gündoğdu, 2010). Conflicts as observed as a result of misunderstanding, disorganisation & discrepancy among people (Karip, 2000; Rahim, 2002; Bilgin, 2008). The individuals awaring of the present problem seek the alternative solutions to get rid of it & all efforts in that way have been called as conflict resolution process (Bedel & Arı, 2011). Not just the conflict itself but the people's reactions to conflict resolutions cause the deterioration of interpersonal relations. While problem solving in a negative way deteriorates the interrelations, it in a positive way strenghts the relations among people (Tosun, 2007). Conflict resolution is a process for solving the encountered problems that the parties who are in conflict come together and attempt to solve them (Gülşen, 2015a; Jant & Pedersen, 1996; Maurer, 1991; Rahim, Garett & Buntzman, 1992). Individuals learn the methods of conflict resolution by observing and experiencing . The human behaviors called as submissive, agressive, & assertive psychologically have been coincided with the behaviors reflected in conflict resolution process. When the 'avoided' conflict resolution style reflecting submissive behaviors and 'coercive' style reflecting aggressive behaviors have been used by one or two of the parties the conflicts have ended up in a negative way in other words, one of the parties loses (Gordon, 1996).
The most important goal of submissive individuals in a conflict situation is to calm the parties down to avoid the conflict. On the other hand, aggressive individuals rather than seek a common solution in conflicts they take themselves to defend and push to the wall the opposite party (Ayan, 2007). Assertiveness takes place in the middle of the submissive & aggressive features that they prevent the communications (Voltan, 2015). Assertiveness is to protect a person's his/her own rights by respecting the opposite side's/party's rights in a communication process (Kiper, 1984). Conflict resolution styles like 'facilitation, negotiation, & confrontation' are assertive behaviors leading to solving the problems in a positive way that means everybody wins (Türnüklü

& Şahin, 2004 ; Türnüklü, 2005; Gündoğdu, 2010; Karadağ & Tosun, 2014). Kindler (1988) states the following as basic principles of conflict resolution: (1) protect all parties' self-worths, (2) listen with empathy, (3) not to wait for the other to change the behavior, (4) explain his/her own views independently. Listening with empathy affect interrelations in a positive way (Yüksel, 2004). Empathy prevents the emergence of many communication problems between people. Conflicts between individuals can be solved with the least damage as soon as possible via the empathy approach (Cevahir et.al. , 2007; Gülşen, 2015b). Conflicts are natural and inevitable in school settings in where the individuals having different backgrounds, values, beliefs and demands stay constantly together (Türnüklü, 2006).

The purpose of this study is to examine the conflict resolution behaviors and empathy levels of university students as adults.

Problem statement: Is there a significant relationship between conflict resolution behaviors and empathy levels of university students?

Sub-Problems: (1) Do conflict resolution behaviors and empathy levels of university students exhibit an significant difference with respect to gender, age, department, faculty, the place of residence. (2) Is there a significant relationship between conflict resolution behaviors and empathy levels of university students?

THE STUDY

The model of this research constitutes relational survey model. Relational model without a real cause-and-effect relationship provides an opportunity that to know a variable characteristics leads to know other variables' characteristics (Karasar, 2006: 82). The relationship between conflict resolution behaviors and empathy levels has been examined in this study

The study group was consisted of 451 students including 301 females and 150 males from 451 students from five different universities & 8 different departments during 2014-2015 academic year Spring semester in İstanbul.

Instruments:

1. **Personal Information Form :** Forms included gender, age, department, faculty, the place of residence
2. **Empathy Trend Scale (ETS) :** The scale was developed by Dökmen (1988) to define empathy levels of individuals in their daily lives. Test-retest reliability coefficient 0.82, the split-half reliability coefficient of scale 0.86, the Cronbach's alpha coefficient, 0.72 have been found. Relation validity coefficient is .68 for between the ETS & 'understanding emotions' subscale of Edwards Personal Preference Inventory. With 20 items the lowest score of the scale is 20 the highest score is 100 (in Ekinci & Aybek, 2010).
3. **Conflict Action Styles Inventory (CASI):** It was developed by Johnson and Johnson in 1981 and revised in 2008 . Karadağ and Tosun adapted to Turkish (2014). There are 35 items and 5 subscales. Sub scales: (1) avoidance, (2) coercive, (3) facilitation, (4) negotiation, (5) confrontation. According to factor analysis factor loads were ranged from .37 to 0.87. The correlation coefficients obtained for each item of the scale ranged from 0.28 to 0.93. The correlation coefficient is .76 in the test-retest method, Cronbach's alpha values for internal consistency of the subscales ranged from 0.84 to 0.89.

Data Analysis: The data obtained in the study was assessed using SPSS -21 software programme. Frequency and percentage values of demographic variables were calculated on the basis of descriptive statistics. The Kolmogorov-Smirnov test was applied to check the normal distribution of data and the number of participants were reduced from 480 to 451. At the end of skewness and kurtisis analysis was found that data were inclined to the left side and median was higher than mean value. Depending on these findings data were analyzed by using Kruskal-Wallis and Mann Whitney U non-parametric tests. Furthermore, the relationship between empathy level and the subscales of conflict action styles scale was evaluated by using non-parametric Spearman crelation coefficient.

FINDINGS

1. Findings related to Socio-Demographic Variables:

The 451 participants evaluated the test results were consisted of 301 females (66.7%) and 150 males (33.3%). The highest rate of participants were 18-21 age groups (232 people with 51.4%), 22-25 age group was 41.5% with 187 people, the least participants were 32 people 7.1% aged 26 and older group. The students (67.8%) studying at verbal sections were more than the ones studying at numerical sections. While the highest participation rate was from Arts and Sciences faculty (30.4%), the minimum attendance was from Law faculty (2.0%). Other ratios were respectively that: Architecture and Engineering 20.0%; Education 19.7%; Faculty of Economics & Administrative Sciences (FEAS) 13.1%; Communication 6.2%; Vocational High School (VHS) 4.4%; Theology 4.2%. While the 40.8% of the participants were staying with their parents, the 29.5% was at home with their friends, the 24.2% was at the dormitory, the 5.5% was staying alone.

2. Inferential Findings related to Conflict Resolution Styles & Empathy Levels

Table 1: Conflict Resolution Styles & Empathy Levels Mann Whitney U Test Findings in terms of Gender Variable

Tests	Gender	N	Mean Ranks	Sum of Ranks	U	p
CASI-Coercive	Female	301	212.78	64047.50	18596.500	.002
	Male	150	252.52	37878.50		
CASI - Facilitative	Female	301	234.63	70622.50	19978.500	.046
	Male	150	208.69	31303.50		
Empathy	Female	301	237.05	71351.00	19250.000	.011
	Male	150	203.83	30575.00		

Statistically significant findings showed that compulsive style was in favor of male participants while facilitative style and high empathy level were in favor of female participants.

Table 2 : Conflict Resolution Styles & Empathy Levels Mann Whitney U Test Findings in terms of Age Variable

Subtest	Age	N	Mean Ranks	df	Chi-Square	p
Avoidance	18-21	232	210.19	2	7.445	.024
	22-25	187	240.50			
	26 +	32	255.86			

Statistically significant results were found in the 'avoidance' subscale of CASI in terms of *age* variable

Table 3: Conflict Resolution Styles & Empathy Levels Mann Whitney U Test Findings in terms of Department Variable

Subtest	Department	N	Mean Ranks	Sum of Ranks	U	p
CASI-Coercive	Numeric	145	243.54	35314.00	19641.000	.048
	Verbal	306	217.69	66612.00		

Statistically significant results were found in the 'coercive' subscale of CASI in terms of *department* variable

Table4 : Conflict Resolution Styles & Empathy Levels Kruskal Wallis H Test Findings in terms of Faculty Variable

Tests	Faculty	N	Mean Ranks	df	Chi-Square	p
CASI-Coercive	Education	89	201.96	7	19.209	.008
	Art-Science	137	247.34			
	Law	9	227.33			
	Theology	19	189.58			
	Communication	28	246.48			
	FEAS	59	199.35			
	Arch-Engineering	90	**250.01**			
	VHS	20	**162.73**			
CASI-Confrontation	Education	89	236.56	7	16.003	.025
	Art-Science	137	245.89			
	Law	9	**136.78**			
	Theology	19	**257.00**			
	Communication	28	249.68			
	FEAS	59	201.83			
	Arch-Engineering	90	202.47			
	VHS	20	197.53			
Empathy	Education	89	227.02	7	25.708	.001
	Art-Science	137	212.19			
	Law	9	**95.22**			
	Theology	19	263.71			
	Communication	28	**295.48**			
	FEAS	59	198.88			
	Arch-Engineering	90	249.32			
	VHS	20	216.90			

It was found statistically significant results for the '*coercive'* subscale of conflict resolution behaviors in favor of the architecture-engineering faculty students, while '*the confrontation*' subscale in favor of the faculty of theology students.
The highest level of empathy was seen in communication faculty students while the lowest in law faculty students.

Table 5 : Conflict Resolution Styles & Empathy Levels Kruskal Wallis H Test Findings in terms of the Place of Residence Variable

Tests	Residence	N	Mean Ranks	df	Chi-Square	p
CASI-Coercive	Family	184	242.90			
	Friend	133	209.70	3	8.501	.037
	Alone	25	**258.94**			
	Dormitory	109	209.80			
Empathy	Family	184	236.24			
	Friend	133	212.91	3	11.087	.011
	Alone	25	156.02			
	Dormitory	109	**240.73**			

While coercive conflict resolution behaviors was seen in people living alone (258.94), the lowest level of empathy was in the ones alone and the highest one was in the ones staying at dormitory.

3. The Relationship between Conflict Resolution Behaviours & Empathy Levels

Table 6 : The Relationship between Conflict Resolution Styles & Empathy Levels Spearman Corelation Test Findings

Test	Facilitation	Negotiation	Confrontation
Empathy	.354	.235	.209

Correlations were significant at the p<0.01 level.

CONCLUSIONS

It is seen that men are using ' *coercive* ' style frequently while exhibiting conflict resolution behaviors. Being high of points of empathy of the women who prefer the *facilitative* style, it shows that they prefer to resolve the conflicts by assertive behaviors. This result overlaps with the other results of studies in the literature field. (Türnüklü, 2004; Rehber and Atıcı, 2009; Gündoğdu, 2010).

The only significant difference between participants is to prefer '*avoidance*'style more and not to want to live any problems and possibly can be interpreted that they want to finish the university right away.

More preference of numeric sections of students who study as a way of coersive style of conflict resolution can be predicted that their sections and works in the future are in compliance with the machines and the tools rather than the people. In addition to this, being high level of the mean scores of empathy in those who study at verbal section is important to stress that they strive to be understandable. '*Coercive'* loses one side of the solution. The conflict has lost one of the parties is seen in other studies in the literature that low levels of empathy for those who prefer the solution. (Gündoğdu, 2010; Rehber and Atıcı, 2009). In this sense, it is predictable that other studies are not parallel with the other researches.

Preference mostly by architecture and engineering faculty students of '*coercive'* style reflecting aggressive behavior is parallel with the high points of the 'compulsive' style of those who study at numeric sections. It also supports the result that the second-high points are in numeric sections of art and science faculties. In the lowest points of '*coercive'* style are respectively Vocational High School, Faculty of Economics and Administrative Sciences and Theology. Getting the second low level points in the faculties of students with the most ideal behavior which is '*coercive'* style, who study at VHS can be interpreted that studying at VHS instead of faculty could have effected their self confidence.

The students of the Faculty of Theology *'coercive'* style in the low '*confronting*' style based on the people to have the highest scores could be explained by the theological approach adopted. Having the highest points of the theology students in the style of '*confronting'* while the lowest in the '*coercive'* style can be explained that adopting the theological approach of human as basic.

The highest points of empathy are of communication faculty students and the second highest is the *'confronting'* points. On the other hand, having the high points of this group's '*coersive'* style can be interpreted that they exhibit different behaviors according to subjects.

The group of law school students is with the lowest points of *empathy* and *confronting* styles, while the coercive is at medium level according to the other groups, the conflicts can be explained with rules or to solve with laws. However, in our country as well as the courts in the resolution of legal issues since 2013 "mediation" process was initiated. Lawyers who want to work as a mediator of *empathy* and assertive behavior are expected of science and applications (Ministry of Justice, 2013).

In terms of place of residence only *'coercive'* conflict resolution styles shows a significant difference in favor of living alone. The people living alone focus on protecting their rights and so, it shows a consistent in '*coercive* solution style' while getting low points in empathy level. On the other hand, while being aware of the style of '*coercive*' to live together and well, the participants staying at dormitory are getting low points, is consistent with high level of empathy.

Participants are protecting their rights of empathy and reflect assertive behavior in respecting the rights of others 'facilitation, negotiation and confrontation' to be in meaningful relationships with conflict resolution style is in keeping with the show consistency in their own and other research results. (Karahan, 2008; Türnüklü et al., 2009).

Recommendations

- Empathy training to increase the use of assertive styles in conflict resolution, it can be given like activities to the big groups and group works to the small groups
- 'Conflict resolution' and / or 'mediation' can be given as an elective course to the law students
- It can be facilitated of increasing empathy level by giving elective course of communication to the numeric section students
- Similar studies can be applied to the teachers
- Similar studies can be applied in different school types

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A Study on the Relationship between Internet Addiction and Cyberbullying Sensibility of Psychological Counselor Candidates[*]

Cengiz ŞAHİN
Ahi Evran University, Faculty of Education, Kırşehir, Turkey
csahin@ahievran.edu.tr

ABSTRACT

The objective of this study is to determine the relationship between internet addiction levels and cyberbullying sensibility of psychological counselor candidates. The study was designed as survey model. The data of the study were collected from 216 psychological counselor candidates studying in a Turkish state university in the fields of guidance and psychological counseling. Descriptive statistical methods were utilized in analyses of the data. Because the normality condition ($p < 0.05$) was not provided in evaluation of the data, Spearman's rho Correlation Test, among the non-parametric tests, was employed to find the relationship between the two variables and Mann-Whitney U test was used to test if there is a significant difference between two situations. According to the findings obtained from the study, a significant level of relationship was found between internet addiction level and cyberbullying sensibility of psychology counselor candidates. Furthermore, the points of males are higher compared to females in both scales and no significant difference was determined in terms of class. The study findings were discussed in company with the relevant literature and recommendations were developed for studies to be carried out later.

Keywords: Cyberbullying, Cyberbullying Susceptibility, Internet Addiction, Psychological Counselor Candidates

INTRODUCTION

Internet, in our day, has become an indispensable resource utilized through individuals of all ages with a view to obtain and share quick and easy information, contact, communicate, perform business, have entertainment and implement banking transactions thanks to providing easy access and interaction feature thereof. Internet has become one of the most important technological developments of our day attracting attention of all humanity with this feature thereof. It has become a part of the lives of especially adolescent and young adult population thanks to the facilities offered thereby.

Internet, having emerged in the 1960s as a project envisioning to link computers to each other, has taken its place among other technologies with the establishment of the first computer network in 1969, in California. In early 1970s e-mail was developed and the World Wide Web (WWW) concept was put forward for the first time in 1990s (Şahin, Aydın and Balay, 2016). The first trials in Turkey began in 1990 (Taş and Kestellioğlu 2011) and the first internet connection was realized in 1992 (Çağıltay, 1997). Internet has become a focus of attention devise of many of the people before half a century has passed from the invention thereof and has become to be utilized through almost half of the world population. It is observed that internet usage rate has reached 55.9% in Turkey according to 2015 data of Turkish Statistical Institute (TSI). This rate is 65.8% for males while it is 46.1% for females. Highest incidence of computer and internet usage frequency is 77.0% in the 16-24 age group, while the rate is 85.1% for males and 68.9% for females.

It is a fact that internet has positive impacts on the individuals and society (Şahin, 2014). However, a group of individuals use the Internet to the extent they need while a group of individuals use it more than they need and cannot limit the use of the Internet (Gönül, 2002) thereby experiencing problems in their work and social lives due to excessive use thereof. One of the negative impacts thereof can be said is the pathological internet use or in other words internet addiction affecting people's behaviors negatively.

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Internet addiction concept has begun to be used in 1995 for the first time by Goldberg and has been described as internet addiction (Young, 1996) or pathological internet use (Davis and Flett Besser 2002) in recent years. Although internet addiction does not yet have a standard definition, Young (1996) defines internet addiction as not being able to resist against the use of internet excessively by individuals, considering the time passed without being connected to the internet unimportant, excessive tension and aggression shown by the individual when not connected to the internet and the harm given to business, social and family lives. Şahin and Korkmaz (2011), have defined the concept of internet addiction as use of internet by the individual in an unconscionable way thereby experiencing a variety of problems in personal, social and professional life.

Internet addiction is not currently defined as an illness in the manual published by American Psychiatric Association (APA) named "Diagnostic and statistical manual of mental disorders: DSM-IV"(Şahin, 2014). Young (1998), who has first defined internet addiction and brought forward the first diagnostic criteria has stated that the closest disorder to internet addiction, which is not involved abuse of any substance, is "pathological gambling" specified under the title of impulse control disorders in DSM-4. It has been stated that in studies made on internet addiction that internet addiction can have risks like any other substance dependencies due to various psychological, sociological, physical and academic problems caused thereby (Young, 1996, 1999; Griffiths, 2000; Heart, 2002). Although only internet game addiction is included in the DSM-5 additional section, it argued that internet addiction is a behavioral addiction.

It is stated that internet addiction is a new mental health epidemic among students in the world's different countries and particularly in the Far East (Kandell, 1998) This issue's reaching further dimensions have led the researchers to make studies on the effects of internet addiction on individuals in recent years (Kuss, Griffiths and Binder, 2013) Studies are also carried out on this subject in our country in the recent years however the dimension of addiction of internet which has become an important source of for information especially for university students and adolescents has not yet been revealed in full.

When the studies on internet addiction are examined in the literature it is observed that the researchers have used variables such as demographic characteristics like gender and age, (Thatcher and Goolam, 2005; Şahin, 2011), shyness (Ayas, 2012), depression (Young and Rodgers, 1998; Bayraktar, 2001; Özcan and Buzlu, 2005; Ceyhan, 2008; Şahin, 2014), loneliness (Morahan and Schumacher, 2003; Pawlak, 2002; Kurtaran, 2008; Durak and Batıgün, 2010, Esen and Siyez, 2011), psychological well-being (Caplan, 2002), psychological symptoms (Yen Ko, Yen Chen, Chung and Chen, 2008), attention deficit (Yoo, Cho Ha, Yune, Kim, Hwang and Lyoo, 2004), social support (Özcan and Buzlu, 2005; Esen and Gündoğdu, 2010); peer pressure (Es, 2007), personality traits (CaoveSu, 2007), social skills (Caplan, 2005), self-esteem (Kurtaran 2008), self-efficacy (Çetinkaya, 2013) and interpersonal relations(Durak and Batıgün, 2010) in their studies.

It is usually focused on the negative effects of internet in studies carried out in education and social areas as can be observed in the studies. One of these negativities is cyberbullying experienced widely recently as a result of using information and communication technologies to harm others (Padır, Eroğlu and Çalışkan, 2015) Peer bullying which is a common problem in social relations in schools has changed its form and led to cyberbullying due to the spread of technological means by using them to harm others. (Tanrıkulu, Kınay and Arıcak 2011, Dikmen, 2015).

"Cyberbullying" (cybermobbing or e-mobbing) is defined as deliberately insulting, humiliating, excluding, threatening, exposing or making others uncomfortable by using modern communication means in a virtual environment in the literature (Bayram and Saylı, 2011). Bill Belsey, who has used the cyberbullying term in his studies for the first time (Campbell, 2005) defines cyberbullying as deliberately repeated hostile behavior by an individual or by groups and the use of information and communication technology to harm others (Belsey, 2004). Cyberbullying, according to Arıcak (2011) includes "all behaviors made against an individual or a group or a legal and natural entity to give technical or relational harm by using information and communication technologies".

As a matter of fact, cyberbullying and "normal" bullying are basically indistinguishable (Hilbig, 2016). In our day, bullying is much more than just a condition that occurs in schools or workplaces but it is realized by threats and harassments in applications such as social media, video platforms and blogs (Fawzi 2016). Cyber bullying, which is the subject of this study has two types applied as electronic communication and technically. The first one which is electronic communication bullying (e-communication bullying) includes actions such as constantly disturbing and teasing people, name calling, spreading rumors, insulting on the internet or publishing personal information or images of the person without the consent thereof by using information and communication technologies. The second one which is electronic bullying (e-bullying) includes actions such as obtaining passwords to make the systems or electronic devices unworkable, hacking websites and sending spam (Arıcak, 2011).

When studies conducted on cyberbullying are examined, it has been determined that individuals who were victims of cyberbullying were observed to be angry, embarrassed, fearful, nervous, unable to concentrate on their lessons, with decline in school success and absenteeism, lonely, anxious, depressive and had suicide attempts (Hoffman and Mitchell, 2009; Shariff, 2008; Hinduja and Patchin, 2007; Smith at al., 2006; Beren and Li, 2005; Ybarra and Mitchell, 2004). It was observed that the studies conducted in Turkey focused on cyberbullying and concepts trying to describe the situation such as gender, age, socio-economic status, widespreadness, causes and effects and conduction of in-depth studies are needed on the subject (Eroğlu, 2011; Baker and Kavsut, 2007; Topçu, 2008; Özdemir and Akar, 2011; Ayas and Horzum, 2012; İnselöz and Uçanok, 2013; Akbaba and Eroğlu, 2013; Bayram ve Saylı, 2013; Soydaş and Uçanok, 2014; Baran, Keskin and Genç; 2014; Dikmen, 2015).

Cyberbullying behavior is a condition which also constitutes a threat perception to the individual. For this reason, sensibility can be expected to be observed in individuals who perceive this as a threat (Tanrıkulu, Kınay and Arıcak, 2011). In this sense, cyberbullying sensibility can be defined as " trying to be away to being subject to bullying behaviors during the use of cyber tools such as internet and mobile phones, be aware of the existence of such threats and take measures and being highly attentive as to stimuli which can cause a threat" (Tanrıkulu, 2011).

Although many teachers and administrators in our day aware that that bullying in schools is a problem , only a small part thereof think that the students are bullied in electronic environments (Li, 2007). Perceptions of psychological consultants (school counselors) in recognizing and fighting against cyberbullying cases which greatly affect academic achievements, social lives and psychology of students is very important compared to other teachers. Accordingly, the problem statement of the study is the question of "Is there any significant relationship between the internet addiction levels and cyberbullying sensibility of psychological counselor candidates?"

Objective of the Study

The general objective of this study is to examine the relationship between internet addiction levels and cyberbullying sensibility of psychological counselor candidates in terms of gender and the classs where education is received.

The answers to following questions were sought in line with the general objective of the study:

1. What is the internet addiction and cyber bullying sensibility levels of psychological counselor candidates?

2. Is there any relation between the internet addiction and cyber bullying sensibility levels of psychological counselor candidates?

3. Do the internet addiction and cyber bullying sensibility levels of psychological counselor candidates vary in terms of gender and the class where education is received?

METHOD

Method of the Study

In this study, correlational scan method was used. Correlational scan method is a method which aims to determine the presence and degree of change between two or more variables. Much as correlational scan method does not provide a real cause-result relation if the situation in a variable is known it allows the other situation to be estimated (Karasar, 2010) and aims to collect data in order to determine the features of a group (Büyüköztürk, 2009). Scan methods, according to Frankel, Wallen and Hyun (2011 scan methods are utilized to collect information from a group of people when personality features or some views (such as competence, opinion, attitude, belief and knowledge) of a small group which is the part of a large group of is investigated.

Study Group

The study group comprised psychological counselor candidates receiving education in the second semester of the 2015-2016 academic years in the first and fourth class of a Turkish university. Data collection tools were utilized subsequent to giving detailed information as to the study to the psychological counselor candidates who accepted to participate to the study. Consequently, the data of 216 psychological counselor candidates were included in the statistical evaluation.

Data Collection Instruments

The data in this study was collected by using Personal Information Form, Internet Addiction Scale (IAS) and Cyberbullying Sensibility Questionnaire (CSQ). The psychometric features of the measuring instruments utilized in the study are provided below.

Personal Information Form: This form was developed by the researcher with an eye to collect demographic information of participants such as gender and class.

Internet Addiction Scale (IAS): The scale designed by Hahn and Jerusalem and adapted to Turkish by Şahin and Korkmaz (2011) as the IAS. There are 7, 4 and 8 items in "Loss of Control", " Desire to Remain Online Excessively" and "Negative Consequences for Social Relationships" dimensions respectively in the scale consisting of 19 items and three factors. The items in the dimensions were graded as "always (5), usually (4), sometimes (3) rarely (2) never (1)". The maximum point to be obtained from the scale is 95 and the lowest point is 19. Goodness of fit values were found as [$\chi2$ (d=149,N=468)=580,17, $p<.01$, RMSEA=0.079, S-RMR=0.045, GFI=0.90 AGFI=0.85, CFI=0.97, NNFI=0.96, IFI=0.95] as a result of the confirmatory factor analysis. It was observed that the Cronbach Alpha values changed between 0,887 and 0,926, while this value was 0.858 in overall scale (Şahin and Korkmaz, 2011). Cronbach Alpha values of the dimensions were calculated to be between 0.867 and 0.914 and as 0.924 in the overall scale in this study.

Cyberbullying Sensibility Scale (CSS): Cyberbullying sensibility scale developed through Tanrıkulu, Kınay and Arıcak (2011) consists of 14 items and one factor. This one factor explains 27.70% of the total variance. The factor loads under one factor ranges from .32 to .73. This structure with single factor obtained was tested by confirmatory factor analysis and the method was found to be at an acceptable level (χ^2/sd= 2.06 ve RMSEA= .078). Questions in the scale were calculated by giving 3, 2 and 1 points to "Yes", "Sometimes" and "No" options respectively. The maximum point to be obtained from the scale is 42 while the lowest point is 14. The Cronbach alpha value of the scale was calculated as 0.767 in this study.

Statistical evaluation

The data obtained in this study have been transferred to computer environment and analyzed through utilization of the SPSS 20.0 software. The following relational and descriptive analyzes were performed in line with the purpose of this study. Frequency and percentage calculations have been conducted in order to reveal the distribution of sampling according to class and gender variables. One Sample Kolmogorov-Smirnov Test was utilized to determine whether collected data follows a normal distribution ($p <0.05$). Employment of non-parametric tests was found to be necessary inasmuch as the normality condition could not be provided and Spearman's rho Correlation Test to find the relationship between the two variables. Correlation test is used for "examining the relationship between two or more variables without intervention to one of these variables in any way" (Büyüköztürk et al., 2010). Furthermore, Mann - Whitney U test was used to test if there is a significant difference between these two cases (Kesici and Kocabaş, 1998). Study hypotheses were tested at 0,05 significance level.

RESULTS

The study group consisted of 216 psychological counselor candidates who responded the data collection devices in a complete manner. Some demographic characteristics related to the psychological counselor candidates who partook in the study are given in Table 1:

Table 1 Descriptive characteristics of the study group

Variable	Frequency (f) (216)	Percentage (%)
Gender		
Female	123	56,9
Male	93	43,1
Class		
1st Class	120	55,6
4st Class	96	44,4

When Table 1 examined, it is observed that 123 of the psychological counselor candidates in the study group (56.9%) are female and 93 (43.1%) were male while 120 of them (55.6%) stated that they received education in the first class and 96 (44.4%) received education in the fourth class. In addition, the average age of the psychological counselor candidates was (20.65 ± 6.60).

The description of internet addiction and cyberbullying sensibility levels of psychological counselor candidates

Descriptive statistics on internet addiction and cyberbullying sensibility point of psychological counselor candidates are given in Table 2.

Table 2: Descriptive statistics

Variable	N	Min.	Max.	M	SD
Loss of Control	216	7,00	35,00	14,34	4,12
Desire to Remain Online Excessively	216	3,00	15,00	6,57	2,70
Negative Consequences for Social Relationships	216	9,00	45,00	14,75	4,82
Internet addiction (Total)	216	19,00	95,00	35,68	9,70
Cyberbullying Susceptibility	216	14,00	42,00	33,11	3,50

In Table 2, it is observed that [Loss of Control (14.34 ± 4.12), Desire to Remain Online Excessively (6, 57 ± 2.70) and Negative Consequences for Social Relationships (14.75 ± 4.82)] seems to be low in general total of internet addiction points of psychological counselor candidates (35.68 ± 9.70) and average points obtained from the subscales. The sensibility of cyberbullying points (33.11 ± 3.50) were observed to be above the average.

One Sample Kolmogorov-Smirnov Test was utilized to determine whether collected data followed a normal distribution ($p < 0.05$) and it was found that the data were not normally distributed ($p < .05$). Therefore, the data were analyzed by using non-parametric tests.

Internet addiction and cyberbullying sensibility levels according to gender

Results of the Mann - Whitney U test performed to determine if points of the psychological counselor candidates received from the internet addiction scale and subscales and cyberbullying sensibility scale differed according to gender is given in Table 3.

Table 3: Results of the Mann - Whitney U test performed according to gender

Variable	**Gender**	**N**	**Mean Rank**	**Sum Ranks**	**U**	**Z**	**p**
Loss of Control-LC	Female	123	98,32	12093,50	4467,5	-2,760	,006*
	Male	93	121,96	11342,50			
Desire to Remain Online Excessively -DROE	Female	123	92,98	11436,50	3810,5	-4,229	,000*
	Male	93	129,03	11999,50			
Negative Consequences for Social Relationships -NCSR	Female	123	96,04	11813,50	4187,5	-3,380	,001
	Male	93	124,97	11622,50			
Internet addiction (Total)-IA	Female	123	93,76	11533,00	3907,0	-3,988	,000*
	Male	93	127,99	11903,00			
Cyberbullying Susceptibility -CS	Female	123	106,16	13057,50	5431,5	-0,636	,525
	Male	93	111,60	10378,50			

$p<0,01$*

The data in Table 3 reveals that mean rank values of the male students is higher in lower dimensions of the scale than female students in total. In analysis conducted, the differences of the LC (U=4467,5; $p<0,01$), DROE (U=3810,5; $p<0,01$) and NCSR (U=4187,5; $p<0,01$) in lower dimensions and mean rank average of total IA (U = 3907.5, $p < 0.01$) was found statistically significant in favor of male students. These findings indicate that internet addiction levels differ according to gender. Furthermore, it was found that the mean CS point values of psychological counselor candidates do not have statistically significant difference in terms of gender (U = 5431.5, $P > 0.05$).

Internet addiction and cyberbullying sensibility levels according class

Results of the Mann - Whitney U test performed to determine if points of the psychological counselor candidates received from the internet addiction scale and subscales and cyberbullying sensibility scale differed according to class is given in Table 4.

Table 4: Results of the Mann - Whitney U test performed according to class

Variable	**Class**	**N**	**Mean Rank**	**Sum Ranks**	**U**	**Z**	**p**
Loss of Control-LC	1st Class	123	103,61	12433,50	5173,5	-1,288	0,198
	4st Class	93	114,61	11002,50			
Desire to Remain Online Excessively -DROE	1st Class	123	110,34	13240,50	5539,5	-0,487	0,626
	4st Class	93	106,20	10195,50			
Negative Consequences for Social Relationships -NCSR	1st Class	123	107,30	12875,50	5615,5	-0,318	0,751
	4st Class	93	110,01	10560,50			
Internet addiction (Total)-IA	1st Class	123	106,10	12731,50	5471,5	-0,633	0,527
	4st Class	93	111,51	10704,50			
Cyberbullying Susceptibility -CS	1st Class	123	110,48	13258,00	5522,0	-0,523	0,601
	4st Class	93	106,02	10178,00			

The data in Table 4 reveals that The data in Table 4 reveals that mean the differences of the LC (U=5173,5; p>0,05), DROE (U=5173,5; p>0,05), NCSR (U=5615,5; p>0,05) in lower dimensions and mean rank average of total IA (U=5471.5, p>0,05) was not found statistically in first and fourth class students. Furthermore, it was found that the mean CS point values of psychological counselor candidates do not have statistically significant difference in terms of class (U=5522,0; p>0,05).

The relationship between internet addiction and cyberbullying sensibility levels

Spearman's rho Correlation Test points were calculated to examine the relationship between internet addiction and cyberbullying sensibility levels of psychological counselor candidates. The results obtained are shown in Table 5.

Table 5: Correlation values between variables

Variable	(1)	(2)	(3)	(4)	(5)
(1) Loss of Control	1.00	,514*	,580*	,873*	,615*
(2) Desire to Remain Online Excessively	,514*	1.00	,441*	,709*	,509*
(3) Negative Consequences for Social Relationships	,580*	,441*	1.00	,844*	,597*
(4) Internet addiction (Total)	,873*	,709*	,844*	1.00	,717*
(5) Cyberbullying Susceptibility	,615	,509	,597	,717	1.00

* p <0.01; a 5-point Likert (1-5); b 3-point Likert (1-3)

As can be seen in Table 5 high and significant levels between total points of internet addiction and cyberbullying sensibility points of psychological counselor candidates (r =, 717; p <.01) were found. In addition, high and significant relationship was found between the sub dimensions of Internet addiction which are loss of control (r = 615, p <.01), desire to remain online excessively (r =, 509; p <.01) and negative consequences for social relationships (r = 597, p <.01), and cyberbullying sensibility.

DISCUSSION

Study findings reveal the fact that the psychological counselor candidates have low level of internet addiction. These findings obtained from the study conducted on psychological counselor candidates are similar to study findings obtained by Şahin, Aydın and Balay (2016), Özcan and Buzlu (2005), Hahn and Jerusalem (2001) conducted on students who are not psychological counselor candidates but who have similar features of psychological counselor candidates. This finding shows that psychological counselor candidates have a positive attitude towards their profession and have increased their sensibility level with the education they have received.

Another finding obtained in the study is that cyberbullying sensibility of psychological counselor is over medium. This finding reflects the personality trait and professional self-efficacy feature of property that a psychological counselor candidate should have. Psychological counselors are experts who furnish professional assistance during the counseling process for a person's self-understanding, gaining sensibility, identifying his problems and generating solutions, making decisions, developing his capacity, his being environment compatible and in healthy communication with the environment and for his self-development. High levels of cyberbullying sensibility of psychological counselor candidates can be evaluated as a natural result of gaining sensibility about the problems while receiving education to help the client who have problems. A study examining the relationship while the psychological counselor candidates are subject to cyberbullying has not been observed in any domestic and foreign sources. However, this finding obtained shows similarities with the study findings obtained by Dikmen (2015), Aktan and Çakmak (2015), Gezgin and Çuhadar (2012), Akbulut and Erişti (2011), Özdemir and Akar (2011), Ayas and Horzum (2011), Agatston, Kowalski and Limber (2007), Baker and Kavşut (2007), revealing the high sensibility of teachers in coping with cyberbullying.

When the internet addiction point according to gender was assessed, it was found that men had higher average points than women. When the rapidly increasing literature on internet addiction was examined, the opinion that men tend to be more addicted to internet compared to women has gained weight (Turkish Statistical Institute, 2015; Chou, Condron and Belland 2005; Johansson and Gotestam, 2004; Morahan-Martin and Schumacher, 2000). Many studies support this finding made by university students (Akdağ, Yılmaz, Özhan and Şan, 2014; Odacı and Çelik, 2013; Alaçam, 2012; Wang at al., 2012; Üneri and Tanıdır, 2011; Kıran-Esen and Gündoğdu, 2010; Yen and diğerleri, 2009 Balta and Horzum, 2008; Jang, Hwang and Choi, 2008; Ceyhan and Ceyhan, 2007; Özcan, 2004; Bayraktar, 2001; Hahn and Jerusalem, 2001). However, there are also studies showing the fact that there is no internet addiction difference between genders (Şahin, Aydın and Balay, 2016). In the studies conducted on internet addiction levels of psychological counselor candidates according to various variables by Şahin and Ercan (2011) by examined in the study, internet addiction points of men were found higher in women. These findings also support the study findings. Women are accepted to be more dependent and calm while men are accepted to have more dominant and aggressive behaviors in terms of gender roles attributed to women and men in the society (Akdağ, Yılmaz, Özhan and Şan, 2014). Women are more encouraged than men in establishing and maintaining relationships with others (Güçray, 2009). Men are more technology focused than women and women can exhibit more negative attitudes towards technology (Durndell and Haag, 2002).

Sensibility level for cyberbullying does not differ with respect to gender variable in psychological counselor candidates. The reason of sensibility level's not differing for cyberbullying with respect to gender variable is that the psychological counselor candidates in the working group attach importance to cyberbullying incidents and have created similar perception due to their vocational formations. It is stated in the study conducted by Ayas and Horzum (2011) that although the teachers have a high level perception of cyberbullying, this perception shows no significant difference according to gender. On the other hand there are similar study results obtained in the literature. It was found in studies conducted by Aktan and Çakmak (2015), Dikmen (2015) and Gezgin and Çuhadar (2012) that female teacher candidates have higher sensibility about cyberbullying compared to males. Further, there are study findings revealing that cyberbullying behavior is more common among boys compared to girls (Arıcak, 2009; Baker and Kavşut, 2007; Şahin et al., 2010).

A significant difference in internet addiction points of the psychological counselor candidates according to class level was not found. The difference between internet addiction and age was studied in majority of studies conducted and different results obtained. Soydan, (2015), Şaşmaz et al. (2013) could not find any significant difference between internet addiction and age. It can be said based on findings obtained from this study that being young is a factor for internet addiction. These findings can be interpreted based on the fact that internet addiction rates fall because sensibility and behavior control increases with advancing age.

Results have shown that psychological counselor candidates studying in the first class do not have any differentiation in terms of cyberbullying sensibility compared to those studying in fourth class. Dikmen (2015) has also determined that there is no change in cyberbullying sensibility levels of Computer and Educational Technology students according to the class variable. These findings are in line with the study findings. One of the reasons why cyberbullying sensibility levels of the psychological counselor candidates according to class is that their attitudes towards the counseling profession and their sensibility against negative habits.

The finding obtained in this study that there is high level and significant relationship between internet addiction and cyberbullying sensibility of psychological counselor candidates support the thoughts mentioned hereinabove. In other words it is revealed that internet addiction and cyberbullying sensibility of psychological counselor candidates are related with each other and need to be discussed together. When the relevant literature was searched a study directly examining the relationship between the internet addiction and cyberbullying sensibility levels of psychological counselor candidates could not be found as mentioned in the introduction part.

CONCLUSION AND RECOMMENDATIONS

The objective of this study is to determine internet addiction and cyberbullying sensibility levels of psychological counselor candidates examining the relationship between internet addiction and cyberbullying sensibility and determination of internet addiction and cyberbullying sensibility levels in relation with gender and class. It was found in the study that internet addiction levels of psychological counselor candidates were low, their cyberbullying sensibility was above the middle and there was high level of positive and significant relationship between internet addiction and cyberbullying sensibility. Internet addiction points of males were in significantly higher level compared to females while their cyberbullying sensibility points were not significant. Furthermore, internet addiction points and cyberbullying sensibility points were determined not to differ according to class.

Internet addiction is expressed as a new outbreak of mental health in different countries of the world and particularly in the Far East for university students. Studies are needed to be conducted in this area considering the fact that usage rate of the internet has increased rapidly in recent years in Turkey due to high population of young people. It is expected that this study will contribute to address these needs and will provide guidance to studies to be carried out in this area in the future.

It should be considered that there are several limitations in interpretation of the results of this study. First and foremost this study's being limited to psychological counselor candidates, studying in universities, makes it hard for generalization thereof for individuals of different age groups and studying in different fields. Therefore, to make generalizations, it is first necessary to make new studies in other professional fields and different age groups. Secondly, the collection of the data obtained from the study must be made by assessment tools based on self-report and new studies must be performed by qualitative or mixed methods. Thirdly, it is difficult to make causal inferences due to use of relational data in study. In spite of all these limitations, this study can be considered important due to the fact that it is the first study addressing the relationship between internet addiction and cyberbullying sensibility.

It can be said that studying the relationship of internet addiction and cyberbullying with different concepts of positive psychology will enrich the perspective on internet addiction and cyberbullying sensibility. As another recommendation it can be said that preparation of psycho-education programs aiming to increase internet addiction and cyberbullying sensibility of individuals is very important.

It can also be recommended that the psychological counselors, trying to solve the problems of students at schools and helping their development in a holistic manner, have to receive education in their college years to cope with internet addiction and issues that may occur along therewith and thus raise awareness. To this end elective courses can be given or works on the subject can be done in seminars or field specialization courses.

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A Study Requirements The Use Of Smart Innovation System For Teaching And Learning To Develop Creativity Of Undergraduates.

Sirikan Chaiyasit
Department of Multimedia Technology
Rajamangala University of Technology Isan
sikisang@hotmail.com

Narong Sompong
Department of Education Technology
Kasetsart University
fedunrs@ku.ac.th

Punyarat Punya
Department of Multimedia Technology
Rajamangala University of Technology Isan
wanpyrpy@gmail.com

ABSTRACT

The purposes of this research were: 1) To study the design of Smart Innovation System in teaching and learning to develop creativity of undergraduates. 2) To study the requirements of the sample towards Smart Innovation System in teaching and learning to develop the creativity of undergraduates 3) To study the opinions of the samples with Smart Innovation System in teaching and learning to develop the creativity of undergraduates. The samples instructor course project. The second semester of the 2015 academic year, the Faculty of Engineering and Architecture. Rajamangala University of Technology Isan, 12 majors and students in multimedia technology course registration project. The second semester of the 2015 academic year, the Faculty of Engineering and Architecture. Rajamangala University of Technology Isan number 26 by selecting specific (Purposive Sampling) used of this study were 1) a draft design of Smart Innovation System in teaching and learning to develop creativity of undergraduates 2) Questionnaire requirements Smart Innovation System in teaching and learning to develop creativity Of undergraduates for instructor. 3) Questionnaire requirements Smart Innovation System in teaching and learning to develop creativity of undergraduates for student. 4) Questionnaire on the design of Smart Innovation System in teaching and learning to develop creativity of undergraduates for the sample to analyze qualitative data, average, and standard deviation. The results showed that: 1) the design of Smart Innovation System in teaching and learning to develop creativity consists of three components: the first component Blended Learning features two styles of learning and the third element of creativity. 2) A study the requirements of the sample towards Smart Innovation System in teaching and learning to develop the creativity of undergraduates with the average. 3) The sample is being use to design Smart Innovation System in teaching and learning to develop the creativity of undergraduates with the average.

Key Words: Design, Creativity, Smart Innovation System, Learning

Background Motivation

The Ministry of Education has given the ability to use technology as a critical competency for students. They must have the ability to select and use different technologies and skilled technological process to develop themselves and social in education, communication, work, and creative problem solving correctly and proper morality. (Ministry of Education, 2008) Especially in information technology and computer, article content knowledge or theories about the system used in teaching has changed over time. In addition, the growth of the internet has given students easier and faster access to news and information's composing (Aumnuai D., 2001) with social media that plays a role in living. These media has driven students to have more interests and make more use of it. Web application functions as web or application to a web browser over computer networks like the Internet or Intranet. Examples of web application include webmail-service program sending and receiving mails that are installed on the server. You can also use it through a web browser. (Niwat, 2007) The advantages of web application is the information in the system is circulating online, both locally is within the LAN and global. Making it ideal for applications requiring real time data, the system is efficiency and easy to use. The developed system was to meet the needs of the agency or department stores. Unlike general programs conducted in broad, often do not match the actual demand. Examples of the web application can be reservations or other services, whether it would be a hotel booking, touring, reserving CDs-DVDs, etc. In addition, web application also has an interest that it can be updated without having to install software on the computers of the user. (Pronpichaya, R., 2010)

Intelligent Tutoring System innovative learning is the result of advances in information technology the outlook of the research and development of intelligent tutorials on a variety of concepts and theories, which will lead to the ability of a system that makes teaching made by computers. The main purpose of developing the system is creating a representative for modern learning under adapted environment to the characteristics of individuals, also the ability to respond to problems in the differences between individuals. There are also likely to develop teaching material for practice and increasing the capacity of the system by using the techniques that enhance learning for students, also help achieve their learning. (Wilairat, Y. and Jitimon, A., 2013) Thus, the focus in the orientation of the use of information technology for education is an important factor in driving the strategic dimension and a study into the efficiency of learning a tool to accelerate uplifting and the distribution of educational opportunities.

The learning and teaching of Multimedia, faculty of Engineering and Architecture, Rajamangala University of Technology, Isan; is aimed at developing students to choose studying the most of interest related to multimedia technology, a study by the statistical requirements to engage in writing projects and dissertations. Students must present a project to study the appropriate format, including the approval of the instructor and advisor to conduct the study. Students must write a report on the study and practice in the form of a thesis reveals that the teaching must have a deep understanding of both the theoretical and practical expertise the self-interest. (Multimedia Technology, 2012) Also understand the process and write a thesis report from the teaching experience of recent research not less than two-semester course, both old and new courses. Found that only few students understand the process of preparing the thesis and not remembering the steps in performing, also the problem with appointments to meet the advisor. This is due to the students' own time and the time of the advisors plus with the irresponsible and lack of punctuality makes graduation delay.

From the history and importance of the issue, as a researcher and instructor, people experiencing these problems directly is the idea to study the needs innovation, intelligent use of teaching and learning to develop creativity of undergraduates, For being a guide in solving the problem of learning, teaching, also performance learning of undergraduates students. This system will benefit both the students and teacher, also the advisor on determining the implementation process and time to complete a variety of teaching and learning, sending attachments, checking status of submission, and feedback from instructors and advisors in preparing the thesis via web application. Using the students in Multimedia Technology as a case study, after the development of the system, the researcher will bring the system to good use with other programs in undergraduates' level, both inside and outside the university.

Objective of the study

1) To study the design of the smart innovation system in teaching and learning to develop creativity of undergraduates.
2) To study the requirements of the sample on the smart innovation system in teaching and learning to develop creativity of undergraduates.
3) To study the opinions of the samples on the smart innovation system in teaching and learning to develop creativity of undergraduates.

Method

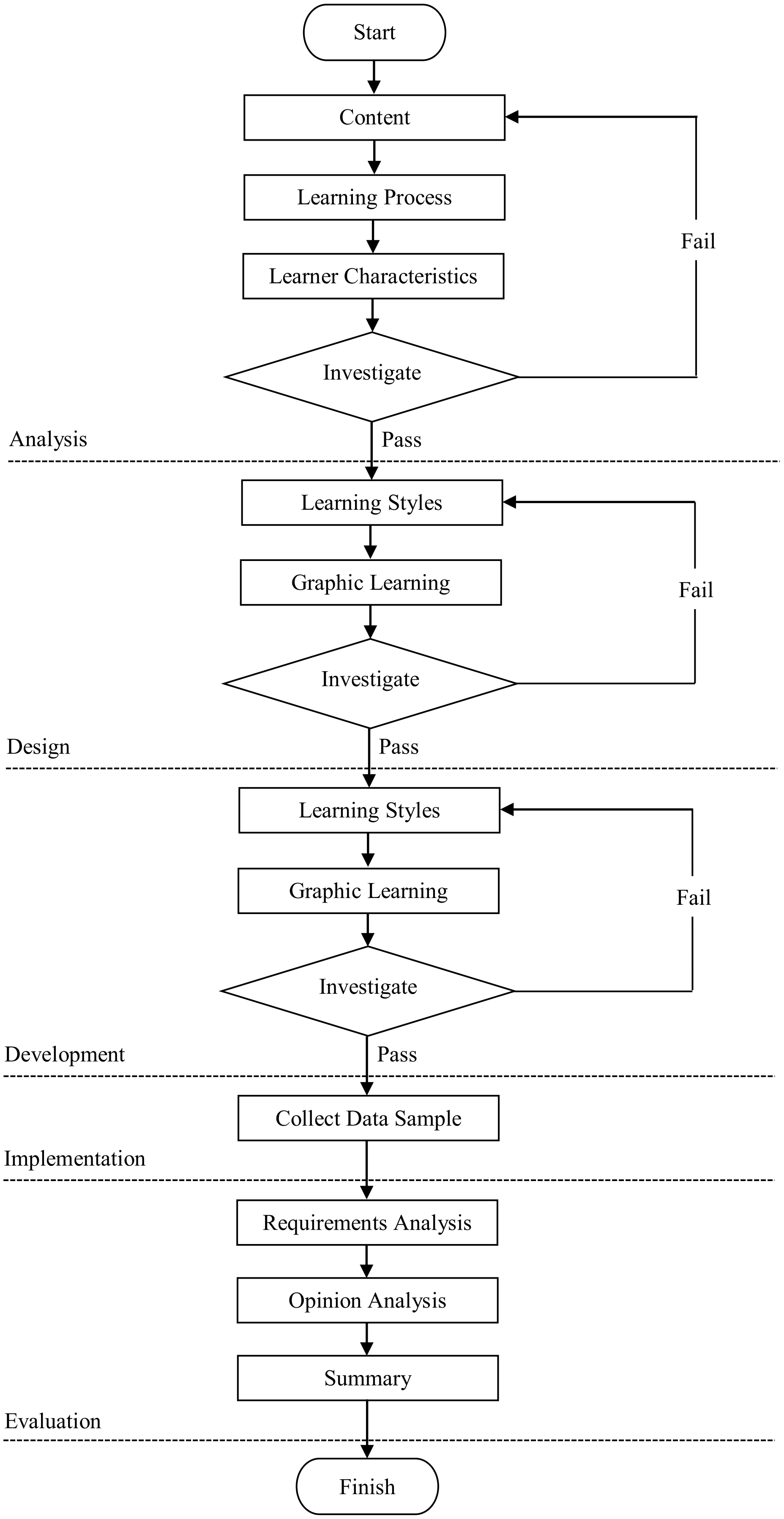
Participants

The samples instructor project course. The second semester of the 2015academic year, the Faculty of Engineering and Architecture. Rajamangala University of Technology Isan, 12 majors and students in multimedia technology course registration project. The second semester of the 2015 academic year, the Faculty of Engineering and Architecture. Rajamangala University of Technology Isan number 26 by purposive pampling (Boonchom, Sri., 2005)

Experimental design

A Study Requirements the use of Smart Innovation System for Teaching and

Learning to Develop Creativity of Undergraduates. is based on design framework of ADDIE Model (Barbara, S. and Zita, Gl., 1998) which are divided into 5 main phases as Phase 1 – Analysis, Phase 2 – Design, Phase 3 – Development, Phase 4- Implementation, and Phase 5 – Evaluation.



Experimental design: A Study Requirements the use of Smart Innovation System for Teaching and Learning to Develop Creativity of Undergraduates.

Phase 1 – Analysis : Analysis of learning content, learning process and target group. The learning content of this study document the research. It is about the students' projects. The study of the problem based learning. (Woods, D. R., 1994) And using project-based learning. (Suchat, W., 1999) And both forms of learning styles integrated in the learning process. Projects by undergraduate students will have different interests. The research took the form of blended learning (Prachyanun Nilsook and Panita Wanpirun, 2013) through Social Media, Web Application, Chat with various problems. Students need to be modified and implemented to measure the creativity happens. (Guildford, 1967)

Phase 2 – Design : The Design Pattern of the Smart Innovation System. Graphics and learning in an innovative genius. In the image to the targeted audience to understand the nature of learning. And graphics used in the system.

Phase 3 – Development : Developing Learning Styles and Graphic Learning of infographic on the Smart Innovation System in a modern, easy to understand, easy to use and suitable sample.

Phase 4 – Implementation : Implementing the form of Learning and Graphic Learning on the Smart Innovation Systems. The research was developed to collect data from the sample.

Phase 5 – Evaluation : Data collection requirements. And a review of a sample After taking the form of Learning and Graphic Learning of the Smart Innovation System. Data collected on requirements and opinions of the sample will be analyzed leading to the conclusion.

Analysis of data

1) The data gathered from the questionnaires on requirements of instructors in using the smart innovation system for teaching and learning to develop creativity of undergraduates was described as qualitative.

2) The average and standard deviation were applied for analyzing the data collected from the questionnaires on the requirements of students into the use of the smart innovation system.

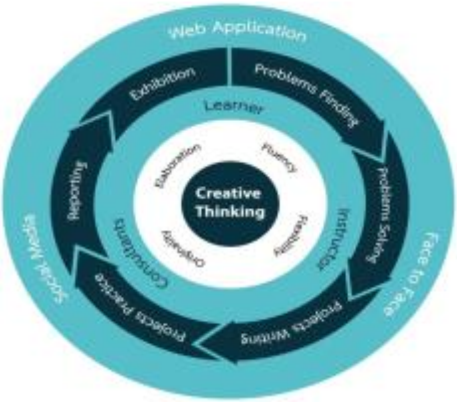
3) Opinions of the samples on the draft design to the smart innovation system in teaching and learning in order to develop creativity of undergraduates from instructors' perspective was described as qualitative.

4) Opinions of students on the draft design to the smart innovation system were analyzed by the average and standard deviation.

Results

Chapter 1: The Design Pattern of the Smart Innovation System. Graphics and learning used in the system. as follows

1) The form of learning through the smart innovation system to develop creativity of undergraduates. Studying integration of technological media teaching models and communication channels are shown in the picture below.



Blended Learning Smart Innovation System: SIS Model

Such picture Blended learning Smart Innovation System model for integrate creativity. Include 3 major elements. can explain this,

Element 1 Blended learning it learning Blended learning forms Online learning is Learning Network In online by passing learning Content and allow students to take part in the study, with the elements. The learners can control the time to learn on their own such as Place, Path or Pace is format Full-time online learning. main content of learners receive directly from the network that is Web Application, Social Media and Face to Face such as Chat etc. The students will not attend classes. It is just some times that have to classroom. To exhibit the results of operations. It is a Blended Learning a flexible to deploy the different problem. The instructors and advisor or experts. Are recommendations group on individual interests missions or assignments.

Elements 2 Learning forms is the elements in this learning integrated learning of Problem Based Learning and learning of Project Based Learning that is subcomponents such as

1) **Problems Finding :** the process of Problem Based Learning on the principles of using the problem are beginning for linking. Knowledge blend with existing data then processing knowledge and learn how to solve problem by practicing a way of thinking and researching. The knowledge. The understanding yourself The modernization Make it happen and benefits.
2) **Problems Solving :** It is a continuous process Finding problem as Education Related documents, To gather information , the advice or More detailed information Panel of experts , Those involved at all levels Including surveying supplies. The implementation of this process will lead to knowledge Understanding the details, the content more relevant. As well as make the scope of the task to carry out the project to put the results of the implementation process. It allows you to determine the scope of the problem or outline of the story is to study the ideas and topics. The learners must start with the question, "What education" “Why do have to study the matter." However, the topic of this project is problem. The question has to learn from the problem and the title of project to be specific, clear.
3) **Projects Writing :** The outline of a writing project is creating a mind map by taking a picture of the work and the success of the project is to prepare a details analyze. To illustrate the concept plan and the process of the project. May use brainstorming. If a group is to colleagues and all involved have a workload. From start to finish Including about the role and duration of implementation.
4) **Projects Practice :** The project's operational is after the project has been approved by the instructor Consultant and approved by the school then. Learners must take action and work plan set out in the framework of the project. Need to record information. Thoroughly that do results how the problems and the solution show.
5) **Reporting :** The report conclusion the results of the project so Others know the concept How operations Result The conclusions and recommendations about the project.
6) **Exhibition :** The last phase of the project. This Presentation of all projects proposed to others have been know . The output from the project type. It is a document, Report, work, Simulator etc. Can be in different ways such as Exhibition or printing media. Etc.

Elements 3 Creative Thinking This composition is the result of learning of the learner through an Smart innovation System with the instructor and Consultants or experts is a guidance or suggest that the students created a new system. The detailed assessment of creativity. Thus

1) **Fluency** : Ideas fluently with a novel idea. Unique, different from the ordinary thinking.
2) **Flexibility :** The idea of flexibility or The same idea can be presented in different forms. Not fixed or being able to adapt the knowledge or experience in the various subjects. Be written to benefit other.
3) **Originality :** The idea is unique on the same subject in different areas. Such as Choice of words, Link Relationship.
4) **Elaboration :** The idea exhaustively Have an idea of the details of the story. Thinking process can be seen clearly. Author can make the idea even more attractive.

2) Draft graphic design of the smart innovations system in teaching. From model design of the smart innovation system in teaching, researchers have taken graphic designs the smart innovation system in teaching to develop creativity of undergraduates as following pictures.

2.1) The first page of the smart innovation system is a describing page consisting the details before using the system (the objectives and the process of learning).

2.2) Learning content: the first order of learning is about problems finding.

2.4) Learning content: the second of the class is to think about the problems solving.

2.3) Learning content: the third of a class is projects writing.

2.5) Learning content: the fourth implementation is the project practice.

2.6) Learning content: the fifth of a class is how report the work.

2.7) Learning content: the sixth of class is exhibitions.

Chapter 2: The requirements on the draft design of instructors and students in the smart innovation system. as follows

1) To study the requirements on smart innovation systems for teaching and learning to develop creativity of undergraduates in instructors. This can be summarized as follows.

The system requirements	Detailed system requirements
Preparation System	- Prepare the questions to the students. - Preparation of learning technology. - Provide ideas and inspire learning. - Prepare the basic knowledge of the project. - Prepare activities to promote learning, such as, contests, competitions and so on. - Prepare a form of assessment and evaluation.
Content System	- Were sequenced learning is clear. - The learning content and preparation of the project at every stage. - Describe each step with pictures. - Are taking note and check the implementation project are obvious.
Components System	- Systems Instructor - The learners - System administrator - The monitoring report. - System monitoring results. - The exchange of ideas between students and instructors. - Information Search System - The activity or exercise - Cognitive Testing system
Media integration system	- Social media such as Pinterest, Facebook, Youtube, Google for Education - Books
Internal communication system	- Chat - Conference - Web-board

1) Studies the requirement of Smart Innovation System in teaching and learning. The researchers asked the students in multimedia technology. Registration Course project of 26 people found that demand innovative genius of the student's overall average level, which can be classified by an order of three.

Sequence 1 : Student in the system named authority. And the channels of contact in the event of a problem with the content or use. At a high level.

Sequence 2 : Learners wish to have more knowledge. Content is presented in a slide. Content with a modern presentation. And a beautiful on-screen mobile phone. At a high level.

Sequence 3 : Learners need to support the development of innovative genius in teaching to enhance learning today. By providing intelligent, innovative system of teaching and learning in an online environment to enhance ease of use. Systems are easy to use. A list of indicators Teacher And advisors Including the preparation of a web link or web resources related to ease of use at a high level.

Chapter 3: The opinions on the draft design of instructors and students in the smart innovation system.

1) The opinions of the instructor samples on the draft design of Smart innovation systems in teaching and learning to develop creativity of undergraduates can be summarized as follows:

- It is presented as a step. Graphic design and the content.
- More of the graphic elements in balance.

- More linked stories. The graphic designers at each stage. The attractiveness of Innovative systems more intelligent
- More snakes game and ladders be applied to graphic design. To make teaching more appealing.

2) The study reviews the Smart Innovation System in teaching and learning. The students which Researcher asked by students in multimedia technology. Registration Course project of 26 people. Found students want Smart innovation System at a high level. which can separate into three categories.

Sequence 1 : The class is a requirement in the name authority and the channels of contact in the event of a problem with the content or use. At the most.

Sequence 2 : The wish to have more knowledge. Content is presented in a slide. Content with a modern presentation. And a beautiful on-screen mobile phone. At the most

Sequence 3 : The subsequently need to support the development Smart innovation System In teaching the enhance learning today.by Smart innovation System in teaching and learning online. For added easy to use. Systems are easy to use. A list of notification Teacher and advisors. Including the preparation of a web link or web resources related the easy to use. At a high level.

Conclusion

1) The design of the smart innovation system in teaching and learning to develop creativity consists of three components: the blended learning, problems blended learning and projects blended learning integrated, and creative thinking.

2) The requirements on smart innovation systems in teaching and learning to develop creativity of undergraduates appeared that demand of the students in overall giving average level at a high level of 4.37

3) The opinions of students on the draft design of smart innovation systems in teaching and learning to develop creativity of undergraduate showed average level at a high level of 4.43.

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A Task Development Process: The Case Of Fourth Grade Introduction To Matter Unit*

Gökşen ÜÇÜNCÜ
MEB (Ministry of National Education),
Beykoz, Istanbul, e-mail: goksenozturk@yahoo.com

Gönül SAKIZ
Marmara University, Atatürk Faculty of Education,
Kadıköy, İstanbul.e-mail: gonul.sakiz@marmara.edu.tr

Sefer ADA
Gedik University, Faculty of Sport Sciences,
Kartal, İstanbul, e-mail:sefer.ada@gedik.edu.tr

ABSTRACT:

Learning is affected from individual characteristics, learning objectives, and appropriate construction of learning environments. Learning tasks that are designed in educational environments play influential roles on students' learning. The purpose of the current study was to develop fourth-grade science class tasks for Introduction to Matter Unit, using brain-based learning model and evaluate those tasks in the framework of brain-based learning principles. First, based on the learning objectives of the selected unit, several tasks were prepared. Then, those tasks were presented to the experts in the field of education to obtain information related to the utilities of each task in terms of learning objectives, developmental appropriateness, prior knowledge, time management efficiency, classroom organization, teacher-student roles, task difficulty, and material appropriateness. The procedural information provided by the experts was evaluated using Lawshe (1975) technique. The tasks were also implemented in a fourth-grade classroom. The results showed that the tasks are valid and compatible with the task design principles. The procedures used in this study are expected to contribute to the task development procedures in science lessons and other branches. It is also expected that the developed tasks will be in use of the researchers in the field of science education as well as the science and elementary school teachers.

Keywords: Task development, science lesson, Lawshe technique, brain-based learning, elementary school.

INTRODUCTION

The pace of technological and scientific developments in recent years have engendered a need of renewing the educational process. This need brought about many research being made on how to practice the learning. The focus of these research is generating the learning environment which will provide a permanent and high-level learning product over time (Yiğit & Akdeniz, 2003). Turning the learners from passive to interactive in learning environments increases the productivity of teaching. Hence, the reforms in the Turkish educational system are being founded on the individual-centered, constructivist approach. In 2005, the science education programme relying on constructivist approach requiring the active participation of students in the learning process has been implemented (MEB, 2005). This reconstruction brought about many studies concerning this programme (for example, Demircioğlu, Özmen & Demircioğlu, 2004; Gömleksiz & Bulut, 2007; Korkmaz & Konukaldı, 2015; Özmen & Yazıcı, 2015; Tekbıyık & Akdeniz, 2008; Uzal, Erdem, & Ersoy, 2015). The featured issues in these studies were the opinions of classroom and science teachers, the utility of the programme and the utility of the tasks in the programme.

Contrary to the studies related to the evaluation of the renewed programme, the concept of task, one of the most important elements of the teaching-learning situations, has started to be emphasized in recent years. Although it is highly important, there is not enough detailed study about the concept of task. In related studies, description of tasks in science lessons and the examples of tasks are not explained in detail. Studies mainly focus on the ways teachers perceive the tasks and must-be features are defined as well (Gömleksiz & Bulut, 2007; Korkmaz & Konukaldı, 2015; Özmen & Yazıcı, 2015; Uzal, Erdem & Ersoy, 2015).

In the official website of Turkish Language Institution, task is described as "a learning situation that children are willingly participated because it suits their purposes and requirements." Considering this definition, it can be said that task is an act which is suitable for individual's learning purpose alongside with individual's willingness. This individual-centered definiton is in line with the constructivist programme. In the literature in general, tasks are described as the planned, organized and controlled tasks aiming that students achieve the programme objectives (Fidan & Erden, 1993).

In international studies, educational tasks are defined as either task or activity. Ainley, Pratt and Hansen (2006) used "task" and "activity" as different meanings in their collective work. They claim that "task" displays the action prepared by teacher and "activity" displays the action which happens inside the class. In the science education programme in Turkey, activity is not defined. Furthermore, the concept of activity which is the subject of this study is stated as *"in science class, while selecting teaching-learning and assessment tasks, it should be noted that individuals reach the behaviors which were stated in objectives using their skills such as query, observation, interpreting data and scientific process"* (MEB, 2015).

In the literature, the most emphasized issues are the qualifications of a task and the points to be considered while designing an activity. Uğurel and Bukova-Güzel (2010) defined the concept of activity in their collective work based on the sample tasks applied in math classes. Moreover, they drew a theoretical framework for points to be considered while designing an activity. Yazıcı and Özmen (2015) inquired opinions of teachers regarding the utility of the experiments and tasks those are in science education programme. In their study, Korkmaz and Konukaldı (2015) emphasized the process of creating an activity in which they inquired the effect of the interdisciplinary thematic teaching approach for science and technology education on students' learning products. Waldrip, Prain and Carolan (2010) evaluated the effect of versatile presentations made by students during their learning process and stated that there is a strong correlation between science class tasks and students' conceptual development process.

In general, studies suggest that tasks have significant influences on learning. Given that, it is important to develop tasks suitable for adopted learning approach, model and objectives. However, it is difficult to determine always-valid principles for task development. In their collective work, Kerpiç and Bozkurt (2011, p. 305) summarized the principles to be considered in task-designing process as the followings: Purpose, duration, classroom organization, students' prior knowledge, multiple starting points, comprehensiveness, the suitability of used material, the role of teacher, the role of student, students' challenge and assessment and evaluation.

The purpose of the current study was to present the steps of task preparation process based on brain-based learning model. Hebb, one of the pioneers of the neurophysiological theory, emphasized that nature of learning can not be comprehended without knowing the circuits in the brain operation (Özden, 2010). Brain-based learning is the organization of learning by considering brain functioning rules in purpose of meaningful learning (Duman, 2007). Brain-based education for learners requires the design of rich and appropriate experiences relevant to life those to be implemented as harmonious to ensure that students understand the essence of the experience which results in learning (Caine & Caine, 2002).

In the present study, first, based on the objectives of Introduction to Matter Unit and brain-based learning model, tasks were developed and, then, based on task designing principles, task validity was evaluated.

METHOD

In this study, a road map detailing the process of task development for science class was presented. Because the tasks were prepared based on brain-based learning principles, they were defined as "Brain-Based Science Class Tasks." This investigation was called as a case study (Yıldırım & Şimşek, 2011).

In the study, first, task designing principles and the definition of these principles were identified and presented. Afterwards, tasks were prepared based on brain-based learning model and course objectives. Then, a validity study was conducted to determine whether prepared tasks were suitable for designing principles and learning model. Based on experts' opinions, Lawshe's technique (1975) was applied. Finally, a pilot study was conducted to determine its utility and the potential presence of the problematic situations. Pilot study was carried out in a primary school in Beykoz district, in Istanbul with the participation of 38 fourth grade students aged between 9 and 10 ($n_{girls} = 17$, $n_{boys} = 21$).

2.2 Task Development Process

In this section, the process of task development was presented step by step. In the task development process, four phases were followed as presented below:

Phase one: The objectives of the selected unit, Introcution to Matter, was examined considering cognitive behavior levels to make certain that the purpose of task was compatible with the objectives. For that purpose, an objective indicator chart in relation to expected cognitive behavior levels and task components was created (see Appendix).

Phase two: In order to examine the coherence between brain-based learning model and tasks, the task drafts were prepared using brain-based learning principles defined by Caine & Caine (2002).

Phase three: The relevance of the prepared tasks and the appropriateness of the content were consulted to the experts for validity check. This step was described in detail in section 2.3.

Phase four: A pilot study was conducted with the prepared tasks. The tasks were revised based on the difficulties encountered in practice. Although this step was outside the scope of the present study, it was included as a stage because it was a part of the task development process.

2.2.1 Task Designing Principles

The adapted principles of task designing process (Kerpiç & Bozkurt, 2011) were presented in Table 1 along with descriptions. Because the notion of task is wide and every branch has different necessities, developing all-time valid principles is difficult. The definitions and criteria for tasks can be extensive (Uğurel & Bukova-Güzel, 2011). In the current study, during the process of task development the following six principles were taken into account: The purpose, students' prior knowledge, duration, classroom organization, teacher-student roles and the degree of difficulty of tasks.

Table 1. Task Designing and Application Principles

Principles	Criteria
Purpose	Being intended for a new objective Being intended for supporting learned ceoncepts Being intended for students to overcome the difficulties and misconceptions Being intended for creating awareness for epistemological structure of the field
Duration	Making time management planning Determining how much time to spare for tasks
Classroom Organization	Determining how students will be organized during practice (individual, group, whole class etc.) Making clear how students will work and how teacher will end the task
Students' prior knowledge	Providing adequate content knowledge (prior knowledge about either subject or concept) (For instance, providing students information about how to work alone or with a group) Providing information about tools to be used during task (For example, if the students are asked to create a shape with the help of a programme, they should have the adequate knowledge about using that programme)
Multiple starting points	Giving students multiple starting points while starting to a task
Coprehensiveness	Making task that are available for all levels of students (Tasks should be organized for not only students who give correct answers but also all students)
Relevance of materials	Considering the supportive and facilitative dimensions of materials to be used during the task (Even though materials are often perceived as concrete, a problem, a formula or worksheets can also be evaluated as materials.) Paying attention to the reasons for using specific materials and how to use them, whether they have an alternative, are accessibile, why and how they will be used and their limitations.
Role of teacher	Determining the role of teacher to apply the task as planned (This roles should be considered as clarity of instructions, use of tools, organization of students, student difficulties, interventions, assessment and evaluation)
Students' challenge	Taking necessary measures to estimate that students may experience difficulties in the process (What is expected are that instructions to be understandable and instructions to be given considering materials, resources, duration and student's studying habits (individual-group-classrom) or lack of students' prior knowledge)
Assessment and Evaluation	Including assessment and evaluation in purpose of determining whether the tasks have accomplished their goal (According to students' studying habits (such as group work), process should be evaluated and practices after task should be discussed in the design)
Flexibility	Taking measures in case an unexpected situation happens during task (Circumstances such as whether the task will continue or not, adequacy of the determined time, organization of the class and use of the tools must be open to change)

Source: Kerpiç and Bozkurt, 2011, pp. 306-307.

2.2.2 Task Samples

2.2.2.1 Task Name: Look at my card: True or False?

Task Implementation Steps:

In this task, students are given three cards in different colors.

The cards hold three meanings: I agree, I disagree or I am uncertain (eg, orange card presents agreement, yellow card presents disagreement and blue card presents uncertainty)

The teacher reads the following sentences about the topic:
- Iron is attracted by the magnet.
- Sponge doesn't absorb water.
- The magnet pulls the metal material.
- Wood doesn't absorb water.
- Cloth absorbs water.
- Some objects float in the water, some objects sink in water.

Listening to these sentences, students put the cards in correct order (if they sit, they put them on the desk) and they explain to teacher why they chose that card. Scheduling and description of this activity are given in Table 2.

Table 2. Introduction to Matter Unit "Look at my card: True or False?" Task

Plan	**Description**
Purpose	Using the five senses, explains the basic features that characterize the substance A formative assesment task for objective
Task difficulty level	Beginner (every student can attend)
Duration	30'
Classroom organization	Nested-U Layout
Teacher-student role	Teacher-supporting and guiding; active student participation

2.2.2.2 Task Name: Let's Help Mete

Task Implementation Steps:

In this task, separating mixtures is presented with an interactive presentation (20'). Planning and description relating to the task is presented in Table 3.

Table 3. Introduction to Matter Unit "Let's help Mete" Task

Plan	**Description**
Purpose	Determines and tests the methods that s/he uses to separate mixtures in daily life
Task difficulty level	Intermediate
Duration	40'+ 40'
Classroom organization	Appropriate for group work, as clusters
Teacher-student role	Teacher as supporting and guiding, active student participation

In order to turn the task to an activity, the following problem is presented.

Case study: *Mete put iron powder, pepper, stone and sand in his school bag as all of which were in one plastic bag as a mixture intended for the next day's science class experiment. The next day,in the classroom, the teacher said ''Kids, put your experiment materials on your desks." Then, all students started to place the materials on their desks.*
Mete's deskmate, Zeynep, placed her materials on the desk in separate containers. Finally, she put the magnet next to them.
Having looked around, Mete got worried seeing that all his friends put the materials separately. Mete wondered if he had it all wrong. Their teacher asked them to just leave the iron powder alone. Mete started to worry more since he put his all materials together in just one bag. How could he separate them?

Case studies are presented and taught to classes as power point presentation. Plastic bags presented in the story are distributed to students' desks including the materials. Having received the tools which can be used for separation, students are expected to fulfill the duty as they put themselves in Mete's place. They are asked to save every separation operation to structured experiment record sheet.

The teacher walks around the groups and tries to guide students. The class separates the materials using the tools as many as they can. If a group fulfills the assignment correctly, the teacher asks that group repeat the experiment in front of the class. If the operation cannot be completed in time, the teacher evaluates all groups one by one and provides the separation operation to be completed by guiding them.

2.2.3 Expert Opinions: Validity Study for Tasks

In this section, with the purpose of validity, the descriptive features of experts, the collection and evaluation procedures of expert opinions were explained. Task evaluation criteria and Lawshe technique (1975) were presented. Evaluations on the prepared tasks were collected based on the discussions made with the experts whom qualifications were stated in Table 4.

Table 4. Demographic Features of the Experts in the Study

Codes	Gender	Age	Professional title	Field of Education
1	F	32	Teacher	Primary Science Teaching
2	F	38	Teacher	Primary School Teaching
3	M	39	Teacher	Primary School Teaching
4	M	32	Ph.D.	Programme Development
5	M	32	Ph.D.	Programme Development
6	F	32	Ph.D.	Science Education
7	F	32	Ph.D.	Primary School Teaching
8	F	32	Ph.D.	Primary School Teaching

Note: M: Male, F: Female

The tasks were evaluted according to the criteria presented in Table 5. In order to demonstrate the quantitative results of this assessment, Lawshe (1975) technique was used and the content validity ratio was obtained for each item. Lawshe technique, converts qualitative data obtained from experts' opinions into quantitative data for content validity. In this technique, each test item is evaluated by experts using three measures, which are "the test item is sufficient to measure the targeted behavior", "the test item should be revised to measure the targeted behavior," and "the test item is insufficient to measure the targeted behavior."

Table 5. Task Assessment Criteria

Principle	Questions for Evaluation
Purpose	Is the task appropriate for the objective's purpose? Is the task appropriate for the objective's cognitive level? Is the task appropriate for brain-based learning principles?
Student prior knowledge	Does the task require student's prior knowledge?
Duration	Does the time adjusted for the task adequate?
Classroom Organization	Is it explained how to organize the class for task?
Teacher-student roles	Is it stated which roles teacher and students will have in the task?
Degree of task difficulty	Is the task appropriate for students' level?

Lawshe (1975) technique is performed in six stages. These are (1) The expert group is created, (2) the scale form is created, (3) expert opinions are taken, (4) the content validity ratio on items is calculated, (5) the content validity index is determined, and (6) based on content validity ratio criteria, items in the scale are determined (Yurdugül, 2005). Using experts' opinions and the formula below, the content validity ratio was calculated.

$$CVR = \frac{N_S}{N/2} - 1$$

N_S = Number of experts indicating that "item is necessary/suitable"

N = Total number of experts assessing the item

When the formula is applied, if all the experts indicate that the item is suitable, CVR equals to 1, if half of the experts indicate that the item is suitable CVR equals to 0, and if more than half experts indicate that the item is suitable CVR is higher than 0, and less than half indicate it is suitable, then CVR is lower than 0. CVR values used to evaluate the data was presented in Table 6.

Table 6. CVR Minium Ratios

Number of Experts	Minimum Value	Number of Experts	Minimum Value
5	0.99	13	0.54
6	0.99	14	0.51
7	0.99	15	0.49
8	0.78	20	0.42
9	0.75	25	0.37
10	0.62	30	0.33
11	0.59	35	0.31
12	0.56	40	0.29

Note: $p < 0.05$ (Venaziano & Hooper, 1997, as cited in Yurdugül, 2005, p. 2).

In the present study, because the expert group was consisted of eight individuals, the findings obtained by the formula were evaluated with the criterion of .78 at .05 significance level.

RESULTS

Based on the experts' opinions, the tasks were evaluated and the content validity ratio (CVR) for each task was calculated. The results were presented in Table 7.

Table 7. CVR Ratios of Tasks Based on Task Evaluation Criteria

	Criteria					
Task number	Purpose	Student's prior knowledge	Duration	Classroom Organization	Teacher-student roles	Degree of difficulty
1	1.00	1.00	0.75	1.00	1.00	1.00
2	1.00	1.00	1.00	1.00	1.00	1.00
3	1.00	1.00	1.00	1.00	1.00	1.00
4	1.00	1.00	1.00	1.00	1.00	1.00
5	0.50	1.00	0.50	1.00	1.00	1.00
6	1.00	1.00	1.00	1.00	1.00	1.00
7	1.00	1.00	1.00	1.00	1.00	1.00
8	1.00	1.00	1.00	1.00	1.00	1.00
9	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	0.75	1.00	1.00	1.00
13	1.00	1.00	1.00	1.00	1.00	1.00
Total	0.96	1.00	0.92	1.00	1.00	1.00

The majority of the tasks submitted to the experts were found to be valid based on CVR ratios. For the fifth task, two experts reported negative comments in relation to purpose (e.g., appropriateness of content for brain-based learning model) and duration (e.g., appropriateness of the time set for this activity). Therefore, this task was omitted and its alternative fourth task was placed in the study. As seen in Table 7, the tasks, in general, were found appropriate by the experts. There were a few more negative opinions on the duration criteria. By looking at the content validity index, however, it can be said that in terms of given criteria, the prepared tasks are valid and applicable.

DISCUSSION

In this study, task development prodecures for a science class unit, using brain-based learning model, was explanied in detail. This research has questioned whether the tasks are appropriate for purpose and level of objective and used several presented stages for evaluation. Harris and Hofer (2009) states that plan of a learning situation starts with determining the purpose of the learning. Making educational choices for this learning experience, choosing the appropriate type of task, identification of formative and summative assessment strategies, tools and resources that can be recommended for students are the following steps.

Emphasizing the duration in the task is also important. Taş (2010) states that lack of set time for the task and the fact that students are given much more time than they need lead to perception that students assume the task is unnecessary. The use of time criterion in tasks has an important role in the studies. Moreover, tasks which is thought not to be appropriate for this criterion are excluded from the extent of the study. If the time is not determined for the task, the tasks may not reach their goals (Özmantar & Bingölbali, 2009).

Henningsen and Stein (1997) emphasize that tasks, which transfer students' higher level thinking skills into action, are based on students' prior knowledge and they have a proper plan with the form of adequate time. Prepared tasks require proper class environment and teacher skills in order to let the students present their higher level cognitive skills during task (Stylianides & Stylianides, 2008). To determine the organization of class and the teacher-student roles are other required measures for tasks to be carried out in a healthy way (Swan, 2007). All these criteria were taken into account for the task development process in this study.

Considering the fact that learning environments, teachers and learners are not stable, it is hard to put always-valid principles. However, in order to present proper tasks, tasks must be prepared considering task design principles. Through this way, productivity taken from the tasks will increase and the problems which may arise during the practice of task will decrease to the minium (Kerpiç & Bozkurt, 2011). In the current study, by explaining each step in task development, it is expected that the necessary attention has been drawn to the issues in task design. Using similar stages, teachers and researchers can develop new tasks in their disciplines.

Tasks play important roles in the learning practice. The stages presented in this study are thought to increase the quality of tasks prepared. During the task development process, taking as many experts' opinions as possible makes the results more reliable and valid. Also, because student group dynamics can change the way of learning and tasks, pilot studies are important to determine the organization of tasks. There might be some cases that may not require pilot study. For example, if the purpose is to conduct an action research, then pilot study can become unnecessary because it is the research itself. However, if the tasks are tools in an investigation, then pilot study becomes necessary. In the current study, a pilot study was conducted because the tasks were considered as tools. The findings of the pilot study were not reported in this paper.

This study showed that the Brain-Based Science Class Tasks, the subject of this study, are valid and applicable in science classes in fourth grade. It is expected that science teachers and researchers in the field of science will benefit from the developed tasks in their class and in future research.

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Appendix. Chart for "Introduction to Matter Unit" Objectives with the Levels of Cognitive Behaviors and Tasks

OBJECTIVES	COGNITIVE BEHAVIOR LEVELS AND THE TASKS						
	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation	Task Name and Level
4.3.1.1 Explains the fundamental features of matter by using five senses.		*					Task 1- I am solving a problem *Evaluation Level* Task 2- Look at my card: True or False? *Comprehension Level*
4.3.2.1 Knows the phases of matter and gives examples for different phases of the same substance.		*					Task 3- Try to know who I am? *Comprehension Level*
4.3.2.2 Compares the main features of the phases of matter.		*					Task 4- Together, hand by hand Our products are fabulous *Comprehension Level* *Synthesis Level*
4.3.3.1 Measures the mass and volume of different materials and compares them.			*				Task 5- I am measuring mass and volume *Application Level* Task 6- I am learning the units *Comprehension Level*
4.3.3.2 Identifies the matter using measurable properties.		*					Task 7- I am learning by relating *Comprehension Level*
4.3.4.1 Designs and makes experiment about cooling and heating of matter.			*		*		Task 8- I am vaporizing the water Task 9- I am observing freezing *Application Level- Evaluation Level*
4.3.4.2 Makes experiement and interprets the findings about the phase changes in matter due to the effect of heat.			*			*	
4.3.5. Defines and explains the difference between matter and object.	*	*					Task 10- Find, Select, Stick *Knowledge- Comprehension Level*
4.3.6.1 Classifies the matters that s/he uses often in daily life as pure matter or mixture and explains the differences between them.		*		*			Task 11- Pure or Mixture? *Comprehension Level*
4.3.7.1 Determines and tests the methods to separate the mixtures that s/he encounters in daily life.			*				Task 12- Let's Help Mete *Application-Analysis Level*
4.3.8.1 Discusses separating the mixtures with relation to their contribution to a country's economy and the effective use of resources.						*	Task 13- I am separating the mixtures and contributing to my country *Evaluation Level*

A Technology-Based Speaking Practice To Elt Algerian Students: Pedagogical Implications

Faiza HADDAM
Tlemcen University, Algeria
fhaddam@gmail.com

ABSTRACT:

This research work is a survey conducted with a group of Algerian non-native English speaking students in the Department of English – L3 level. This survey relies on two main research tools: A face-to-face interview and a classroom observation. The purpose of the research is to highlight the main speaking challenges closely related to use vs non-use of technology. It also addresses L3 students΄ difficulties in conversational English although they are in a final stage of their postgraduate programme. The experiment's results point out to few weaknesses and suggest effective means through different technics of expanding students' learning environment. They also capture non-academic challenges as well as few academic difficulties: the impact of mother tongue; the eternal debate between user vs non-user of technology; students' preferred learning styles.

Key Words: Speaking issues - L3 students – Technology - Mother tongue

INTRODUCTION

Communication and technology have been part of our life, especially in the area of education. In all educational systems, the use of communication and technology has an important place; therefore, computers play a significant role in the learning process. Teaching English to a foreign-language learner can benefit from using a computer. Indeed, a computer is a tool and medium that facilitates people in learning a language, although the effectiveness of learning depends totally on the users (Hartoyo 2006, 11).
Although the potential of the Internet for educational purposes has not been fully explored yet and the average schools in Algeria still make limited use of computers for many reasons (i.e. slow web access, problem of power, lack of language lab, lack of computer maintenance), it is obvious that we have entered a new information age in which the links between ICT and EFL have already been established.

Due to globalization, English has become a prominent language used by millions of people in many domains. North African countries pay attention to English language speaking and listening. Algeria is among them, English language students, no matter how much they know about the language, they still face many difficulties that hinder their speaking and listening improvements (or capacities). In the department of English at Tlemcen University, L3 students face serious learning difficulties and lack of confidence in speaking and taking an active role in the ~~classrooms~~. As Nunan (1991) wrote 'success is measured in terms of the ability to carry out a conversation in the (target) language'. Therefore, if students do not learn how to verbally express themselves and do not get involved in speaking and listening classrooms, they may lose confidence and interest in acquiring the (target) language. In spite their learning English background, L3 English students declared that expressing themselves in English is a difficult task. The majority of students understand the language and have a good grasp of its grammar and lexicon, but when they need to speak, they lose confidence and seem at loss for words. Given these backdrops, this research work is a survey conducted with a group of Algerian non-native English speaking students in the Department of English – L3 level.

PROBLEMATIC

The main problematic that hinders students΄ progress in English revolves around two main skills: speaking and listening.
In the department of English at Tlemcen University, L3 students face serious learning issues: if students do not learn how to speak and do not get involved in speaking and listening classrooms,

- They lose confidence and interest in acquiring the (target) language
- Expressing themselves in English is a difficult task.
- They lose confidence and seem to be at loss for words
- They face difficulties in listening activities

METHODOLOGY

This research work is a survey conducted in the department of English at Tlemcen University with two groups of 100; L3 students. The data was collected through two main research tools: A face to face interview with students and a classroom observation the whole year.

DATA ANALYSIS

A/ The experiment's results: classroom observation

1) I noticed that these two skills are very important and they go hand in hand with foreign language learning (i.e.: closely related)

2) It tends to be more complicated than the acquisition of the writing and reading skills due to two main reasons:

- The influence of their mother tongue (i.e. Arabic) and the French language on English Lack of daily practice (students do not live in an English speaking country).
- vocabulary acquisition (the colonization period)

3) The user vs non user of technology (technological troubles and lack of internet access)

4) Lack of motivation in learning English

5) Lack of confidence (afraid of making mistakes and expressing themselves in English in front of the audience)

6) Lack of adequate vocabulary (idiomatic expression and collocation)

7) Inappropriate teaching and learning methodology (lack of teaching materials and focusing mainly on speaking)

8) Inadequate activities both in speaking and listening since they are not adapted to their level

9) Bad Pronunciation, accent and intonation

B/THE EXPERIMENT'S RESULTS: INTERVIEW

Algerian students (here the case of L3 year students at Tlemcen university) face a lot of issues in coping with English –both academic and conversational English and specifically in speaking and writing. They stated that their difficulties in English are due to different reasons:

- The influence of the mother tongue
- The impact of the French language (due to a long colonization period averaging 130 years)

Some of them face the problem of students have difficulties understanding the different accents of interlocutor, the vocabulary used by the lecturer or simply a conversation in English. Therefore, the situation, the speaker and the listener can also be a problem. Different accents- cannot differentiate between different voices in the videos- hearing problems. (Listening troubles can influence the peaking abilities).

- A lack of visual clues (via Facebook interface or phone)
- A very limited vocabulary
- A lack of cultural background
- A lack of confidence and fear of making mistakes in an audience.
- A psychological block (they have a good English background but they cannot express themselves
- A lack of practice outside the classroom
- The lack of time (time allocated in the speaking and listening classrooms is not enough to induce the necessary improvements)
- Students have different style of learning, and an incompatible style for students will cause serious conflicts to them.
- Computer can be an exciting "fast" drill for one student and "slow" for another.
- Face to face conversation (positive/negative – the user of technology vs non user)
- They don´t know how to manipulate a computer (i.e. lack of proficiency).

SOME SUGGESTIONS AND EFFECTIVE TECHNIQUES

After 10 years of teaching speaking and listening skills, I myself proposed some rules to follow inside the classroom, adapt to the Algerian context; different techniques proposed by different scholars around the world. Technology as well, paves the way to a new teaching methodology based on the traditional and updated techniques to satisfy both user and non-user of technology in the classroom. A mix of the two methodologies can be very challenging and could enhance students´ motivation and interests.

A/Rules and Techniques:

- **Group work: playing games** (a quiz: selecting questions about general cultural background or questions about different subjects in the official programme as a revision for exams) by dividing the classroom into two main groups and rewarding the winning group.

- **Cultural awareness: selecting current events with the students** (either from the Algerian or international context) and divide the group in two: those for and those against learning how to engage in a debate
- **Create a confident environment inside the classroom**: at the start of each session, make the students feel at ease by recognizing the challenges they face inside and outside the classroom.
- **Never interrupt while speaking**
- **Immediate feedback:** Students receive maximum benefit from immediate feedback. A delayed positive feedback reduces the encouragement and reinforcement.
- **Teaching time:** Another way to encourage verbal sharing is to base a percentage of their final grade on speaking abilities and to make the students aware that they are being assessed continually on their speaking practice in the class; throughout the term.

B/Speaking Activities:

CALL programmers: can provide student ways to learn English through computer games, animated graphics, and problem-solving techniques which can make drills more interesting (Ravichandran 2000).

- **Funny Games**
- **Using riddles** through pictures or animated images displayed on the screen.
- **Guessing games:** ask students to select new words from a dictionary or a song or a movie and use different tips to guess the word (they will grasp the meaning, the spelling and learn new words through speaking)
- **Debate:** if you ask students to prepare a subject and to talk about it; this helps them select the appropriate vocabulary. Moreover, when we predict the topic of a talk or a conversation, all the related vocabulary stored in our brains is 'activated' to help us better understand what we're listening to. **(Raphael Ahmed,2015)**
- **Commented images:** You select different images from the web, and you ask them to comment about them. Students may explore their spontaneity and creativity and each one may express their own interpretation. (it was a very enjoyable and interesting experience with students)
- **Role play:** select a situation that students may experience in a real life and pair up a shy student with a dynamic peer. (pair work)
- **Oral presentation:** as future teachers (L3 level), instead of asking them to present about random subjects, ask them to select a subject of interest from the L3 programme and to present it to their classmates.

C/ Listening Activities: **(adapted from the IELTS listening test)**:

- They listen to a long conversation (native or non-native speaker to get accustomed with_different accents/pronunciations/cultures) and I ask them different details orally about the recording. At the beginning they give me brief answers and as long as we go through different details, they start engaging in the conversation with me without paying attention (this technique works mainly with shy students)

CONCLUSION

Speaking and listening is vital not only in language learning but also in daily communication. However, the students seem to experience challenges with both skills. Here are the most common from challenges expressed by the learners: the time they spend on homework is too little to improve the skill, the inappropriate strategies of learner are a hindrance for their listening comprehension. The problems are also caused from the listening material and students´ attendance. To acquire an acceptable listening skill; students should be more exposed to a variety of listening opportunities. Simultaneously, they should learn the tips or strategies to overstep their learning difficulties. The teacher plays an important role with sharing strategies and teaching how to apply these strategies into the listening task.

To conclude, speaking and listening skills are not only vital in language learning but also in everyday communication. However, challenges mentioned earlier are not new. All teachers with large classes (more than 55 students per group)face at least few of them while teaching speaking to non-native speakers. The case of the Algerian students is not isolated but it’s necessary to overcome these difficulties and to find out the necessary strategies to improve the skills.

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Activisation Of The Unemployed In The Light Of Personalism – Evaluation Attempt

Magdalena ŁUKA
The John Paul II Catholic University Of Lublin, Poland
Magdalenaluka@Kul.Pl

ABSTRACT

The article looks at the phenomenon of unemployment and ways of reducing it. It is supposed to give an analysis of chosen forms of activisation of the unemployed in terms of personalism. The article indicates the possibility to evaluate the undertaken forms of the unemployment reduction highlighting the value of human being and considering his good as a central part of researcher's interest.

NOTION OF UNEMPLOYMENT

The unemployment is one of the complex phenomena in the modern world. Hence due to its multi-faceted character economists, politicians, lawyers or political scientists see it in differently than sociologists or psychologists do. It is hard to depict the practical and universal description of unemployment for the lack of objective criteria and because of the complexity of the phenomenon. It is briefly described as „social phenomenon", „one of the most important social problems", „massive social threat" (Borkowski & Marcinkowski, 1999, p.25).

The unemployment, which takes many forms and can be among others : visible or hidden, constant or temporary, structural or technological, is nowadays present all over the world. It includes tens of millions in Europe and hundreds of millions in the world and remain a constant danger for those who work or are about to begin. This creates a state of uncertainty of tomorrow and impedes the harmonious and peaceful development of human and society.

According to the common meaning of the phenomenon, the unemployment relies on the fact that a certain number of people able to work are not capable of finding a job. What stems from this statement is that an unemployed person can be described as follows: a human without a job who is willing to work but cannot find a job.

In the source literature there are usually three major criteria distinguishing the unemployed: remaining jobless, looking for a job and be willing to work (Kwiatkowski, 2002). These features seem obvious but more in-depth analysis provoke certain doubts arising from some incoherences.

Remaining jobless is undoubtedly a crucial condition for unemployment to appear. However, it should be noticed that not every person who does not work is jobless. One can claim that the unemployed constitute a subcategory among the people who do not work – among people who do not work but are not jobless we can count housewives who do not earn only by their own choice. Furthermore, easily enough one can indicate the people who work and have a significant link with the unemployment. One of the subcategories of such people who do work is a group of people employed on a part-time basis. If they want but cannot work longer, they become partially unemployed. It seems that considering everybody who is employed on a part-time basis as working people who do not belong to the unemployed distorts a little the real unemployment rate.

Neither *Looking for a job* is free of doubts as a criterion of the unemployed identification. One can seek for a job in various ways and the level of personal involvement clearly varies. To find a job one can for instance: register in Employment Agency, browse newspapers, have meetings with potential employers, ask friends. If such person gets no result, he can abandon the process due to the lack of possibilities to proceed. Then one has to do with a situation when people want to start a job but they cannot look for it in an active way. The exclusion of passive people from the unemployed surely underrates the scale of the phenomenon.

It seems that the following criterion, *be willing to work*, is the less controversial. However, also in this case one can undermine the explicitness of its definition. What is unclear is the period of willingness of a given person.

The aforementioned statements lead to the conclusion that three features of the unemployed are quite general and it is difficult to make a clear definition of the unemployment out of them and present the scale of the discussed phenomenon. Despite the doubts concerning features of the unemployed, the majority of definitions describing the unemployment existing in the literature underlines only general criteria of unemployment identification without going into details (Kwiatkowski, 2002). There are some attempts to make the methods of calculating the unemployment more precise in order to have an overview of this phenomenon. The above-mentioned attempts comprise:

- registration in Employment Agency,
- registration of people applying for unemployment benefits,
- execution of surveys among representative part of the populace.

The subject of the present article draws the author's attention to unemployment calculation on the basis of the number of people registered in Employment Agency. This method is commonly used in the world and in Poland from nineties. In this case, the number of the unemployed depends on registration conditions. One has to be aware of the necessity caution while comparing the scale of unemployment over long periods of time or between countries. It stems from the lack of uniformity of the registration criteria in particular countries and over the years (act on employment and unemployment reduction which precises in Poland the conditions of the unemployed registration was amended several times from nineties).

It is important to take into consideration the fact that a part of the unemployed can be unwilling to be registered due to very little chances of finding a job through the Employment Agency. As a result, the number of registered jobless people will not reflect the real unemployment rate. A similar situation appears when a part of registered people is not interested at all in seeking for a job. Their motivation would be due to health insurance, allowance or free courses. In such cases, the number od the unemployed overestimates a trifle the real unemployment rate.

PERSONALISM IN PHILOSOPHY

Throughout the history different philosophical systems were looking for a sure, obvious and undisputed basis. In Rennaissance, a human becomes a major idea of new philosophical concepts – no longer as thought, mind, awareness or will – but as a person. The person is a key to understanding the reality.

According to "Dictionary of philosophy", personalism is „one of the numerous attitudes which emphasise the primacy of human or divine person in the universe" (Lacey, 1999, p.208). Personalism (Lat. *persona* – person; *personalia* – personal), is a trend in modern philosophy and culture describing full affirmation of a person and its good. This attitude, common for many philosophical doctrines, is characterised by certain protest against repeating forms of philosophical monism or totalitarism understood as a jeopardy for dignity, independence and value of a person. The notion of personalism is referred to the concepts which favour the autonomy of people, their dignity, and capability to exceed the nature and history. Thanks to these features a person takes a privileged position regarding other casual goods including social good. The Personalists put the person above other values. In order to describe the way a person exists, personalists touch the following matters: be and have, will and necessity, mystery and vocation, gift and love, hope and fidelity (Jedynak, 1999).

The basic category of personalism is the notion of "person". Analysing the foregoing achievements of personalism one has to notice the constant question: who exactly is a person? The answer is not coherent because of different types of personalism.

Wojciech Chudy distinguished common features of various types of personalism:

- contraposition to individualism and collectivism,
- emphasis on the fact that human being is a perfect creature,
- the most important features of a person are: intellect, freedom and subjectivity of living,
- strict connexion to axiological dimension – a person lives in the world of values,
- a person is perceived as active and operational
- the openness of a person to the community (Chudy, 1998).

There are various types of the domain within the philosophy of personalism. The ethical personalism takes into account the accomplishments of the classical tomistic metaphysics and the antropology relied on it but also the necessity of freedom affirmation and availability of subjective life. The essential issue is dignity, freedom and rationality. Pursuant to the ethical attitude of personalism, human being is a gift and a task. Hence it is crucial whether a person grows or gets degraded , if ia person takes care of the innate dignity or neglect it. Human being cannot exceed axiological borders delineated by his objective nature which has a value of the objective truth.

The openness of a person to the community is an intrinsic part of human existence in terms of ethical personalism and it is particularly connected to the category of participation understood as acting and living "together with other people" (Wojtyła, 2000, p.316). The act of a person can be fulfilled (and usually is fulfilled) together with others. The expression "social nature" refers to the cooperation with others. One can conclude that a human, thanks to the participation and collective action, preserves everything which stems from the community of action and makes real the personalistic value of the own act. Thus the personalism indicates the possibility of cooperation of people which is simultaneously self-realisation (Wojtyła, 2000).

WAYS AND TOOLS OF REDUCING UNEMPLOYMENT

On the contemporary labour market one can distinguish passive and active state policy towards the phenomenon of unemployment. Passive ways include a variety of mainly financial aid for the unemployed. They focus on the elimination of the consequences of the unemployment without supporting the process of creating new jobs. This policy involves such forms of assistance as benefits (one of the oldest and best-established in the popular awareness), one-time compensations for dismissed people, benefits related to early retirement Milewski & Kwiatkowski, 2005).

The active labour market policy is said to be the most effective. It is implemented through the programmes aiming at removing the causes of unemployment. They consist in the direct assistance in job seeking assured to people who take part in them. On one hand, the state helps in creating a demand for labour, and on the other, offers services such as employment agency, career counselling and training.

In the active labour market policy the most frequently used tools are:

- training and reskilling of the unemployed enabling them getting new skills and maintaining the professional activity;
- internships, professional training aiming at helping the unemployed get new qualifications; this form of support should include issuing a certificate stating the new practical qualifications gained by the participants.
- intervention works, a form of subsidised employment, which allows creating new jobs while the employer bears low costs;
- public works for the socio-economic development of communes (e.g. infrastructure construction) give a chance to maintain the professional activity of the unemployed;
- special programmes created for the long-term unemployed (support of the efforts addressed to the unemployed with the greatest difficulties in finding a job);
- loans for the unemployed for starting a business or for workplaces to create new jobs; in case of graduates the following possibilities can be counted: activisation benefits, training benefit, internship benefit, partial-salary benefit, occupation benefit and reimbursement of social insurance contributions provided by employer (Osiecka-Chojnacka).

ORGANISATION AND METHODOLOGY OF THE STUDY

The purpose of the study was to provide an evaluation of the forms of activisation of the unemployed in the light of ethical personalism. The analysed question was: do the chosen tools of professional activisation of the unemployed contribute to personal development of human and public good and are they conform to the philosophy of personalism?

The activisation programmes offered by County Employment Agency in Puławy in May 2016 were chosen to this study. Puławy is a Polish city – capital of Puławy County – located in the western part of Lubelskie voivodship near the border of Mazowieckie voivodship. The city has a total population of circa forty-nine thousand. The working area of the County Employment Agency comprises the city and surrounding communes.

The documents' analysis is the research method according to the classification of Mieczysław Łobocki (Łobocki, 2005) – in this case, it concerns especially digital documents.

The essential issue of study preparation is the elaboration of the system of categories which is crucial to perform the reference analysis. The elaborated categories must correspond with the theoretical field of the phenomenon or the empirical description of it and must be discernible. In case of minor research, those caegories will correspond the aforementioned basic assumptions of personalism. The reference analysis will be carried out on the basis of:

- personal development thanks to the executed activity,
- cooperation with people,
- activity which creates the fundaments of values and prepares the elaboration of the working code.

In May 2016 the statistics provided the following numbers concerning the unemployed: Total – 4059, under 25 years old – 678 (16,70%); under 30 years old 1312 (32,32%). People who took an active part in the unemployment reduction: 87 on internship, 22 conducted socially useful works, for 11 people the costs of unemployment were reimbursed until the age of 30, 3 people were employed in intervention works[1]. 3,03% of the registered unemployed obtained help from various kinds of mobilisation support forms.

REFERENCE ANALYSIS

Personalism puts the good and the development of a human in the middle of the world of values to which all the particular goods realised as a result of human free activity should be subordinated. The common point of all types of personalism is the metaphysical perception of a person as an autonomous being of spiritual nature which is blessed with moral freedom, consciousness and will. The personalists remind that human as a person must never be treated as a measure to achieve a certain goal because is himself, as a result of his dignity, the goal of all kind of activity.

The most common form of activisation of the unemployed within the analysed time was creating them a possibility to participate in *internships* which allow the jobless acquire practical abilities without employment relationship. A person does not lose his status as unemployed, but acquires new abilities by remaining at the workplace and helping the employer with his duties. Hence such a person becomes a quasi-worker. The Employment Agency monitors the course of internship and pays the unemployed certain amount of money. If one examines this form of activisation according to the adopted criteria, one should conclude that the internship contributes to the development of a person, teaches new abilities, enables the use of the acquired knowledge and stimulates the personal perfecting. Due to the fact that the internship takes place in a workplace, it teaches cooperation, helps with establishing new relationships in the professional environment. It is hard to acquire such abilities only in a theoretical way. It is also difficult to neglect the fact that the execution of professional duties as part of the internship creates in a person certain values which allow appreciating the work as one of the crucial activities in human life.

Socially useful works constitute an instrument on the labour market which is organised by a commune in the social help establishments or charitable institutions responsible for the activity oriented on local community. "The execution of socially useful works is conducted on the basis of the agreement between a staroste and a commune for the benefit of which these works will be executed. The County Employment Agency reimburses the commune from the Labour Fund to 60% of the minimum amount of benefit an unemployed is entitled to". With an assumption that the performer works are new for a given person and he finds them more complicated, one can claim that such works lead to the perfecting of such person. It is important however to underline the role of socially useful works for the development of the community and elaboration of the working code. It is difficult to find a situation which would have more positive impact on the social group than when one works for the benefit of local community.

Reimbursement of the costs until the age of 30 is one of the ways allowing the inexperienced people to enter the labour market. It is not easy to underline the direct influence of this form on personal development, but it surely creates the sense of community by entering into the economic system and reinforces the perception of work as a value of everyday life.

Intervention works is the engagement of an unemployed by an employer (salary is partially covered by a staroste). The purpose is to facilitate the unemployed reach the labour market. During the intervention work, one concludes an agreement with an employer, precise workplace, in which the work is executed (in case of internship the agreement is signed with the Employment Agency). As a consequence of intervention work one must earn at least minimum wage. The working period is counted as part of years of service and is the basis of other employee benefits e.g. leave. It is necessary to think whether this type of activisation contributes to personal development. It seems that this factor is not met in practice because the executed works do not teach new abilities but only make use of these acquired before. It should be noticed that the intervention works aim particularly at the people who want to return to the labour market as distinct from professional internships aiming particularly at graduates, young people without professional experience. When the described form of professional activisation allows the execution of new and more complex acitivites, it is possible to say that the personal development of the worker occurs.

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[1] *Dane statystyczne*, http://pup.pulawy.pl/strona/dane-statystyczne/182 (14.06.2016).

Intervention work – for the sake of executing the tasks in the workplace – the most often contributes to the development of the sense of community, allows to return to worker's group, activates and creates new interpersonal relationships. It is also difficult to neglect the fact of the elaboration of work code. Success or return to the labour market contribute directly to the appreciation of the value of this part of adulthood.

Taking into account the considerations above the final conclusions arise. The presented forms of the activisation of the unemployed expose significantly – but not equally – the human value putting him in the middle of the interest which fulfils the basic assumptions of personalism. Perfecting, personal development, cooperation with other people, elaboration of work code – these are the values realised through the analysed propositions of activities. The human factor is worth considering during the elaboration of the programmes aiming at helping the unemployed who enters the modern and difficult labour market. The success of these activities lies in personal attitude to the problem.

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Adaptation A Scale For Teachers' Perceptions Of The Applications Of Scientific Process Skills: A Study Of Validity And Reliability

Mehtap YILDIRIM
Marmara University, Faculty of Education, Turkey
mehtapyildirim@marmara.edu.tr

Hikmet SÜRMELİ
Mersin University, Faculty of Education, Turkey
hsurmeli@mersin.edu.tr

İlknur GÜVEN
Marmara University, Faculty of Education, Turkey
Ilknur.guven@marmara.edu.tr

Mustafa ERGUN
Ondokuz Mayıs University, Faculty of Education, Turkey
mergun@omu.edu.tr

ABSTRACT

Today one of the main purposes of science education is to educate individuals to use scientific process skills. Individuals who grow in this context can be good citizens who knows the requirements of the age, questioning, investigating and able to establish a connection with daily life. In addition, while teaching science, the aim is not only to teach the concepts but also educate the students to solve the problems they face with throught their life, in scientific ways, and to manage to look through the scientisits' eyes to the phenomena and the World. By providing these skills, it is mportant to know teachers' perceptions of the applications of these skills. Literature show that there are limited valid and reliable instruments which evaluate teachers' scientific process who teach science. From this point, in this study, the scale for teachers' perceptions of the application of scientific process skills developed by Rambuda and Fraser (2004) was adapted. The adaptation process was performed in three different universities. The sample consisted of preservice teachers in three educational faculties. The scale consisted of 22 items using 4 point Likert Scale. The scale was applied to 686 preservice teachers in teacher training programme during 2014-2015 academic year. To test the language equivalance, English and Turkish versions of the scale was applied to 58 students in English teacher training programme and positive and significant correlations were identified. To determine construct validity of the scale, exploratory and confirmatory factor analysis were conducted. Results of exploratory factor analysis showed that the scale consisted of 2 dimensions: Basic science process skills and integrated science process skills. The valus of factor loadings varied within the range of ,46-,78. The inner consistency coefficient for reliability was calculated to be ,91. The ciriterian validity results showed that the scale is suitable for the purpos. The result of confirmatory factor analysis showed that indices were found at an acceptable level and determined that the scale was relevant to the real data. The findings of the study identified that the teachers' perceptions of the applications of scientific process skills scale is valid and reliable assessment tool.

Key Words: Scale for application of scientific process skills, Validity, Reliability, Adaptation of scale

INTRODUCTION

As it is in many other countries, in our country the nature of science, science technology society relations, and scientific process skills are valued highly in changing programs. In 2005 Turkish Science and Technology Education Program (MEB, 2005) "to make students to gain scientific process skills for teaching the ways and methods of scientific research" was aimed. In 2013 Turkish Science Program (MEB, 2013) it is aimed for the students that "In the process of understanding the relationship between nature discovery and human-environment providing scientific process skills and scientific approach to produce solutions to the problems" are intended. The vision of the 2013 Science Program stated as; "to train all the students as scientific literate individuals" (MEB, 2013). One of the features of scientific literate individuals in these programs has been expressed as to

have the scientific process skills (Yıldırım, Atila, Özmen, Sözbilir, 2013). In 2013 Science Program learning domains are listed as four groups of "knowledge, skills, perception and science-technology-society-environment". The "skills" learning domain is divided into two groups as scientific process skills and life skills (MEB, 2013; Karatay, Timur &Timur, 2013).
It has taken up a vast amount of value to gain important achievements in science and technology in order for societies to keep up with the fast changing and improving world. Success in education is not only defined by academic success/achievements, anymore. Learning science means more than learning scientific knowledge. By learning science one must come to understand both the body of knowledge that represents current understanding of natural systems and the process by which this knowledge is established, extended, refined, and revised (Duschl, Schweingruber, & Shouse, 2007, p. 26). Vitti and Torres (2006) claims that science process occurs naturally, spontaneously in our minds. We can use science process to find out the answers to our questions about the world by logically breaking down the steps in our thinking. Science process is useful in any situation that requires critical thinking (Vitti & Torres, 2006). Students who have scientific process skills can solve problems, do researches, and perform experiments. In addition to that, they, as indivuduals, can use these skills in everyday situations to reach a solution (Aktamış, 2009). Possessing scientific process skills means for the induviduals to provide to understand and internalize the ways of the scientists which they are using while solving a problem. When the descriptions of scientific process skills are examined, it is seen that these skills have many contributions to the students. Çepni, Ayas, Johnson and Turgut (1997) defines science process skills as the skills that the students use to gain the research ways and methosds, make them active, give responsibility for their own learnings, help and make it easier for them to learn, and increase the permanency of their learnings.

It has been seen that scientific process skills are classified by researchers with small differences, in different ways. One of the two most accepted classifications divides scientific process skills into two: basic and integrated skills (Aktaş & Ceylan, 2016; Rambuda & Fraser, 2004; Tan &Temiz, 2003; Yeany, Yap & Padilla, 1984; Martin, Sexton, Wagner, and Gerlovich, 1998). Observing, inferring, measuring, communicating, classifying and predicting are listed as basic scientific process skills and controlling variables, defining operationally, formulating hypotheses, interpreting data, experimenting and formulating models are listed as integrated scientific process skills (Padilla, 1990). Basic skills are the foundation of the high-level skills, and should be taught to students starting at a young age. Integrated skills, on the other hand, are skills that should be taught to the students who have already obtained the basic skills.

To reach to the goal of providing the scientific process skills of the learning programs, the teachers those are the operators of those programs have to have the scientific process skills (Türkmen & Kandemir, 2011). Theachers have great responsibility to impart these skills to the students (Aktaş & Ceylan, 2016; Yıldırım, Atila, Özmen, Sözbilir, 2013; Harlen, 1999). Providing the students with the opportunity to learn to use scientific process skills is of the most important contributions to their students (Blosser, 2000). However, only those teachers who have mastered the skills can pass them on to their students successfully (Funk, Fiel, Okey, Jaus, & Sprague, 1985: cited in Downing & Filer, 1999). The level of the scientific process skilss of the students increase significantly if the teachers use more acitivities for that aim (Karapınar, A. Şaşmaz Ören F., 2015).

Teachers today are more of a model and a guide rather than just a person who teaches. Because of this, teachers and prospective teachers should be informed -and improved- on the importance of scientific process skills (Aktaş&Ceylan, 2016). It is determined that the way teachers apply and improve on these skills are effected by their self-confidence, understanding of the skills, and whether or not they have any experience with these skills (Ambross, Meiring, & Blignaut, 2014). On the other hand, even though many teachers are self-confident about the use of scientific process skills, it has been found that they are not sufficient in determining and applying the skills (Llyod et all., 2000). In science education, teachers are capable of providing their students with these skills by doing scientific activities, giving them opportunities where they can use these skills, and using the proper experimental techniques in lab studies (Yıldırım et all., 2011) Additionally, it is emphasized that the students' use of scientific process skills has a positive effect on their academic success (Aktaş & Ceylan 2016; Yıldırım et all., 2011).

Prospective teachers' developments on this subject, is a prerequisite for their ability to stimulate students to acquire these skills (Aktaş&Ceylan, 2016). Literature survey shows that there are many reaserches considering different variables; such as; about determining the level of scientific process skills of teachers' and prospective teachers' (Aktaş & Ceylan, 2016; Aydoğdu & Buldur 2013; Karslı & Ayas, 2013), ideas about the scientific process skills (Celep &Bacanak, 2013; Yıldırım, Atila, Özmen, Sözbilir, 2013; Şahin-Pekmez, 2001), the using situation of scientific process skills by teachers (Kefi, Çeliköz & Erişen, 2013) and evaluation of the impact of different variables on the scientific process skill levels of secondary school students (Böyük, Tanık & Saraçoğlu, 2011).

There are many different "scientific process skills" scales in Turkish. Although, some of them prepared originally in Turkish (Hazır & Türkmen, 2008; Yıldırım & Sezek, 2014; Öztürk, Tezel & Acat, 2010; Aktamış & Şahin-Pekmez, 2011; Aydoğdu, Tatar, Yıldız & Buldur, 2012; Temiz, Taşar & Tan 2006), some of them are adapted from other languages, especially from English. The adaptation to Turkish of "Test of Basic Process Skills-BAPS" developed by Padilla, Cronin ve Twiest (1985) towards primary students made by Aydoğdu and Karakuş (2015). Another scientific process skillls test was developed by Burns, Okey ve Wise (1985), adapted to Turkish by Geban, Aşkar ve Özkan (1992). The "Science Process Assessment for Middle School Students" test was originally developed by Kathleen A. Smith (1994) and translated into Turkish language by Şenyüz (2008). The test which was developed by Enger and Yager (1998) was translated into Turkish by Koray et all (2005).

In literature survey it has been seen that the scales are mostly about the measurement of the scientific process skill levels of the participants. Because the teachers are the moderators; it is important to learn the perceptions of the teachers for scientific process skills. In this research, differenly than others, it is aimed to adapt the scale that has been developed to identify the perceptions of the geography teachers about the application of scientific process skills (Rambuda & Fraser, 2004). The adaptation to Turkish is made for science teachers and prospective science teachers in science and techonolgy lessons. It is believed that to serve it to Turkish literature will be valuable for researchers.

METHOD

RESEARCH MODEL AND SAMPLING

Survey model was conducted in this study. This study was applied to 686 preservice science teachers studying in Educational Faculties at three universities. Data obtained from 474 preservice science teachers were used to construct validity and data obtained from 212 preservice science teachers were used in confirmatory factor analysis.

PROCESS OF ADAPTATION OF DATA COLLECTION INSTRUMENT

In this study, an adaptation of the scale is developed by Rambuda and Fraser (2004), consisted of 22 items and based on 4 likert type was conducted. The scale which was developed to determine the perceptions of Geography teachers' towards applications of scientific process skills was adapted for science teachers in teaching of Science in secondary schools. For this purpose, in the first stage, some corrections were made on the scale by three academicians in order to make the scale to measure the science teachers' perceptions of the applications of scientific process skills. In the second stage, Turkish adaptation of the scale was conducted.

In the first stage of Turkish adaptation, English-Turkish translation of the scale was made by three experts. Second, English and Turkish version of the scale was applied to 58 undergraduate students in English Teacher Training Programme in two weeks. In order to determine the relationship of the two applications correlation analysis was conducted. Cronbach'a alpha values of the English and Turkish version of the scale was found to be .93 and .94 respectively.

Table.1. Pearson Coefficient Correlation Analysis

Application	N	Number of items	r	p
English Turkish	58	22	.75	.00

Pearson Coefficient Correlation Analysis was conducted to determine the relationship between the scores obtained from the results of English and Turkish applications of the scale. The result of this analysis showed positive and meaningful relatonship between English and Turkish applications of the scale (r: .75; p<.05). Correlation coefficient between 1:00 .70-level is defined as a good relationship by researchers (Büyüköztürk, 2012). In this case, it can be said that there is a good and meaningful relationship between English and Turkish applications of the scale.

DATA ANALYSIS

Exploratoty factor analysis and confirmatory factor analysis were conducted in order to determine the construct validity of the scale. In addition, the cronbach alpha analysis determined the reliability.

Table. 3. Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7,879	35,812	35,812	5,554	25,243	25,243
2	1,767	8,032	43,844	4,092	18,600	43,844
3	1,111	5,049	48,893			
4	,968	4,398	53,291			
5	,874	3,974	57,264			
6	,811	3,688	60,953			
7	,756	3,435	64,388			
8	,714	3,246	67,633			
9	,700	3,181	70,814			
10	,674	3,062	73,876			
11	,628	2,854	76,730			
12	,573	2,604	79,334			
13	,544	2,472	81,806			
14	,536	2,434	84,240			
15	,520	2,362	86,603			
16	,498	2,264	88,866			
17	,489	2,221	91,087			
18	,465	2,112	93,199			
19	,447	2,030	95,229			
20	,395	1,796	97,026			
21	,359	1,633	98,659			
22	,295	1,341	100,000			

Extraction Method: Principal Component Analysis.

FINDINGS

EXPLARATORY FACTOR ANALYSIS (EFA)

In this study, in order to test the adequacy of data structure for factor analysis, Kaiser- Meyer Olkin (KMO) test and Bartlett test of Sphericity were conducted in terms of sample size. KMO values varies between 0 and 1. Since KMO value was found to be .93 in this study, it was concluded that, sample size was satisfactory and data structure was adequate for employing factor analysis (Çinko, Yurtkoru, Durmuş, 2008, p.80; Şencan, 2005; Çokluk, Şekercioğlu, Büyüköztürk, 2012; Field, 2002). In addition, Barlett Spherical test indicated that chi-square value was found to be significant (X^2: 3931,5; p<,01). Bartlett test of Sphericity Show whether there is adequate relationship between variables. Based on the results obtained in this study, adequacy of the data for factor analysis was accepted.

Table.2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,935
Bartlett's Test of Sphericity	Approx. Chi-Square	3931,584
	df	231
	Sig.	,000

Principal component analysis was used to reveal the factor pattern of the scale, and varimax vertical rotation method was used for openness and significance in interpretation. Analysis results indicated eigenvalues of 22 items showed 2 components and higher than 1. According to the table 3 contribution of sub-components to total variance was found to be 43,84%. As seen in Table 3 the scale has 2 factor structure This ratio is expressed as sufficient for multifactorial patterns (Çokluk, Şekercioğlu, Büyüköztürk, 2012; Tavşancıl, 2005).

Table.4. Rotated Component Matrix

	Component	
	1	**2**
M1	,745	,013
M10	,652	,136
M2	,644	,109
M9	,615	,243
M4	,607	,191
M8	,589	,312
M7	,588	,195
M11	,580	,210
M6	,561	,214
M5	,533	,295
M13	,520	,344
M3	,518	,170
M12	,461	,343
M16	-,025	,788
M15	-,039	,788
M22	,304	,625
M19	,323	,606
M18	,441	,600
M21	,426	,515
M20	,398	,514
M17	,378	,513
M14	,397	,486

While items can be seen in the first column of the Rotated Component Matrix (Table 4), other existing factors can be seen in other columns. Each column represents a factor, the values in the columns are the weights of factors.

Some researchers indicated that minimum factor loadings should be .30 for factor analysis, on the other hand, some have opinions that it should be .40 (Tabachnick & Fidell, 2001). In this study, that factor loading value was considered as .40.

As a result of factor analysis items under the 2 factors were evaluated in terms of content and named as” basic science process skills” and “integrated science process skills”. According to these factors, there are 13 items in the basic science process skills and there are 9 items in the integrated science process skills (See attachment 1).

Table.5. Exploratory factor analysis (2 dimensions of the scale)

	Factor 1	**Factor 2**
1- I give my learners many opportunities to **identify** important scientific problems	,74	,01
2- I organize classroom activities in which arners **classify** the observed scientific features.	,63	,10
3- I encourage learners to use any means to **communicate** learned information, i.e. to draw concept maps, tables, charts, symbols, graphs and diagrams to **communicate** the information	,51	,17
4- I linnk the work in science on **diagrams** to the everyday life of the learners, i.e. getting learners to bring examples from newspapers and magazines for discussion in class.	,60	,19
5- I organize activities in which my leraners **compare** objects using standardized units of measure and suitable measuring instruments.	,53	,29
6- I organize my learners to **observe** scientific phenomena such as plant growt, water boiling, cell in microscope, floating object, mirror image etc..	,56	,21
7- I encourage my learners to **predict** future scientific events based upon their obdervations	,58	,19
8- I encourage learners to use various forms of data to determine the **correctness of scientific theory**	,58	,31
9- I encourage learners to **describe** a scientific event in relation to other scientific events	,61	,24
10- I give my learners my learners many opportunities to **observe** scientifically important problems.	,65	,13
11- I encourage my learners to use any means to **communicate** investigated information	,58	,21
12- I link the work in science on **graphs** to the everyday life of the learners i.e. getting learners to bring examples from newspapers and magazines for discussion	,46	,34
13- I organize activities in which my learners arrange scientific experiments in logical **order**.	,52	,34
14- I encourage learners to **identify variables** that affect scientific phenomena, eg. how variables such as humidity, temperature, soil structure, and light influence germination	,39	,48
15- I devise exercises in which my learners have to **construct tables of data**	-,03	,78
16- I devise exercises which my learners have to **construct graphs**.	-,02	,78
17- I devise exercises in which my learners **conduct investigations**	,37	,51
18- I devise activities in which my learners **identify the variables** under investigation	,44	,60
19- I give my learners scientific problems in which they are encouraged to **construct hypothesis**	,32	,60
20- I give exercises in which my learners **define** scientific features by using observable characteristics of the features	,39	,51
21- I gve my learners hypothesis and request them to **design investigations** to test the given hypothesis	,42	,51
22- I devise exercises in which learners have to **describe the relationship between variables on a graph.**	,30	,62

After conducting factor analysis, Cronbach alpha reliability was done to determine the reliability of total scores of the scale and the reliability of each factors. Cronbach alpha is the consistency value which depends on relationship between the questions and shows the level of total reliability of the items under the factor. The obtained values indicate the adequacy of the reliability level of the scale. Cronbach alpha coefficient reliability is represented in Table 6. According to these table cronbach alpha coefficient reliability was found to be .91 for whole scale and for each factor reliability was found .83 and .85 respecticely.

Table.6. Cronbach alpha coefficient reliability

Factors	Alpha
Factor 1	.83
Factor 2	.85
Total	.91

CONFIRMATORY FACTOR ANALYSIS (CFA)

In order to test the tructure validity of 2 factors resulting from the explorartory factor analysis, confirmatory analysis was conducted. Figure 1 shows the fidings obtained from confirmatory factor analysis.

As a result of confirmatory factor analysis of the scale, it was found that the ratio of chi-square to the degree of freedom (X^2/df) was found to be 1.51 which shows the general consistency of the pattern. Since this ratio is below 3, it can be considered as perfect fit. Other indices are shown below:

• NFI	0.87	Low fit
• NNFI	0.94	Acceptable fit
• CFI	0.94	Acceptable fit
• GFI	0.80	Low fit
• AGFI	0.76	Low fit
• RMSEA	0.067	Acceptable fit

Confirmatory factor analysis results demonstrated adequacy indices which were determined at sufficient level for fitness with the model Lewis, Francis, Shevlin, Forrest, 2002; Hoe, 2008). The model including standardised parameter estimates regarding the factors and the items of the scale is presented in Figure 1 the results obtained confirmed the validity structure of the 22 item scale for preservice science teachers.

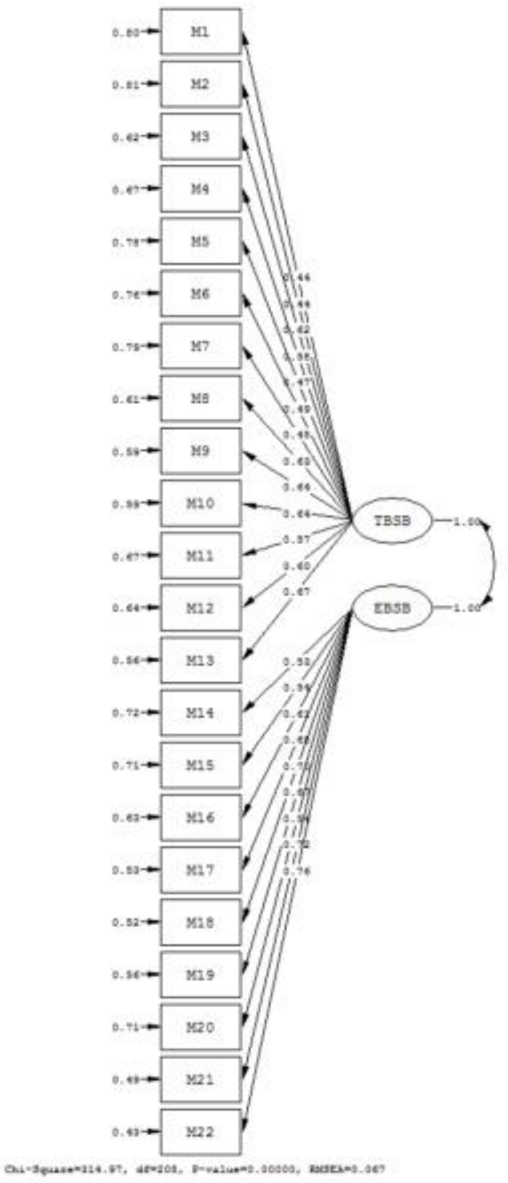

Figure.1. Results of confirmatory factor analysis

Table.7. Results of exploratory factor analysis

Latent	İtem	Std loadings	t value	R^2
Basic scientific process skills	M1	0.44	4.70	0.20
	M2	0.44	4.63	0.19
	M3	0.62	6.96	0.38
	M4	0.58	6.36	0.33
	M5	0.47	4.95	0.22
	M6	0.49	5.24	0.24
	M7	0.45	4.80	0.21
	M8	0.63	7.04	0.39
	M9	0.64	7.24	0.41
	M10	0.64	7.20	0.41
	M11	0.57	6.33	0.33
	M12	0.60	6.69	0.36
	M13	0.67	7.62	0.44
Integrated scientific process skills	M14	0.53	5.77	0.28
	M15	0.54	5.89	0.29
	M16	0.61	6.78	0.37
	M17	0.68	7.90	0.47
	M18	0.70	8.09	0.48
	M19	0.67	7.66	0.44
	M20	0.54	5.86	0.29
	M21	0.72	8.42	0.51
	M22	0.76	9.07	0.57

Standardized loadings show correlation between each observed variable (item) and latent variable which associated with observed variable. The correlation coefficient of the first indication (M1) of basic scientific process skills is .44, and R^2 is also .20. It is seen that variability mostly described by M13 related to basic scientific process skills factor (R^2= 0.44). Correlation coefficient of the first indication (M14) of the integrated scientific process skills is .53 and R^2 is also .28. The variability of integrated scientific process skills factor is mostly described by M22 (R^2= 0.57).

CONCLUSION

In this study, Scientific Process Skills Scale which was developed to determine Geograpgy teachers' perceptions, was adapted for science teachers. During the adaptation process of the scale explorator and confirmatory factor analysis were performed. In accordance with these analysis, it was found that the scale consisted of 22 items and two factors: basic scientific process skills, integrated scientific process skills. In the factor structure, the values of factor loadings vary between .78 and .46. Total variance of the scale has a ratio of 43.83%. Adequate correlations were determined between the total score of the scale with the items and total score of the scale with the dimensions.

Confirmatory factor analysis was applied to 22 item scale to test the structure validity of the 2 factors. As a result of this analysis a ratio of X^2 /sd was found to be 1.51 which showed that the scale was relevant to the real data. It was also determined that other indices were found at an acceptable level. In this context, it can be said that the 2 factor structure of the Perception Application of Scientific Process Skills Scale is relevant model. Since the data were obtained from preservice science teachers, it can be said that this scale is appropriate to determine preservice science teachers' and also science teachers' perceptions of the applications of Scientific Process Skills. The adaptation process is conducted with prospective teachers; so it is recommended to apply this scale to the science teachers and evaluate the results.

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Attachment.1

	Asla	Bazen	Sık sık	Her zaman
1- Önemli bilimsel problemleri belirlemeleri için öğrencilerime birçok fırsat veririm.	1	2	3	4
2- Öğrencilerin gözlenebilir bilimsel özellikleri sınıflandırdıklarısınıf faaliyetleri düzenlerim.	1	2	3	4
3- Öğrenilen bilgileri her hangi bir şekilde iletişim kurmak üzere kullanmalarında, yani bilgi iletişimi kurmada kavram haritası, tablolar, çizelgeler, semboller, grafikler ve şemalarkullanmaları için öğrencileri teşvik ederim.	1	2	3	4
4- Bilim çalışmalarını şemalar kullanarak öğrencilerin günlük hayatı ile ilişkilendiririm, örneğin sınıfta tartışmak için gazetelerden ve dergilerden örnekler getirmelerini sağlarım.	1	2	3	4
5- Öğrencilerimin standart ölçü birimlerini ve uygun ölçme araçlarını kullanarak cisimleri karşılaştırdıklarıaktiviteler düzenlerim.	1	2	3	4
6- Öğrencilerimin bitki gelişimi, kaynayan su, mikroskopta hücre görüntüsü, yüzen cisim, aynadaki görüntü vb. bilimsel olayları gözlemlemeleri için etkinlikler düzenlerim.	1	2	3	4
7- Öğrencilerimi, mevcut gözlemlerine dayanarak, gelecek bilimsel olayları tahmin etmeleri için teşvik ederim.	1	2	3	4
8- Öğrencileribilimsel bir teorinin doğruluğunu belirlemek için çeşitli veri biçimlerini kullanmaları için teşvik ederim.	1	2	3	4
9- Öğrencileri diğer bilimsel olaylar ile ilişkili bir bilimsel olayı açıklamaları için teşvik ederim.	1	2	3	4
10- Bilimsel olarak önemli problemleri gözlemlemeleri için öğrencilerime pek çok fırsatlar sunarım.	1	2	3	4
11- Öğrencileri araştırılmış bilgileri her hangi bir şekilde iletişim kurmak üzere kullanmaları için teşvik ederim.	1	2	3	4
12- Bilim çalışmalarını grafikler kullanarak öğrencilerin günlük hayatı ile ilişkilendiririm, örneğin sınıfta tartışmak için gazetelerden ve dergilerden örnekler getirmelerini sağlarım.	1	2	3	4
13- Öğrencilerimin mantıksal sırada bilimsel deneyler düzenleyecekleri etkinlikler düzenlerim.	1	2	3	4
14- Öğrencileri bilimsel bir olayı (deneyi) etkileyen değişkenleri belirlemeleri için teşvik ederim. Örneğin: nem, sıcaklık, toprak yapısı ve ışık gibi değişkenlerin bitkinin büyümesini (çimlenme) nasıl etkiler?	1	2	3	4
15- Öğrencilerimin veri tablosu oluşturmak zorunda oldukları alıştırmalar tasarlarım.	1	2	3	4
16- Öğrencilerimin grafik oluşturmak zorunda oldukları alıştırmalar tasarlarım.	1	2	3	4
17- Öğrencilerimin araştırma yaptığı alıştırmalar tasarlarım.	1	2	3	4
18- Öğrencilerimin araştırmalarda değişkenleri belirledikleri etkinlikler tasarlarım.	1	2	3	4
19- Öğrencilerime onları hipotez kurmayayönlendiren bilimsel problemler veririm.	1	2	3	4

20- Öğrencilerime olayların gözlenebilir özelliklerini kullanarak bilimsel olayları açıkladıkları alıştırmalar veririm.	1	2	3	4
21- Öğrencilerime hipotezler veririm ve verilen hipotezleri test etmeleri içinaraştırma tasarlamalarını isterim.	1	2	3	4
22- Öğrencilerin grafiktekideğişkenler arasındaki ilişkiyi açıklamak zorunda oldukları alıştırmalar tasarlarım.	1	2	3	4

Addiction Or Addition: Facebook Use Among Efl Students

Mustafa Naci Kayaoğlu
Karadeniz Technical University
Trabzon, Turkey
naci@ktu.edu.tr

ABSTRACT

Our era is characterized by the revolution of communicative technologies with which social networking websites seem to be the most widely used applications. The technology does not only allow us to transfer information at an unimaginable speed and communicate with people instantly but also to change the patterns of our life, education and even thinking. This makes it necessary for educators to understand the nature of technology, changing our role from being users/consumers of social networking devices to appreciating the benefits and realizing potential usage. Innovative technologies such as Facebook can also pause certain challenges and dilemmas as well as opportunities. In addition to the bright side of Facebook, there is also a dark side, which seems not to have received due attention. With this in mind, this paper investigates the usage of Facebook, the most popular social network, among English-majoring students, trying to answer whether it is an addiction or addition to their progress, personal development and communication. To this end, survey method was employed. A total of 355 university student participated in the study through stratified sampling.

INTRODUCTION

This era is characterized by Web 2.0 technologies, which obviously have penetrated into all spheres of our lives with tools including e-mails, discussion forums, chat, video conferencing, blogs, wikis, YouTube, and social networking sites. Within this revolution are three frequently used terms; technology, information and communication. They are becoming inextricably interwoven in such a way that "communication from one side of the world to the other has become virtually instantaneous, crossing national boundaries and connecting the world on an unprecedented scale and with a previously unimaginable speed (Kayaoğlu & Akbaş, 2011, p.282). Among the online tools is currently Facebook which is becoming a global phenomenon due to its wide range of use by people of all ages and background. Given the frequent reference to this social website in academic papers, Facebook is not anymore a platform for exchanging ideas with long-lost friends and a medium to establish new friendships. Its impact on issues ranging from social life to education is so apparent that a burgeoning body of literature has already piled up significantly. Kayaoğlu (2009, p.49) indicates its educational implications stating "multimedia computers and the Internet give the potential for active and interactive learning experiences such as peer tutoring, self-directed learning, experiential and real-world-learning, problem-based learning and reflective teaching".

Without doubt social networking tools have brought many benefits to the social interaction habits and learning patterns of people to the extent that we could not have dreamed about before.) In spite of educational, interactional and social value of Facebook, which are indicated in a substantial number of studies (Ellison, Steinfield, & Lampe, 2007), serious problems caused by unhealthy use of Facebook seem not to have received the due attention from the academic circles. It is interesting to note the gravity of problems associated with excessive use of this social networking that Facebook is now cited in about a third of all divorce cases in the UK and one in five American divorces (Foxnews, 2015; PcWorld, 2015). There are some studies, though infantry and presenting contrasting views, on relationship between Facebook use and its negative consequences such as addiction (Furney, 2015, Çam & İşbulan, 2012; Hazar, 2011; Young 2004). It is quite important to investigate the value of Facebook use among Turkish students. There is increasing evidence that we are moving from the era of Facebook as means of communication and educational tool to an area of Facebook as a source of addiction and even depression.

Facebook is a social networking website which has become the most popular among others over the years. Founded by Mark Zuckerberg, who used to be a student at Harvard University, Facebook today has over 800 million of active users from hundreds of countries. There are over 1.39 billion monthly active Facebook users, which is a 13 percent increase year over year. Approximately 2.5 billion likes generated daily. Photo uploads total 300 million per day. Average time spent per Facebook visit is 20 minutes. Every 60 seconds on Facebook:

510 comments are posted, Around 293,000 statuses are updated, and 136,000 photos are uploaded. 4.75 billion pieces of content shared daily. 50% of 18-24 year-olds go on Facebook when they wake up (Saltaş, 2015).

What makes Facebook so appealing is that it is used in a variety of ways, contexts for different purposes. Some of these include getting information relevant to a personal interest, doing commercial business, joining groups, doing research, getting personal help, downloading software, getting educationally-oriented information, reading (viewing) news, playing games, listening to music, and meeting new people, sustaining personal relationships, communicating with people, uploading course contents, announcing events and running some courses. Given the fact that students have become digital natives of the Net Generation and been interacting with digital technology from very early years, Facebook has become the most frequently used website among students of all ages. It is less tiring and time-consuming when compared to face-to-face interaction. People feel more relaxed and find it appropriate to express themselves online as it is less stressful. Users can do multiple things while communicating with their friends even synchronously. Research-based data also indicates its use in the following areas: intercultural and intracultural awareness, genuine/authentic communication interaction, instant communication, and hedonic purposes, active and interactive learning experiences such as peer, tutoring, self-directed learning, experiential and real- world-learning, problem-based learning and reflective teaching, connect students into the learning process, increases in academic achievement, verbal literacy and self-esteem, adaptation to different culture, socialization and improving language learning (Saltaş, 2015).

Although social network sites are not basically to create learning environments, there are increasing attempts by academic circles to use it as a means to take learning beyond the walls of a classroom, providing an effective channel both for students and teachers to have meaningful sustained interaction and communication. Its revolutionary effect is perhaps most visible in foreign language learning in education, resulting in the emergence of new leaning environment. In the past foreign language learning was very much limited to the efficiency or dominance of teachers, classroom atmosphere and non-authentic materials. Language classes suffered long due to lack of genuine interactions and meaningful exposure to the foreign language, which did not encourage students to use language but confined them to learn it out of context. This has also resulted in big frustration. In EFL countries like in Turkey and elsewhere there are insufficient opportunities for real interactions and good reason and immediate need to initiate discussion. With the electronically-mediated common communication spaces such as Facebook, not only the role of students, and teachers but also the nature of interaction and learning have fundamentally changed. Interactions through Facebook is so many dimensional that it combines the textuality of written communication with real-time informal interactions with multi resources. Students appear to be more engaged in learning process as individualized, and self-directed learners. Now they take the role of team builders, constructors, contributors and discoverers as opposed to the passive recipient of old traditional educational system. There are numerous studies on social networking websites, in particular Facebook indicating their pedagogic value (Saltaş, 2015; Lang, 2011; Kabilan, Ahmad & Abidin 2010 Grant, 2008; Kord, 2008).

Although good examples of Facebook use are well noted in the current literature, problems caused by its excessive use seems not to have been investigated adequately In addition to bright side of Facebook, there is also dark side as it has received harsh criticism from academic circles due to the following reasons and violations: online privacy, child safety, multilateral intrusions and privacy invasion, the “real face behind Facebook, unearthly overloaded useless information and trivialities, fantasy-idealized world with pretentious posts, a juvenile need for constant feedback and care to survive with the Facebook must-likeability, identity crisis , feeling of resentment, jealousy and unhappiness, obsession with self-images, abusing humanity’s inner weaknesses, cyberbullying, stalking, and online harassment (Broomley, 2011; Young, 2004). According to the report issued by American Psychological Association (2011), excessive exposure to social networking sites in particular Facebook brings about psychological disorders such as narcissistic tendencies, antisocial behaviors, anxiety, and depression.

In relation to Internet addiction, Griffiths, Kuss and Demetrovics (2014) stress the immediate need for the investigation of Facebook addiction, which is on the increase among students. Something potentially beneficial can cause serious problems when one is addicted. Regarding the potential for students to become addicted to internet or Facebook has received interest from psychologists and clinicians but not necessarily from researchers. There is a very big growing counter argument about social media, blaming Facebook for being the fallacy of our supposedly interconnected age and the true oxymoron of our time because people simply hide behind a glass screen and always show their best face forward. This lead people to be deliberately oblivious to the real life and live in an idealized world in which they are obsessed with their self-images mixed with addiction. According to a study by Krasova, Wenninger, Widjaja, and Buxmann (2013), one out of three people became unsatisfied with their lives after visiting Facebook, due to the feeling of resentment, jealousy and unhappiness that Facebook casued. The more people used Facebook, the worse they felt afterwards and the more their life satisfaction levels declined. Furney (2014) regards Facebook basically fake and a fetish since people conceal behind a screen, trying to exist mostly in the daydream realm of fantasy world.

Some clinical reports indicate that some Facebook users have the risk of becoming addicted in much that same way that others became addicted to drugs or alcohol which resulted in academic and social impairment. Dr. Conrad, Clinical Psychologist for TechAddiction, (2016) indicates theoretical and technical problems in the recognition of Facebook addiction since Internet addiction, which is a very new phenomenon, is not an official psychiatric diagnosis. Many disorders have been worked on for at least fifty years, some for over one hundred years in order to warrant official disorder statues. In spite of lack of agreed standards for what diagnoses Facebook addiction, preliminary studies indicate that if too much time spent online and this can significantly interfere with functioning in other areas of life such as relationships, education, work, school, physical heath, and emotional well-being, then we can talk about symptoms of addiction. Spending a huge amount of time on Facebook, students can cross the line into addiction(Conrad, 2016; Broomley, 2011). With this in mind, this study aimed at exploring the degree of Facebook dependency and addiction if any.

STUDY

A survey method was used to investigate whether university students became addicted to Facebook. To this end, The Facebook Addiction Test - Symptoms of Facebook Addiction, which was developed by Conrad (2016) was used. The test included 29 items in the format of true –false options. The test was extended with an addition of another section to learn students' motives and reasons for the use of Facebook. Although there is no set number that indicates Facebook Addiction, the more often the participant agreed with the signs of overuse, the more likely it is that the participant's Facebook habits are unhealthy:
0 - 5: most likely a light user of Facebook - not any significant problems in your life.
6 - 10: a part of daily routine. At times you may spend too much time with it and may regret long Facebook sessions after you finally log off.
11 - 20: unhealthy or obsessive. Too much time on Facebook may be causing or contributing to "real life" problems
21+: life revolves around Facebook, difficult to go more than a day or two without checking account. Your relationships and your school or work performance are probably suffering due to excessive Facebook use.

A Turkish version of the test was piloted to a group of 55 representative students for its reliability. Cronbach's Alpha coefficient was counted as 785. Stratified sampling was used and a total of 355 university first year students (English Prep Students) were involved in the study. Participants come from departments of electrical engineering, sea transport, machine engineering, public relations and advertising, international relations, computer engineering, medical school, public administration, mining engineering, and forest engineering.

FINDINGS

Data was collected through a questionnaire that was completed by a total of 355 students attending an English Prep Program in School of Foreign Languages at Karadeniz Technical University, Trabzon, Turkey. The first part of the questionnaire consists of items concerning of habits of Facebook use, which was intended to measure students' level of addiction if any. The second part contains items concerning manner and reasons for Facebook use in a scale of very often to never. Gender was not the issue of interest for the scope of the study, resulting in 40 percent of females and 60 percent males as indicated in Table 1 below.

Table 1. Gender distribution

	N	%
Female	141	39,7
Male	214	60,3

The school population was heterogeneous in that and there were subpopulations (different levels and departments within an overall population) stratified random sampling was decided to include all diffrenet levels and departments so that we could have representative sample.

Table 2. Time management for Facebook use

	Yes		No	
	N	%	N	%
1. I often spend too much time on Facebook– usually more than I originally intend.	62	19	264	81
3. My friends or family have commented that I spend too much time on Facebook.	24	7,3	303	85,1
14. I have attempted to reduce the amount of time I spend on Facebook but have not been successful.	27	8,3	299	91,7
15. I spend more time using Facebook compared to any other online activity	64	19,6	262	80,4

Table 2 above deals with the amount of time that the students spent on Facebook. It is remarkable to see that a great majority of students (81%) reported not to have spent much more time on Facebook than they intended to do. This is confirmed by their friends, indicating that there is no mention or reference to the time spend on Facebook. It is also important to note that majority of the students (80%) disagreed with the idea that they spend more time using Facebook compared to other online tools.

Table 3. Negative effects of Facebook use

	Yes		No	
	N	%	N	%
2. I am often tired in the morning because I stay up late on Facebook.	24	7,4	302	92,6
9. My school performance has suffered due to too much Facebook use.	15	4,6	311	95,4
10. My relationships have suffered due to too much Facebook use.	22	6,7	304	93,3
12. When I post an update on Facebook, I am very disappointed if no one comments on it.	26	8	300	92
17. Since starting to use Facebook I spend less time doing other activities I used to enjoy (e.g., sports, exercise, socializing with others, hobbies, etc.).	28	8,6	297	91,1
18. Even though I have many Facebook friends, I still feel lonely.	32	9,8	294	90,2
23. I am often late for school, work, meetings, or appointments because of my Facebook use.	9	2,8	316	97,2
24. I would get very upset if a friend did not "add" me to Facebook.	30	9,3	293	90,7
26. It makes me feel bad if I know that someone has more Facebook friends than I do.	9	2,8	316	97,2

*Physicaleffect:2 *Academiceffect:9, 23 * Mentaleffect:10, 12, 17, 18, 24, 26

Table 3 is about potential negative consequences of Facebook use as indicated in the related literature. The items were naturally divided into three categories to measure negative effects such as physical, academic and mental. A very big number of students (95%) were observed to report that their Facebook use did not affect their school performance at all. When it comes to their psychological mood and cognitive mindset, their Facebook use was found not to interfere with their functioning in other areas of life such as relationships, physical heath, and emotional well-being. Ninety-one percent of participants (item 24) were found not to care whether a friend did not add them to Facebook. It is not a matter of envy or jealousy if an acquaintance has more Facebook friends for most of the students (90%).

Table 4. Reasons forFacebook use

	Yes		No	
	N	%	N	%
4. I spend more than two hours per day on Facebook for non-work related reasons.	65	19,9	261	80,1
11. I often spend hours at a time playing games on Facebook.	20	6,1	306	93,9
16. I often use Facebook to avoid other responsibilities (e.g., work, homework, housework, etc.).	25	7,7	301	92,3
22. I use Facebook when I am feeling stressed or depressed to make me feel better.	77	23,8	247	76,2
29. I often use Facebook when I am bored because I have nothing else to do.	214	65,8	111	34,2

According to Table 4, 80% of the students did not spend more than two hours per day on Facebook for non-related reasons, which may allow us to comment that students appear to be aware of potential Facebook use for their own benefits. This finding is supported by responses given to the question about playing games on Facebook (item 11) that 94% of students were observed not to spend hour at a time playing Facebook games. It is quite interesting to see that a great majority of the students (76%) did not share the idea that Facebook was used when people felt depressed as suggested in some studies. The idea of "using Facebook when they are bored because they have nothing else to do" received relatively greater yes (34%) as compared to the responses given to the other items in Table 4. Similarly, students' Facebook use did not interfere with their other responsibilities (92%).

Table 5. Facebook habits

	Yes		No	
	N	%	N	%
5. I often use Facebook at work or school even though this is not permitted.	48	14,7	278	85,1
6. I would find it very difficult if I could not access my Facebook account for an entire day.	75	23	251	77
20. Checking my Facebook account is one of the first things I do in the morning.	55	16,9	270	83,1
21. Checking my Facebook account is one of the last things I do at night.	92	28,4	232	71,6
25. I have set my Facebook account so that I get always automatic notifications about what my friends are doing / saying.	66	20,4	258	79,6
27. I think it would be virtually impossible for me to give up Facebook for an entire month.	51	15,7	274	84,3

The items in Table 5 are related to Facebook habits and dependence. Both individual and overall analysis indicate that students were found to have excessive use. It is important to notice that 84% of the students were observed to be opposed to the idea "I think it would be virtually impossible for me to give up Facebook for an entire month". Going online at virtually every opportunity is associated with excessive use. In this regard only 17% of students expressed that checking their Facebook account was one of the first things they did in the morning whereas 83% were found not to be in this manner.

Table 6. Social aspect of Facebook

	Yes		No	
	N	%	N	%
7. I have made an effort to collect as many "friends" as possible on Facebook.	20	6,1	306	93,6
8. Many of my Facebook friends are not really my friends offline.	35	10,7	291	89,3
13. I usually prefer talking to people on Facebook than in person.	27	8,3	299	91,7
19. I often login to Facebook when I am out socially with others.	41	12,6	284	87,4
28. I often confuse what someone has told me "in real life" and what was said on Facebook.	43	13,2	282	86,8

Items in Table 6 deal with social aspects of Facebook use. Most items were designed in such a way as to find out whether people choose to live or distinguish the difference between the real world and fantasy world created around Facebook. Ninety-four percent of the participants were against the idea of collecting as many "friends" as possible on Facebook. In support of this finding, a great majority of students (92%, item 13) were found to disagree with the Idea " I usually prefer talking to people on Facebook than in person". Only 13% of the participants often confuse "in real life" and on Facebook (items 28).

Table 7. Facebook use for informative purposes

	Never		Seldom		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
1. Getting breaking news.	24	7,4	37	11,3	105	32,2	101	31	59	18,1
2. Following posts.	66	20,3	70	21,5	96	29,5	69	21,2	24	7,4
10. Getting information about an event from others.	57	17,6	81	25,0	112	34,6	52	16	22	6,8
13. Visiting groups.	91	28,4	76	23,8	85	26,6	49	15,3	19	5,9
16. Reading messages on others' profiles.	146	45,2	102	31,6	52	16,1	14	4,3	9	2,8

Table 7 addresses the use of Facebook for informative purposes. Among the four items was the" getting breaking news" that received the highest use by the participants. "Reading messages on others profiles" received the least interest by the participants. A good deal of students used Facebook to get information about an event from others (item 10). Visiting groups also received a good deal of response. Only 28% said" no" to this item.

Table 8. Facebook use for communicational purposes

	Never		Seldom		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
3. Reading private messages.	75	23,1	86	26,5	85	26,2	50	15,4	28	8,6
6. Sending messages.	44	13,6	86	26,5	109	33,6	53	16,4	32	9,9
14. Replying someone's invitations or sending invitations to others.	130	40,4	110	34,2	61	18,9	15	4,7	6	1,9

According to Table 8, among the communicational purposes was "sending messages" which received the highest frequency. In line with the findings stated in Table 7 and 6, "replying someone's invitations or sending invitations to others" received the lowest interest relatively.

Table 9. Facebook use for educational purposes

	Never		Seldom		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
18. Following courses.	128	39,8	55	17,1	47	14,6	51	15,8	41	12,7
19. Getting information about the content of assignments.	128	39,6	54	16,7	44	13,6	50	15,5	46	14,2
20. Following announcements about courses.	108	33,6	58	18,1	55	17,1	49	15,3	51	15,9
21. Implementing extension activities.	149	46,3	59	18,3	54	16,8	28	8,7	32	9,9
22. Getting feedback from teachers.	158	49,2	55	17,1	46	14,3	30	9,3	32	10
23. Giving feedback to teachers about courses.	164	50,8	54	16,7	44	13,6	29	9	32	9,9
24. Sharing materials about courses.	165	51,1	48	14,9	48	14,9	27	8,4	35	10,8
25. Sending assignments.	147	45,4	47	14,5	51	15,7	36	11,1	43	13,3

Table 9 deals with students' Facebook use for educational purposes. Responses given to the items indicate that students show variation in the way and amount of Facebook use for educational purposes. Most striking result was that students appeared to overwhelmingly be using Facebook for following announcements about courses. The nature of quantitative data naturally fails to account for whether this was a a matter of demand or supply. When we consider the responses given to the item 18 (following courses), a substantial number of students (more than 60% when collapsed) use Facebook to support their academic performance. Similarly, more than 50 students were observed to get involved in Facebook to implement extension activities. Given the fact that more than 55% of students sent assignments, 49% shared materials about courses and almost 50% got and gave feedback to/from teachers about course at varying degrees, students appeared to be quite strategic in the way they use Facebook for their educational and professional development.

CONCLUSIONS

The current literature reveals that social networking sites along with web 2.0 technologies have already occupied all spheres of our life. Students today were born into digital world and become computer natives by nature. Unexpected and unplanned popularity of Facebook has already had great impact on the way we shape today and tomorrow. As a whole Facebook is used mainly for three purposes: (a) communication, (b) socialization, and (c) education. It is not a matter of choice whether we use or stay away from online applications.We cannot afford to ignore the revolutionary effect that the digital age has brought about in the way we live, think, consume, communicate, interact, learn and teach. It is a must to be aware of this picture in order to make well-informed decisions about whatever we do in our role as educators, parents or policy makers. Facebook has proved to be very a key factor in our students' world. The literature provides us with counter arguments and conflicting findings about the role of internet social networks such as Facebook. As stated above, there are a substantial number of studies in which Facebook was found to be quite useful in many respects including education, social and cultural communication intercultural and intracultural awareness genuine communication active and interactive learning experiences, experiential and real- world-learning, personal development, self-esteem, and motivation. On the other hand, there are some other studies, the findings of which indicate that Facebook is a source of unhappiness' jealousy, low self-esteem and dissatisfaction with life and addiction. This is not surprising anymore in view of cultural diversity and variation in perceptions. It is important to remember that no technological tool or social website, Facebook in our case, has any inherent capacity to be good or bad. No technological application including Facebook can be fully understood solely on its merits. Other variables such as culture, values, education, mindset and upbringing should be integrated into the study as to fully understand the role of Facebook. Unlike several studies the findings of this study indicate that the use of Facebook does not cause any significant problems in students' life. A very great majority of the students do not spend too much time with it. According to the test, there appears to be very healthy use of Facebook, even contributing positively to real life and academic performance. There is obviously a strong need to extend the scope of this study, integrating qualitative data into it so that we can be a better position to answer the question of how and why in relation to Facebook use.

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Administering Problem-Based Learning (Pbl) Approach In The Teaching Of College-Level Mathematics

Sau Herng HAN
Sultan Hassanal Bolkiah Institute of Education,
Universiti Brunei Darussalam, Brunei Darussalam
Shh2309@gmail.com

Masitah SHAHRILL
Sultan Hassanal Bolkiah Institute of Education,
Universiti Brunei Darussalam, Brunei Darussalam
masitah.shahrill@ubd.edu.bn

Abby TAN
Faculty of Science, Universiti Brunei Darussalam, Brunei Darussalam
abby.tan@ubd.edu.bn

Khairul Amilin TENGAH
Sultan Hassanal Bolkiah Institute of Education,
Universiti Brunei Darussalam, Brunei Darussalam
khairul.tengah@ubd.edu.bn

Jainatul Halida JAIDIN
Sultan Hassanal Bolkiah Institute of Education,
Universiti Brunei Darussalam, Brunei Darussalam
halida.jaidin@ubd.edu.bn

Rosmawijah JAWAWI
Sultan Hassanal Bolkiah Institute of Education,
Universiti Brunei Darussalam, Brunei Darussalam
rosmawijah.jawawi@ubd.edu.bn

ABSTRACT

Over the years various innovative teaching approaches were developed, notably Problem-Based Learning (PBL) help students develop flexible understanding and lifelong learning skills. The present research study used a structured PBL approach adapted from the four step model (Wong & Day, 2009). A convergent mixed-method design was used to determine if administering a structured PBL approach would improve students' ability to solve college-level Mechanics problems and students' attitudes towards mathematics and their learning environment. From the pre- and post-test results, there were no significant changes in students' academic performance. However, teacher reflective statements indicated increase in the use of higher-order thinking skills and overall engagement. From the observations, interviews and questionnaire results, students showed a positive change in their attitudes towards mathematics.

Keywords: Problem-based Learning, Mathematics, Mechanics, College-Level, Thinking Skills and Engagement

INTRODUCTION

With advancement in technology, many nations recognize the significant role of science, technology, engineering and mathematics (STEM) education (English & Kirshner, 2015). In 2008, the Bruneian education system underwent a major reformation known as Sistem Pendidikan Negara Abad Ke-21, (SPN21), in order to better prepare students for 21st century challenges (Ministry of Education, 2013). SPN21 advocates a shift away from teacher-centred pedagogical approaches to student-centred pedagogies in the hopes of raising standards and performances in STEM subjects (Ministry of Education, 2013; Damit et al., 2015).

Despite the introduction of new assessments, students' academic grades remains the key to enrolment for tertiary education. In Brunei, it is widely believed that the most efficient way to teach mathematics is to impart mathematical knowledge through the direct instruction approach. In this approach, teachers would follow a carefully planned lesson and clearly defined teaching tasks. Moreover, most students would only reminisce on when they engaged in rote memorization of mathematical concepts and computations (Botty & Shahrill, 2015; Tan, 2010; Chong & Shahrill, 2016).

While direct instruction has its merits (Duff, 2012), it offers limited exposure to student centred activities thereby undermining students' responsibilities for independent learning (Mji, 2003; Pham, 2011). Hence, various innovative teaching approaches were developed including PBL which has the potential to help students develop flexible understanding and lifelong learning skills. PBL is a constructivist, student-centred teaching approach that employs ill-structured problems as stimulus and focus for student activity (Barrows, 2000; Ferreira & Trudel, 2012). PBL was first developed in medical school in the 1960s and has since been trialled as a pedagogical method in other schools of thought both internationally (Iputo & Kwizera, 2005), and more recently in local lessons (Looi & Seyal, 2014; Botty & Shahrill, 2015; Caesar et al., 2016). Being a relatively new pedagogy in Brunei, more extensive research is needed to investigate its influence on students' learning. Therefore, this study hope to shed some light on how students negotiate learning in a PBL environment.

PROBLEM-BASED LEARNING (PBL)

PBL is problem-focused so that learners begin learning by addressing the problem as a group and utilising discipline-based cognitive tools. The problems used in a PBL approach are ill-structured unlike well-structured questions (Roth & McGinn, 1997). According to Rogoff (2008), Vygotsky's and Dewey's theories of learning are grounded in social interaction where individuals learn from one another. Therefore, it can be concluded that learning occurs not only during teacher- student interactions but also during peer exchanges. In a PBL approach, collaborative behaviour between students is crucial to student learning (Barrows, 2000). For clarification purposes, a distinction between collaborative learning and cooperative learning must be made and some studies (such as Damit et al., 2015) consider both terms interchangeable. Collaborative learning is defined to be a learning method in which students work in a group to increase knowledge (Barrows & Tamblyn, 1980), whereas cooperative learning occurs when students work together in a group towards a common goal (Lim et al., 2016; Panitz, 1999). The main difference is that the former is more directive than the latter.

In PBL, the use of ill-structured problems give students the freedom to come up with various solutions. Moreover, students are required to plan on how to solve the problem. Cho and Jonassen (2002) further added that students need to generate, support and justify alternative methods. When working in groups, it has been observed that students capitalize on one another's resources through transfer of knowledge (Whipple, 1987). In a study conducted by Botty and Shahrill (2014), it was noted that as students build student-student rapport between themselves, the aforementioned process of sharing and communicating is increased. PBL is a student-centred instructional strategy in which students assume an active role in learning. Furthermore, questioning can lead to learning (Salam & Shahrill, 2014; Shahrill & Mundia, 2014; Shahrill & Clarke, 2014). Apart from that, effective scaffolding allows teachers to probe students to think more deeply to come up with a feasible solution. This act of supporting, guiding and monitoring the learning process is accomplished through a specific set of strategies (Schmidt et al., 2011). As students become more experienced with PBL, teachers gradually withdraw their scaffolding until students reach a level of self-sufficiency where the scaffold will be completely removed.

A main feature of the facilitators of a PBL lesson is that they refrain from giving direct answers. However, Kirschner et al. (2006) has criticized that the PBL approach heavily scaffolds students. In response to that, Hmelo-Silver and colleagues (2007) provided evidence that demonstrated extensive scaffolding reduces the cognitive load and in so, allowing students to learn in complex domains. Another study by Schmidt and Moust (2000) found that the facilitator's willingness to engage with the student is a key component to effective facilitation. When well implemented, researchers (Wong & Day, 2009; Looi & Seyal, 2014) have found that PBL approach leads to greater conceptual understanding and problem solving skills in students. Evidence from other studies showed that PBL is an effective instructional tool to foster critical skills and promote analytical and reasoning skills (Duch et al., 2001; Tayyeb, 2013). Henry and colleagues (2012) found that students generally favour PBL classes as they enjoy the degree of freedom. A study conducted by Ryan and Deci (2000) as well as Mata and colleagues (2012) pointed out that students who are intrinsically motivated tend to show higher levels of self-directed learning and due to student's feeling of relatedness.

THE STUDY

This study was underpinned by two main aims. Firstly, the study aimed to investigate the effectiveness of adopting a structured PBL approach in improving students' performance in the Advanced Subsidiary (or AS) Level Mechanics 1 (M1) module. The study also sought after the influence of PBL on students' perceptions and attitudes towards mathematics and their learning environment. The two research questions sought were "To what extent does the implementation of PBL as a pedagogical method improve on students' ability to solve mathematical problems in Mechanics?" And "What are the impacts of PBL on student attitudes towards maths on a variety of outcomes such as their problem solving skills and their perceptions of the learning environment?"

In Brunei, sixth form colleges prepare post-secondary students for advanced school-level qualifications. Majority of the national sixth form colleges offer Advanced or A Levels as the main qualification. Students typically study for two years. The participants in this study were students in their first year of their A Level because they are more likely to be able to adapt to new pedagogy. It is hoped that this study would not only fulfil its aforementioned aims but also encourage teachers to adopt alternative teaching strategies as well as reassure parents and students alike that this shift would not risk students' performance.

Conceptual Framework of the Study

PBL was originally designed to prepare medical students to mimic the daily activities of practicing doctors. As PBL gained in popularity, it is customised and applied to various educational fields. Nevertheless, the primary characteristic of PBL is to enhance student learning. The present lesson study used a structured PBL approach adapted from the four step model (Wong & Day, 2009). The intervention lesson began with the teacher introducing the context problem to the students who were then tasked with identifying a problem statement, gathering information, and working towards a group solution and culminating in them reporting their findings. Each step was allocated a given amount of time and record sheets were given to students. The teacher, acting as a facilitator, moved among the groups to guide the students. A rubric for assessment (refer to Appendix A) was also included in the record sheet to act as guidance.

METHODOLOGY

This study made use of a convergent mixed-method designed to answer the research questions presented previously. Following the definition of a convergent mixed-method design, an amalgam of both qualitative and quantitative approaches was then used across the stages of the research process.

Setting and Participants

The study was conducted at a local co-educational sixth form institution that follows a strong college preparatory academic program. The first author assumed the role of the participating teacher. She completed two semesters of graduate-level supervised professional teaching practice in two different schools under the tutelage of mentors who adopt direct instruction as their principal teaching approach. In total, 19 junior college students participated of which 11 were female and 8 were male. The participants have mixed mathematical abilities. In addition, this is the first time the students attended PBL structured lessons. Each lesson followed the school's usual classroom allocated time period.

Instrumentation

To measure the changes in students' academic performance, a statistical analysis of a single group pre-test – post-test score was used. In this design, a pre-test (refer to Appendix B) was first given to the students prior to intervention, followed by a treatment period and then a post-test (refer to Appendix C) was administered. Both tests followed a similar outline i.e. two AS-Level past year exam questions. The questions were validated by the supervising teacher at the college. The participants were allocated 20 minutes of classroom time to complete this surprise test. Following the tests, the teacher would discuss each question with the students to identify any common mathematical misconceptions that hindered them from solving the mechanics problems.

To measure the changes in student attitudes toward mathematics, a pre and post 5-point Likert-type survey was used. The questionnaire contained 22 statements with 14 measuring attitudes towards mathematics and the remaining 8 statements examining students' perceptions of their learning environment. The response to each item on the survey ranged from 1 (Strongly Agree) to 5 (Strongly Disagree) with a midpoint of 3 for those with neutral opinions. The questionnaire was taken from a study done by Ferreira and Trudel (2012). The questionnaire was originally used to measure the changes in student attitudes towards science and perceptions of their learning environment. However, since this research investigates the changes in student attitudes toward mathematics, the questionnaire was modified to suit the needs of the study. In addition to that, a short, face-to-face unstructured group interview was conducted to elicit the views of the participants. The interview utilized both open-ended and closed-ended questioning and was voice recorded for analysis purposes. Prior to distributing the pre-test, post-test and questionnaires, a face validity test was done to ensure that the tests were relevant.

To understand the experiences of the students, the teacher utilised a journal to record her expectations and reflections of the lessons. Reflective journals provide a contextually framed description of the participants' experiences (Hoover, 1994), and how their personal values affect their professional practice (Etscheidt et al., 2012). The students' context problem sheets were also collected as accompanying documents.

Data Analysis

The pre-test and post-test were marked and scored according to the official marking schemes from the Cambridge International Board. Using Statistical Package for Social Science (SPSS) for Mac, Wilcoxon Signed-Rank Test was used to compare the scores of the pre-test and post-test. The Wilcoxon Signed-Rank Test is an alternative nonparametric test procedure for analysing matched-pair data. Due to the small sample size, usual paired t-test was not used (Woolson, 2008). The Wilcoxon converts the scores into ranks for comparison at pre-PBL and post-PBL to look for any significant difference in the students' performances (Pallant, 2007).

For the Likert-type questionnaire, the modes and medians of the same items of pre-intervention and post-intervention were compared to determine any significant difference in students' attitudes towards mathematics. A frequency table was also used to identify any variability. Since the numbers in a Likert-type scale are ordinal responses, a comparison of the means of each item is unhelpful in describing the data (Sullivan & Artino, 2013).

The voice recording of the interview was transcribed by the researcher to understand and prompt deeper understanding (Matheson, 2007). As suggested by Easton and colleagues (2000), the audio file was listened to several times to ensure that the transcription was accurate. Together with the teacher's observations and reflections as provided in the reflective journal, the data was reviewed and coded into appropriate themes. Using techniques of naturalistic generalisation (Stake, 1995; Melrose, 2009), the findings and interpretations of the qualitative data allowed researcher to gain further insight into the elements that affected the study.

RESULTS

PBL and Solving Mathematics Problems

The pre-test, post-test and questionnaire results formed the basis of the empirical data for this study. The two questions given in the tests were common examination questions. The first question tested students on basic numerical computations while the second question examined students' deductive skills. Following the comparison, there was an increase of 1.1% in the mean scores of the students after the intervention period. Further analysis using the Wilcoxon test (see Table 1) indicated that nine students performed worse while six students showed improvement and four students did not show any changes in academic performance.

Table 1: Analysis using the Wilcoxon test (n=19)

	Negative Ranks	Positive Ranks	Ties	Sig. (p)
Post-Test - Pre-Test	9	6	4	0.863

From Table 2, there was an increase of 17.8% for the second question implying that some students were able to gain knowledge from the PBL lesson. However, the table also showed an unexpected decrease of 14.8% for the first question. After the tests, the teacher would discuss with the students to identify common misconceptions and problems faced. From these discussions, it was revealed that the decrease was due to students' confusion with the information presented in the question.

Table 2: Comparison of the average percentage scored for each question between the pre- and post-tests (n=19)

	Pre-test	Post-test
Question 1	40	25.2
Question 2	0	17.8

Figure 1 shows an example of a student's work (in blue) and the correct method (in red) provided by the official marking scheme. The student did not realize that the horizontal component of magnitude 8N did not require any additional resolving.

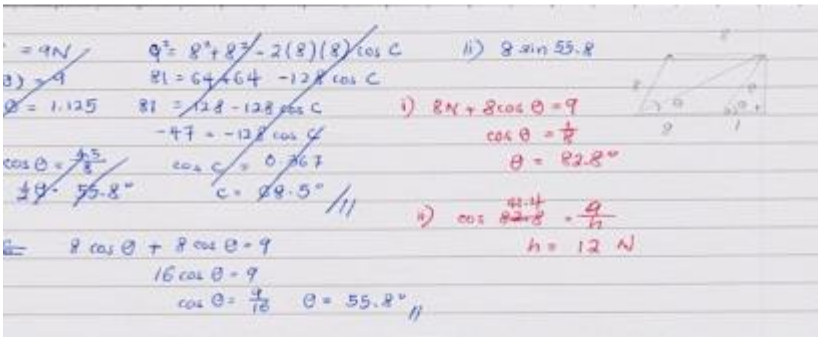

Figure 1: Student A's attempt (blue) and the solution provided in the marking scheme (red)

At the same time, the discussions also revealed that students who correctly solved the second post-test question utilised better and easier methods of solving. They applied previously learnt knowledge ie the properties of parallel lines and simple trigonometry to correctly solve the problem. An example is shown in Figure 2.

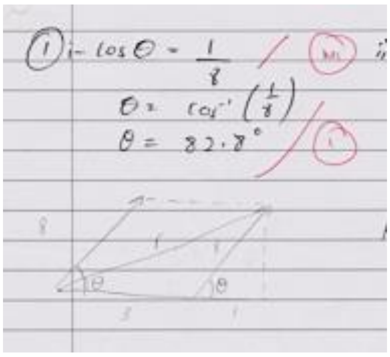

Figure 2: Student B correctly used properties of parallel lines and right-angled triangles to find Ө

PBL and Student Attitudes Towards Mathematics and their Learning Environment

Referring to Table 3, 14 items were used to investigate any changes in students' attitudes towards mathematics. Analysis of the pre- and post-questionnaires indicated positive changes with more students feeling less intimidated (Items 5 and 6). After the intervention period, a greater number of students agree that they are good at math and all math topics are important. Although there was a general positive shift in attitudes towards mathematics, a smaller number of students agreed that they use math often (Item 2) and that all students should take maths in sixth form (Item 13).

Table 3: Comparison modes of items on the pre- and post- survey related to attitudes toward mathematics (n=19)

Survey Item	Pre-PBL Mode	Post-PBL Mode
1. I am good at math.	3	2
2. I use math often.	2	3
3. I do not enjoy math.	4	4
4. Doing math projects or activities makes me nervous or upset.	3	3
5. I don't worry about how well I do on maths tests.	5	4
6. I often get scared when I see difficult math problems.	2	3
7. Math helps a person think logically.	2	2
8. I am not interested in studying math in higher education.	4	3
9. It is important to know maths to get a good Job.	2	2
10. Knowing math will help me make good decisions.	2	2
11. All math topics are important.	3	2
12. I retain information I learn in math classes.	3	2
13. All students should take maths in sixth form.	2	3
14. Math teaches me how to think.	2	2

The remaining 8 items were used to examine any changes in students' perceptions of their learning environment. The responses as tabulated in Table 4 indicated that a greater number of students enjoyed working in groups after the PBL lessons (Item 17), however, fewer students agreed that they would be more motivated to learn math if given the choice to decide which mathematical concepts are meaningful to them (Item 20). The remaining items showed no changes in students' responses after the intervention.

Table 4: Comparison modes of items on the pre- and post- survey related to the learning environment (n=19)

Survey Item	Pre-PBL Mode	Post-PBL Mode
15. I learn math concepts better when I am given the opportunity to figure out things by myself.	3	3
16. I learn more by studying math problems that interest me.	2	2
17. I enjoy learning math when working in a group with my peers.	3	2
18. I learn math best when the teacher lectures on topics while I take notes.	2	2
19. Math would engage me more if I could have a greater role in learning the material.	3	3
20. I would be more motivated to learn math if I could choose math concepts and problems in class that are meaningful to me.	2	3
21. I learn math best by doing math.	1	1
22. I would be able to learn math concepts independently of the teacher if I could solve math problems that are relevant to me.	3	3

During the interview with the focus group students, when asked to express their opinions regarding the PBL lessons, the students unanimously agreed that they greatly enjoyed the experience. The students were then asked to elaborate on the parts they enjoyed.

Interviewer	Ok, so what did you like about it?
Student 4	Basically, we just had fun rather than like normal, everyday routine. Past year paper, past year paper, past year paper.
Student 6	Yeah (interject)
Student 4	So at least we have something different
Student 5	Yea… (in the background, weakly)
Student 6	Yeah that is the main difference. Also we get to put our maths into practical use with the CSI thing.
Student 3	Crime Scene Investigation
Interviewer	Ok! What else? What else?
Student 1	It keeps us think, a lot. Brain storm in order to solve our problem. So this can help us in future life in case if we need any (pause). Problems that we find it hard to solve, then we can solve it. Keeps us thinking.
Student 3	It actually made me connect my physics to maths. I basically used all my physics in this. It was really fun.
Student 2	It was nice to learn something new instead of just sitting down watching (teacher), doing heh, playing on his phone, doing past year papers, heh.

The students enjoyed the unpredictability of the PBL design. In addition, they particularly enjoyed the fact that PBL provided them an opportunity to apply classroom mathematics to a real world problem. Further analysis of the interview transcription showed that in terms of exam preparation, students were not confident that the PBL approach would be sufficient. Majority of the focus group students felt that they needed more practice on past papers to be certain of their ability to correctly answer exam questions. However, one of the students felt that the PBL lesson was more mentally stimulating than recurring practice of past papers and that PBL facilitated learning because "it makes me think more than my usual maths class". When asked to elaborate on a preferred teaching method, a major recurring theme was the demand for a teaching approach that inculcates both lecture-based and inquiry-based elements. In particular, a teaching approach that promotes conceptual understanding as opposed to just surface learning. Furthermore, the students expressed a desire for a greater sense of control in their learning where they are given opportunities to "explore" different approaches to problem solving instead of conforming to the teacher's manner of solving.

Teacher's Observations and Reflections

On the first PBL lesson, the teacher distributed the context problem along with the rubric for assessment to the students after they settled into their respective groups. Each group consisted of three or four members and used either their phones or laptops as their source for internet research. The students were Crime Scene Investigators (CSI) and had to solve a case involving a teenage girl who was found dead and hanging from a rope. The teacher then explained the students' task which was to produce a presentation of their theories, backed by convincing scientific evidence.

Review of the teacher's reflective journal showed that at the beginning, students expressed frustration when direct answers were not given to them which resulted in them losing motivation. Referring to the students' notes and comparing it with the journal extract, it can be inferred that the students were heavily reliant on the teacher as the main disseminator of knowledge. Furthermore, the journal entry revealed that once the students accepted the teacher's role as a facilitator, they engaged in self-directed learning and turned towards their peers and technological resources.

The teacher indicated in her journal that she used general open-ended questions to guide the students initially. Towards the end of the allocated time, she noted that she was mainly walking around the classroom as an observer. The groups were enthusiastic in their debate regarding which theory they would like to go for and were also observed to utilise drawings as a graphical aid.

During the group presentations, the teacher noted that students tend to be shy initially. Encouragingly, the quieter students also asked a few questions. Each group member took turns to present and defend their theories when questioned. Some group members provided help with answering questions when one member fails. However, two students only introduced themselves during the presentation and left the explanation of the group solution to the rest of their team members. Lastly, the teacher reported only one of the six groups provided a strong argument with an accurate graphical representation of their theory. The rest of the groups made some mistakes with their illustration of the forces involved. In the M1 module, it is important that students possess the ability to illustrate directions of forces.

DISCUSSION

The small change between the pre-test and post-test results indicated that there were no significant impact on students' mean test scores post intervention. However, evidence from previous research (Duch et al., 2001; Tayyeb, 2013) suggest that students learning through the PBL approach were able to foster critical skills and enhance their analytical and reasoning skills. In the post-test, the students were able to successfully apply prior knowledge to a different topic. Thus, it may be inferred that only students who successfully completed showed an increase in using higher order thinking after treatment. In the teacher's reflective statement, it was explained that the decrease in mean marks was due to students' confusion with the wording of the question. In order to verify that claim, another test question should have been administered with similar wording to the first question in the pre-test.

According to Mata and colleagues (2012), students' attitudes towards mathematics are closely linked to their motivation and the degree of social support received. In this study, students displayed signs of displeasure when the teacher, assuming the role of the facilitator, refused to give students direct solutions. Empirical data from the students' responses from the post-PBL questionnaire supports this notion. On the contrary, from the interview, majority of the focus group students expressed a demand for more freedom for autonomous learning. The students, however, did not express the nature of the answers they hoped to receive from the teacher.

The teacher also observed that the students were enthusiastic in formulating their suicide or murder theory and were quick to question. Furthermore, the students showed collaborative behaviour. They were seen to adopt or reject each other's ideas as mentioned in previous literature (Whipple, 1987). The post-questionnaire also indicated that students enjoyed working together collaboratively. The study by Botty and Shahrill (2014) noted that as students build rapport between themselves, the process of sharing and communicating is increased as observed in the students, in particularly the shy ones.

CONCLUSION AND IMPLICATIONS

PBL is relatively new to schools in Brunei Darussalam. This study appears to be one of the few conducted in the sixth form college setting. The PBL implemented here was a structured PBL approach which is considerably less time consuming than the typical PBL approach. Students were given a context problem to solve as a group within a specified time limit.

Statistical analysis of the data showed that the PBL approach had no significant impact on students' academic performance. Nonetheless, some positive changes in student attitudes toward mathematics were observed namely, an increase in students' enjoyment of the lesson when working in a group, a decrease in students' mathematical anxiety and more interest in studying mathematics at a higher level (Whipple, 1987). The qualitative data indicated that the PBL approach increased students' intrinsic motivation and promote collaborative learning (Botty & Shahrill, 2015; Caesar et al., 2016; Duch et al., 2001; Ryan & Deci, 2000).

Limitations and Recommendations

Notably it is difficult to design context problems that mimic real life situations that are familiar to the students due to increasingly abstract topics. Furthermore, this process of design requires a lot of careful planning. Moreover, there have not been any professional development courses for facilitators dedicated to designing relevant context problems that can engage students in effective knowledge acquisition and application at the same time. Another possible drawback is that teachers implementing PBL lessons need to alter their traditional teaching methods. In PBL, the teacher merely acts as facilitator. As this role is unfamiliar to some teachers, they may have trouble breaking out of their habitual teaching approach. Due to the time constraint, only one cycle of action research was conducted. Quite possibly the lack of change in the post-questionnaire responses could be due to students' short exposure to intervention

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Appendix A

Suicide or Murder?

It is 10.34 p.m. and your team has just received a distress call. There has been a hanging at the Warner's mansion and your team has been called in for investigation. At the crime scene, a female body was found hanging from the wooden beam of the boat house by the house lake. The body was identified as Lisa Warner who is the only child of Albert Warner. While searching the body for signs of struggle, one of your team members accidentally caused the body to sway. Suddenly, the corpse dropped onto the ground. It seems like the rope was severed. Can you and your team identify the cause of this sudden breakage? Your co-workers were unimpressed with this accident of your team member and your boss is in mind to pass this case on to another team of CSIs.

Your job now is to come up with a convincing plan to persuade your colleagues and boss that you are able to crack this case.

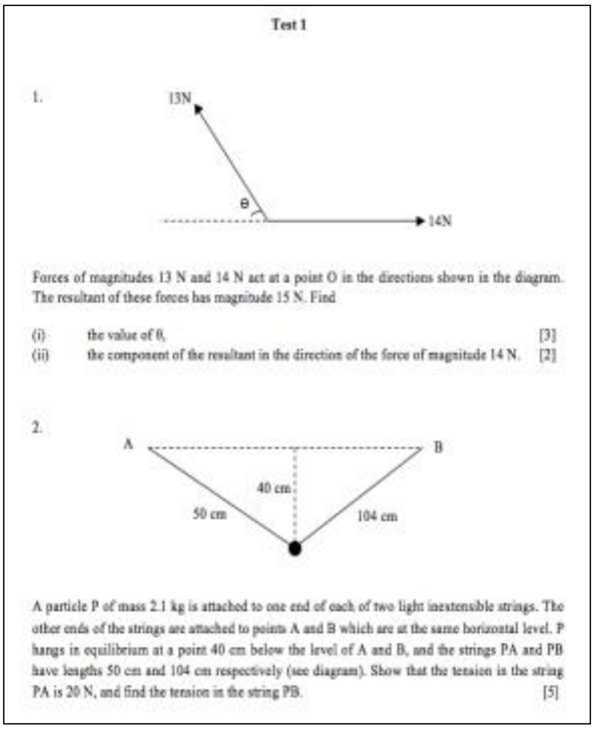
Remember, there is no right or wrong solution for this assignment. Marks will be awarded based on the Rubrics given below. In groups of three, you are expected to present your findings with justifications.

Appendix A – Continuation

Grading Rubrics

Criteria	1-2	3-5	6	Points
Organisation	Our presentation lacks organisation. It does not have a clear introduction, middle, or conclusion. There are little or no transitions.	Our presentation lacks an introduction and conclusion. We have very some transitions to support the flow of our presentation.	Our presentation has a clear introduction, middle, and conclusion. Transitions support the flow of our presentation.	
Grammar and Spelling	Our presentation has many grammar or spelling errors.	Our presentation has a few grammar or spelling errors.	Our presentation does not have any grammar and spelling errors.	
Choosing options	We did not choose an option for murder or suicide and our data does not clearly support either one.	We did not choose the option for murder or suicide. However, our data appears to support one.	We chose an option for murder or suicide and our reasoning was supported by our data.	
Presentation	Our presentation lacks graphical explanation. It does not include any graphs or sketches.	Our presentation has some graphs or sketches. However, they contain a few labelling errors.	Our presentation has some graphs or sketches which were correctly labelled.	
Persuasiveness	Our presentation is not able to persuade our co workers that we can solve the case and we were not able to answer any or most questions they asked.	Our presentation is persuasive but our data does not prove that we can solve the case.	Our data provides a clear and convincing argument that we can solve the case	
Delivery	Soft projection of voice. Only one group member present while the rest idle around. Little/ no use of mathematical terms.	Inconsistent projection of voice (sometimes loud sometimes soft). Most group members present. Incorrect use of mathematical terms.	Clear and concise projection of ideas. All group members present in turns. Use correct mathematical terms.	
TOTAL MARKS (OUT OF 30)				

Appendix B



Test 1

1.

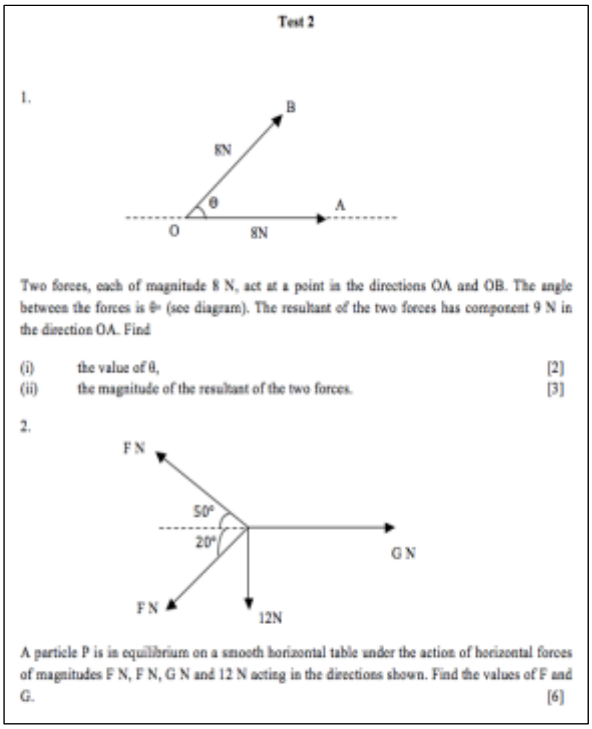
Forces of magnitudes 13 N and 14 N act at a point O in the directions shown in the diagram. The resultant of these forces has magnitude 15 N. Find

(i) the value of θ, [3]
(ii) the component of the resultant in the direction of the force of magnitude 14 N. [2]

2.

A particle P of mass 2.1 kg is attached to one end of each of two light inextensible strings. The other ends of the strings are attached to points A and B which are at the same horizontal level. P hangs in equilibrium at a point 40 cm below the level of A and B, and the strings PA and PB have lengths 50 cm and 104 cm respectively (see diagram). Show that the tension in the string PA is 20 N, and find the tension in the string PB. [5]

Appendix C



Test 2

1.

Two forces, each of magnitude 8 N, act at a point in the directions OA and OB. The angle between the forces is θ° (see diagram). The resultant of the two forces has component 9 N in the direction OA. Find

(i) the value of θ, [2]
(ii) the magnitude of the resultant of the two forces. [3]

2.

A particle P is in equilibrium on a smooth horizontal table under the action of horizontal forces of magnitudes F N, F N, G N and 12 N acting in the directions shown. Find the values of F and G. [6]

Administration Model For Education Executives In Private Schools And Teachers' Perception In This Sense

Celal GÜLŞEN
Fatih University, Faculty of Education, Department of Educational Administration Supervision Planning and Economy, İstanbul, Turkey
celalgulsen@gmail.com

Derya Ülhatun BOZKURT
Fatih University, Institute of Social Sciences, Department of Educational Administration Supervision Planning and Economy, İstanbul, Turkey
deryaulhatun@hotmail.com

ABSTACT

This study has been carried out, in view of this significance, to investigate the perspectives of the teachers employed in private schools regarding the administrative models put into practice in their schools in the light of the increasing importance of the private sector in the education sector as in other sectors day by day. The general survey method has been used in this study. The questionnaire of "The Administration Models" developed by Çelik (2008, p.116-117) in fivefold likert-type scale with Alpha reliability co-efficient of 0.844 was used to get the views. The teachers serving in the private schools in the districts of Bahçelievler, Bayrampaşa, Beşiktaş and Zeytinburnu in İstanbul under the Ministry of National Education formed the population of this survey. A sampling group was formed in the method of "Simple Random Sampling" from among the teachers constituting the sampling population. When we assess the survey basing on arithmetical averages, we observe that the sub-dimension the teachers have agreed with at the lowest level is "The Autocratic Administration Model", the one to which they have expressed their agreement at the highest level is "The Free Hand Administration Model". In line with these results, it's suggested that the administrators in private schools should be provided trainings that would enable them to adopt philosophy of governance and hold workshops, meetings etc. about administration models.

INTRODUCTION

EDUCATIONAL ADMINISTRATION

As a human being has been either in or under administration throughout history, the science of administration is an age-old discipline. The oldest literary works of this discipline were the works containing advices for emperors, and administrators and managers intended for the execution of administration and management practices. The involvement of the science of administration in educational practices occurred, on the other hand, at the beginning of the 19. Century with the application of business administration principles in schools. The first terms in the field of educational administration were used by the Romans. It was the Romans who first created and developed a system for school administration (Bursalıoğlu, 2012, p.1-14; Gülşen, 2005, p.2).

As far as the history of education in Turkey is concerned, the notion of school administration is a concept inaugurated in relatively recent times. In a document drawn up for the Mektebi Maarifi Adliye (a school established to educate civil cervants) during the reign of Sultan Mahmud II., Imamzade Esat Efendi was nominated as "Nazır" which meant "School Principal". The practices in the period paved the way for the embedment of school administration in Turkey enabling the development of an administrator class in educational administration. (Bursalıoğlu, 2012, p.1-14; Recepoğlu & Kılınç, 2014, p.1817-1845).

Educational institutions are entities that are established to enable the development of countries in cultural and economic aspects meeting the needs of human societies in terms of education, and the educational administration, as we call it today, is the process of sustaining these institutions in optimal condition to satisfy the needs within its defined purpose, in continuous development and renewal in line with the principles of business administration using the existent sources in the most optimal way (Çelik, 2008, p.5; Gülşen & Gökyer, 2014, p.191; Hoy & Miskel, 2012, p.397; Yalçın, 2009, p.1).

Assessing the issues in connection with educational administration in a general perspective, we observe the existence of a tendency from a structure where the government plays the dominant role to one in which the government and society enters into a cooperation. The environment where the nature of educational administration is in continuous evolvement has resulted in a regulatory process in which decision and administrative processes have been regulated in a democratic and participative understanding (Gülşen, 2005, p.2; Teyfur, 2011, p.13)

The limits of the school administration that is in fact an implementation of the educational administration in a restricted field are determined by the purposes and structure of the educational system. The duty of a school administrator is to sustain the school making use of all the human and material sources in the school. (MEB, 2014, p.2; Resmi Gazete, 2014, p.5; Teyfur, 2011, p.16). A school administrator enables a more qualitative and more efficient school administration when she/he fulfils this duty in close cooperation with the teachers and other employers in the school (Yalçın, 2009, p.18). The working environment of a school administrator should be so designed that it enables an effective and efficient work, because her/his success also depends on other people in terms of systematic and efficient fulfilment of their own duties. The administrators apply the administration model they prefer so as to create an efficient and effective working environment (Ağaoğlu,Yılmaz &Köse, 2012, p.164-171; Aktepe, 2014, p.89-105; Çelik, 2008, p.18).

ADMINISTRATION MODELS

The administration model defining the administration style of an administrator is one of the important factors distinguishing one institution from the other. An administrator is cognizant of many models she/he can put into practice in his work and gives preference to one or the other of these models. There are so many models the administrators could take over; they could be authoritarian, participative (democratic), free hand, tolerant, free rein, cooperative, soft, hard, one that's not too soft and too hard, oriented to production, oriented to human resources etc. among others. Within the scope of this study, we have examined "autocratic'", "participating (democratic)" and "freehand" types of administration (Çelik, 2008, p.22).

1) The Autocratic Administration Model

The administrators who apply this administration style hold all the power and authority, and exercise authority and pressure on the employees with orders and instructions. Such administrators are bad-tempered and authoritarian, they can't stand criticism and arguments of other people, because they believe that only they know the truth (Çelik, 2008, p.23; Gezici, 2007, p.15; Gülşen, 2005, p.17).

Autocratic administrators consider themselves to be on the level of reflexion and decision making, while they see the employees as implementers of their concepts and decisions. The employees who work under such administrators incline to loaf around, work only under pressure and don't care about the institution they're working in. These administrators attach more importance to the performance of the institution rather than the employees (Bolman & Deal, 2013, p.374-376; Gezici, 2007, p.15;). Employees who are mostly in bureaucratic environments grow ripe in an autocratic culture and they consequently expect that their administrators conduct in the same way (Gezici, 2007, p.15; Taş, 2016, p.273-274).

Autocratic administrators implement their decisions regardless of the views and judgements of others. At the same time, they expect that others comply to their instructions and give them credence (Çelik, 2008, p.23). Such administrators see others as tools used to do a work and they underestimate them. They don't communicate with employees except for giving instructions. This style of administration is controlling, hard, unbending and suffocating. (Karakaşoğlu, 2011, p.6). Autocratic administrators try to keep their employees under control by means of threatening, punishing or controlling them (Çelik, 2008, p.23; Tosun, 2014, p.686-690).

2) Participative Administration Model

The administrators adopting the participative model in administration guide and lead the employees and encourage them to participate in decision making processes. Such administrators form the administration process basing on feedbacks from employees. It's an administration model based on cooperation where authority and responsibility are shared and decisions are taken together. There is a horizontal relationship between administrators and employees here. The employees are given a sense of confidence, and appreciation and awarding are used as motivating tools. Here, a teamwork in open-minded communication leaves its mark on the working environment (Çelik, 2008, p.24; Karakaşoğlu, 2011, p.7).

As the employees can participate in the decision taking processes in this administration model, several problems could be discussed freely and changes in the institution could be realised in an easeful atmosphere. The employees also engage themselves more willingly in the implementation of the decisions taken. As the employees see themselves as part of the authority, supervision and surveillance occur in an easeful way as well (Gezici, 2007, p.17; Robbins & Judge, 2013, p.385-386).

When we assess the participative administration model in respect of the job satisfaction of administrators and employees, we observe that the administrators and employees perform a work in cooperation embracing the institution in a working environment where there are less complaints or in-house conflicts where more job satisfaction comes into prominence (Gezici, 2007, p.17; Gülşen, 2005, p.18).

3) Freehand Administration Model

In this administration model, the administrator set the employers free in their decisions and works. There is a vision put forward and it's expected that the employees embrace and protect the institution. The administrators don't steer, inform and monitor the employees in any issues. When problems come into existence, the administrator, instead of stepping personally into action, expects that the employees act freely and take initiative to overcome the problems (Çelik, 2008, p.23; Eren, 1989, p.14-67; Gülşen, 2005, p.2; Özdemir, 1997, p.1-12).

The administrator expects that the employees devise their plans and programmes within the existing possibilities and expresses his opinion only where necessary. The administrators don't canalize the employees, on the contrary, the employees do canalise the administrators. There is no award or punishment system to motivate the employees. The efficiency increases in environments where there are no administrators around and the talented ones among the employees enable the success of the institution. An administrator having professional expertise can achieve success in the model, otherwise conflicts occur in the institution creating an environment where everybody acts at her/his own will rather than pursuing the vision of the institution. In such cases, the work brings less satisfaction and the productivity decreases (Gezici, 2007, p.19-20).

THE METHOD

The *general survey* *method* has been used in this study. The questionnaire of "Administration Models" has been used to get the views of the teachers working in the private schools under the Ministry of National Education in the districts of Bahçelievler, Bayrampaşa, Beşiktaş and Zeytinburnu in İstanbul with regard to "the perceptions of teachers on the implemented management model by the school managers".

SURVEY POPULATION AND SAMPLING

2773 teachers serving in 167 private schools in total under the Ministry of the National Education in the districts of Bahçelievler, Bayrampaşa, Beşiktaş and Zeytinburnu in İstanbul formed the population in this research (Aras, Şimşek, & Kakırman, 2014, p.13-46). A sampling group of 300 people, corresponding to 10,82 % of the survey population, was formed in "Convenience Sampling" method from among the teachers constituting the population of the study. 280 of the questionnaires delivered were returned equaling to 93,33 %. The questionnaires taken under review form 10,10 % of the survey population.

COLLECTION, ANALYSIS AND INTERPRETATION OF THE DATA

First of all, a literature review was carried out, the related legislations were examined and the views were collected by means of survey method with the aim of getting the views of the teachers who were employed in the private schools under the Ministry of the National Education in the districts of Bahçelievler, Bayrampaşa, Beşiktaş and Zeytinburnu in İstanbul during teh school year of 2014 - 2015 with regard to "the perceptions of the teachers on the implemented management model by the school managers". The questionnaire of "Administration Models" developed by Çelik (2008, p.116-117) in fivefold likert-type scale with Alpha reliability co-efficient of 0.844 was used to scale the views in the survey.

The evaluation of the study was executed deeming that the options and the intervals in the options given in the questionnaire were equal. The options of the items in the questionnaire and the related weights given to these options were specified as follows: "1- I strongly disagree: 1,00–1,80", "2-I don't agree: 1,810–2,60", "3-I partially agree: 2,61–3,40", "4-I mostly agree: 3,40–4,20" and "5-I strongly agree: 4,20–5,00".

The data collected were placed in tables in the sub-dimensions of *"The Autocratic Administration Model*", "*The Participative Administration Model*" and "*The Freehand Administration Model*" and the data in the tables were interpreted examining them firstly in terms of frequency (f), percentage (%), arithmetic average ($\bar{x}$) and standard deviation (sd), and later in respect to the gender variable. Mann Whitney U Test was used in the evaluation of the differentiation with respect to the gender variable.

FINDINGS AND OUTCOMES

The findings obtained in the study were placed in tables in the sub-dimensions of *"The Autocratic Administration Model*", "*The Participative Administration Model*" and "*The Freehand Administration Model*" and the data in the tables were then interpreted by means of statistical methods.

Table 1. The Statistical Data about the Propositions in Connection with the Autocratic Administration Model

No	Views	By Gender				General Total		
		C	f	%	$\overline{x}$	f	$\overline{x}$	ss
1	The proposals made by teachers aren't taken into account by the administrative board.	F	154	55	2,29	280	2,52	1,21
		M	126	45	2,81			
2	The administrative board dictates the working mode to the teachers.	F	154	55	2,96	280	3,09	1,14
		M	126	45	3,25			
3	In case of a mistake, teachers are warned by the administrative board not to make a further mistake.	F	154	55	3,35	280	3,45	1,08
		M	126	45	3,57			
4	The administrative board uses its administrative power to enable the teachers to develop themselves.	F	154	55	3,35	280	3,05	1,11
		M	126	45	2,84			
5	The administrative board is content about its administrative power over the teachers.	F	154	55	3,32	280	3,29	1,08
		M	126	45	3,25			
6	The administrative board is of the opinion that the teachers should be administered under exercising of power and pressure so that the institution can reach its goals.	F	154	55	2,88	280	2,97	1,25
		M	126	45	3,08			
7	The administrative board doesn't feel the need to share the success achieved in the school with the teachers.	F	154	55	1,69	280	1,91	1,25
		M	126	45	2,19			
General Average		F	154	55	2,83	280	**2,89**	1,16
		M	126	45	3,00			

Table 1 includes the data concerning the views of the teachers in connection with "the Propositions about the Autocratic Administration Model" in percentages (%), frequencies (f) arithmetic average $(\overline{x})$ and standard deviation (sd). The teachers generally stated that they partly agreed with the propositions with regard to the sub-dimension of "The Autocratic Administration Model" with an arithmetic average of 2,89. Viewing it based on the gender variable, on the other hand, we observe that while both female and male teachers partly agree with the propositions in this sub-dimension; the male teachers approach to the propositions in connection with "The Autocratic Administration Model" more positively compared to female teachers. Viewing the propositions about "The Autocratic Administration Model" basing on items, we see that the proposition the teachers agreed with at the highest level is the proposition " In case of a mistake, teachers are warned by the administrative board not to make a further mistake". The teachers mostly agreed with this proposition with an arithmetic average of 3,45. The proposition " The administrative board doesn't feel the need to share the success achieved in the school with the teachers." has been the one the teachers agreed in the lowest level with an arithmetic average of 1,91. This proposition turned out to be the one the participants have agreed with in the lowest level in the whole of the questionnaire. These results indicate that the teachers working in private schools be of the opinion that the administrators in private schools exercise an administration type in their schools that partly matches with the autocratic administration model.

Table 2. The Statistical Data about the Propositions in Connection with the Participative Administration Model

NO	Views	By Gender				General Total		
		C	f	%	$\bar{x}$	f	$\bar{x}$	ss
1	The administrative board holds the power of decision making.	F	154	55	3,48	280	3,66	1,15
		M	126	45	3,89			
2	The teachers and the administrative board take important decisions together.	F	154	55	3,21	280	3,01	1,28
		M	126	45	2,76			
3	The administrative board devises the plans and projects for the future taking the views of the teachers into account.	F	154	55	3,34	280	3,14	1,15
		M	126	45	2,89			
4	The decisions in the school are taken with the consent of the teachers.	F	154	55	2,84	280	2,62	1,13
		M	126	45	2,35			
5	The teachers are allowed to express their opinions in respect of the possibilities in their professional development.	F	154	55	3,05	280	2,98	1,20
		M	126	45	2,89			
6	Meetings are organised with teachers when things don't develop as planned.	F	154	55	3,52	280	3,32	1,04
		M	126	45	3,08			
7	The administrative board creates a favourable environment enabling the teachers to take part in decision-making processes.	F	154	55	3,23	280	2,95	1,16
		M	126	45	2,60			
8	The administrative board shares its administrative power with the teachers.	F	154	55	3,01	280	2,71	1,25
		M	126	45	2,35			
9	In cases where conflicts arise in respect of duties and roles, the teachers and the administrative board finds a way out of the conflict in mutual consent.	F	154	55	3,61	280	3,32	1,14
		M	126	45	2,97			
10	The administrative board takes the priorities of the teachers into consideration in the decision making process.	F	154	55	3,01	280	2,81	1,14
		M	126	45	2,57			
11	The administrative board doesn't share the success achieved in the school with the teachers.	F	154	55	4,22	280	3,92	1,11
		M	126	45	3,56			
12	The administrative board believes that the teachers can present creative solutions in overcoming the problems.	F	154	55	3,62	280	3,26	1,12
		M	126	45	2,83			
13	The views of the teachers are taken into account in cases when there is a change in their duties.	F	154	55	3,12	280	2,78	1,24
		M	126	45	2,37			
General Average		F	154	55	3,32	280	**3,11**	1,16
		M	126	45	2,85			

Table 2 contains the data concerning the views of the teachers in connection with "the Propositions about the Participative Administration Model" in percentages (%), frequencies (f) arithmetic average ($\bar{x}$) and standard deviation (sd). The teachers generally stated that they partly agreed with the propositions with regard to the sub-dimension of "Participative Administration Model" with an arithmetic average of 3,11. Viewing the outcomes in terms of gender variables, it's observed that while both female and male teachers partly agree with the propositions in this sub-dimension; the female teachers approach to the propositions in connection with "The Participative Administration Model" more positively compared to male teachers. Viewing the propositions about "The Participative Administration Model" basing on items, we see that the proposition the teachers agreed with at the highest level is the proposition "The administrative board doesn't share the success achieved in the school with the teachers." The teachers mostly agreed with this proposition with an arithmetic average of 3,92. The proposition "The decisions in the school are taken with the consent of the teachers." has been the one the teachers have agreed in the lowest level with an arithmetic average of 2,62. These results indicate that the teachers working in private schools be of the opinion that the administrators in private schools exercise an administration type in their schools that partly matches both with the autocratic and participative administration models.

Table 3. The Statistical Data about the Propositions in Connection with the Freehand Administration Model

No	Views	By Gender				General Total		
		C	f	%	$\bar{x}$	f	$\bar{x}$	ss
1	The teachers decide in their own initiative how to work pursuant to the information they receive.	F	154	55	3,30	280	3,19	1,09
		M	126	45	3,06			
2	Teachers are aware of their duties and responsibilities.	F	154	55	4,08	280	4,01	0,80
		M	126	45	3,94			
3	The administrative board transfers its duties and responsibilities to teachers so that new projects could be put into practice.	F	154	55	2,95	280	2,79	1,05
		M	126	45	2,60			
4	As the administrative board believes that the teachers do their job well, it takes decisions about its own works and allow them to implement them.	F	154	55	3,01	280	2,86	1,12
		M	126	45	2,68			
5	The teachers decide for themselves about what to do and when.	F	154	55	2,91	280	2,70	1,08
		M	126	45	2,44			
6	The opinions and aspirations of the teachers are taken as base in the changes about their duties.	F	154	55	2,87	280	2,73	1,10
		M	126	45	2,56			
7	The teachers are the ones who assume the responsibility for the decisions and outcomes in project design phases.	F	154	55	3,81	280	3,68	0,99
		M	126	45	3,52			
8	The teachers believe that they can administer themselves.	F	154	55	3,61	280	3,43	1,07
		M	126	45	3,21			
9	The administrative board believes that the teachers could orientate themselves by their professions and the commitment they have against the institution they work in.	F	154	55	3,53	280	3,26	1,14
		M	126	45	2,94			
General Average		F	154	55	3,34	280	**3,18**	1,04
		M	126	45	2,99			

The Table 3 shows the data concerning the views of the teachers in connection with "the Propositions about the Freehand Administration Model" in percentages (%), frequencies (f) arithmetic average ($\bar{x}$) and standard deviation (sd). The teachers generally stated that they partly agreed with the propositions with regard to the sub-dimension of "The Freehand Administration Model" with an arithmetic average of 3,18. Viewing the outcomes here in terms of gender variables, it's observed that while both female and male teachers partly agree with the propositions in this sub-dimension; the female teachers approach to the propositions in connection with "The Freehand Administration Model" more positively compared to male teachers. Viewing the propositions about "The Participative Administration Model" basing on items, we observe that the proposition the teachers have agreed with at the highest level is the proposition "Teachers are aware of their duties and responsibilities." This proposition has been the one the teachers agreed with in the highest level within the whole questionnaire. The teachers mostly agreed with this proposition with an arithmetic average of 4,01. The proposition "The administrative board transfers its duties and responsibilities to teachers so that new projects could be put into practice." has been the one the teachers have agreed in the lowest level with an arithmetic average of 2,70. These results indicate that the teachers working in private schools be of the opinion that the administrators in private schools exercise an administration type in their schools that partly matches with all the three types of models of autocratic, participative and freehand administration.

Table 4 collectively shows all the Statistical Data concerning the findings at the sub-dimension levels in the questionnaire of "Administration Models".

Table 4. The Overall Statistical Data related to the Questionnaire of Administration Models

Gender	f	The Autocratic Administration Model		The Participative Administration Model		The Freehand Administration Model		Total of Administration Models
		$\bar{x}$	ss	$\bar{x}$	ss	$\bar{x}$	ss	$\bar{x}$
Female	154	2,83	1,09	3,32	1,07	3,34	0,98	3,16
Male	126	3,00	1,21	2,85	1,2	2,99	1,09	2,95
Total	280	**2,89**	1,16	**3,11**	1,16	**3,18**	1,04	**3,06**

Viewing the data in the sub-dimensions in Table 4 in a general perspective, we see that the teachers have partly agreed with the whole of the questionnaire with an arithmetic average of 3,06. We observe that while the teachers have partly agreed with all the sub-dimensions in the questionnaire of Administration Models, there is a difference between the agreement degrees as to the arithmetic averages. While the teachers have agreed with the sub-dimension of the "Freehand Administration Model" at the highest level with 3,08 arithmetic average, the model sub-dimension they have agreed with at the lowest level one of "Autocratic Administration Model". The teachers have agreed with the propositions in the sub-dimension of the autocratic administration with an arithmetic average of 2,89 en bloc. On the basis of these outcomes, we can say that these teachers are of the view that the administrators in their schools adopt a mixed administration approach and they apply the freehand administration model more than the other ones.

The Test of Mann Whitney U was used to evaluate the differentiation of the teachers' views as to the sub-dimensions of the "Administration Models" questionnaire in terms of gender variable. The related findings are shown below.

Table 5. The Outcomes of the Mann Whitney U Test relating the sub-dimension "Autocratic Administration Model" of the "Administration Models" Questionnaire

Administration Models	Items	Gender	n	Range Average	Range Total	U	P
Autocratic Administration Model -Item 1	The proposals made by teachers aren't taken into account by the administrative board.	F	154	63,43	4884,00	1881,000	,020
		M	126	79,14	4986,00		
Autocratic Administration Model - Item 8	The administrative board doesn't feel the need to share the success achieved in the school with the teachers.	F	154	62,32	4799,00	1796,000	,003
		M	126	80,49	5071,00		

Examining the responses given to the sub-dimension "Autocratic Administration Model" of the "Administration Models" questionnaire, we observe that the views about the item " The proposals made by teachers aren't taken into account by the administrative board" shows a significant difference in a significance level of “p < 0,05” (p = ,020). More male teachers have agreed with this view in comparison to the female teachers. It's observed that the views about the item " The administrative board doesn't feel the need to share the success achieved in the school with the teachers." also shows a significant difference in a significance level of “p < 0,05” (p = ,003). Also here, more male teachers have agreed with this view compared to the female teachers.

Table 6. The Outcomes of the Mann Whitney U Test relating the sub-dimension "Participative Administration Model" of the "Administration Models" Questionnaire

Administration Models	Items	Gender	n	Range Average	Range Total	U	P
Participative Administration Model -Item 1	The teachers and the administrative board take important decisions together.	F	154	76,62	5900,00	1954,0	,040
		M	126	63,02	3970,00		
Participative Administration Model -2	The administrative board devises the plans and projects for the future taking the views of the teachers into account.	F	154	77,57	5973,00	1881,0	,019
		M	126	61,86	3897,00		
Participative Administration Model -Item 3	The decisions in the school are taken with the consent of the teachers.	F	154	79,13	6093,00	1761,0	,004
		M	126	59,95	3777,00		
Participative Administration Model -Item 5	Meetings are organised with teachers when things don't develop as planned.	F	154	78,16	6018,50	1835,5	,010
		M	126	61,13	3851,50		
Participative Administration Model -Item 6	The administrative board creates a favourable environment enabling the teachers to take part in decision-making processes.	F	154	80,19	6175,00	1679,0	,001
		M	126	58,65	3695,00		
Participative Administration Model -Item 7	The administrative board shares its administrative power with the teachers.	F	154	80,43	6193,00	1661,0	,001
		M	126	58,37	3677,00		
Participative Administration Model -Item 8	In cases where conflicts arise in respect of duties and roles, the teachers and the administrative board finds a way out of the conflict in mutual consent.	F	154	80,06	6164,50	1689,5	,001
		M	126	58,82	3705,50		
Participative Administration Model Item 9 -	The administrative board takes the priorities of the teachers into consideration in the decision making process.	F	154	77,62	5976,50	1877,5	,018
		M	126	61,80	3893,50		
Participative Administration Model-Item 10	The administrative board shares the success achieved in the school with the teachers.	F	154	78,56	6049,50	1804,5	,006
		M	126	60,64	3820,50		
Participative Administration Model - Item 11	The administrative board believes that the teachers can present creative solutions in overcoming the problems.	F	154	82,12	6323,00	1531,0	,000
		M	126	56,30	3547,00		
Participative Administration Model - Item 12	The views of the teachers are taken into account in cases when there is a change in their duties.	F	154	81,51	6276,50	1577,5	,000
		M	126	57,04	3593,50		

Examining the responses given to the sub-dimension "Participative Administration Model" of the "Administration Models" questionnaire in Table 6, we observe that more female teachers have agreed with it compared to the male teachers. Viewing the difference degrees based on items with a significance level of “p < 0,05”, we observe that the following significance levels come to light:(p =,040) in the item "The teachers and the administrative board take important decisions together."; (p =,019) in the item " The administrative board devises the plans and projects for the future taking the views of the teachers into account."; (p =,004) in the item " The decisions in the school are taken with the consent of the teachers."; (p =,010) in the item " Meetings are organised with teachers when things don't develop as planned."; (p =,001) in the item " The administrative board creates a favourable environment enabling the teachers to take part in decision-making processes."; (p =,001) in the item "The administrative board shares its administrative power with the teachers."; (p =,001) in the item " In cases where conflicts arise in respect of duties and roles, the teachers and the administrative board finds a way out of the conflict in mutual consent."; (p =,018) in the item "The administrative board takes the priorities of the teachers into consideration in the decision making process"; (p = ,006) in the item " The administrative board shares the success achieved in the school with the teachers."; (p = ,000) in the item "The administrative board believes that the teachers can present creative solutions in overcoming the problems." and (p = ,006) in the item "The views of the teachers are taken into account in cases when there is a change in their duties."

Table 7. The Outcomes of the Mann Whitney U Test relating the sub-dimension "Freehand Administration Model" of the "Administration Models" Questionnaire

Administration Models	Items	Gender	n	Range Average	Range Total	U	P
Freehand Administration Model -Item 5	The teachers decide for themselves about what to do and when.	F	154	78,55	6048,00	1806,000	,007
		M	126	60,67	3822,00		
Freehand Administration Model-Item 8	The teachers believe that they can administer themselves.	F	154	76,98	5927,50	1926,500	,029
		M	126	62,58	3942,50		
Freehand Administration Model -Item 9	The administrative board believes that the teachers could orientate themselves by their professions and the commitment they have against the institution they work in.	F	154	79,36	6111,00	1743,000	,003
		M	126	59,67	3759,00		

Examining the responses given to the sub-dimension "Freehand Administration Model" of the "Administration Models" questionnaire in Table 7, we observe that more female teachers have turned out to agree with it in comparison to the male teachers. Viewing the difference degrees based on items with a significance level of “p < 0,05”, we observe that the following significance levels come into existence: a significance level of (p=,007) in the item "The teachers decide for themselves about what to do and when."; that of (p=,029) in the item "The teachers believe that they can administer themselves." and a level of (p=,003) in the item " The administrative board believes that the teachers could orientate themselves by their professions and the commitment they have against the institution they work in."

OUTCOMES

- *In view of the findings obtained in the study, the following outcomes have come into the picture:*
- The teachers employed in the schools included in the study have partly agreed with all the sub-dimensions, having urther stated that the administrators in the private schools adopt a mixed administrative approach and a mixed administrative style in line with this approach.
- The teachers in the private schools included in the study apply the freehand administration model a little more than the other administration models.
- Viewing the study basing on gender variable, we have observed that while both female and male teachers have partly agreed with the questionnaire of administration models as a whole, the female teachers have had a more positive approach to the questionnaire than the male teachers.
- When we view the outcomes, on the other hand, basing on the sub-dimension in respect of gender variable, we have seen that there is a significant difference between the views of the female and male teachers in some items. A closer examination of the items where there are differences indicate that while the male teachers have agreed with the items relating to the "the autocratic administration model" in a higher level compared to the female teachers, more female teachers have agreed with the items in connection with "the Participative Administration Model" and "Freehand Administration Model" in comparison to the male teachers.
- The teachers underline that "in case of a mistake, teachers are warned by the administrative board not to make a further mistake."; and that the administrative boards in the schools don't feel the need to share the success achieved in schools with the teachers.

- The teachers are of the view that the decisions in private schools aren't taken with the consent of the teachers.
- The teachers employed in private schools are of the opinion that every teacher serving in these school is aware of her/his duties and responsibilities.
- The teachers are assigned duties and invested with power so that new projects could be implemented in private schools.

PROPOSALS

Based on the outcomes of the study, we bring forward to following proposals that we deem to be appropriate in this sense:

- As the views of the teachers indicate that a mixed administration approach is implemented in the private schools put under the scope in this study, arrangements should be made to organise trainings enabling the school administrators to adopt a participative approach with distinguishing aspects of governance philosophy.
- In this sense, trainings should be organized with the aim of enabling the administrators in private schools to adopt governance philosophy with a participative understanding. Furthermore, diverse events such as workshops, meetings etc. should be held focusing on the administration models in private schools with the participation of diverse social segments including the school administrator.
- The administrators in private schools should be encouraged and promoted to have post-graduate education in the field of educational administration, because such an education could be effective in providing a mentality change in educational administration.
- Similar studies should be made with the participation of other related parties in the society so that we can have more general outcomes based on broader researches.
- Sharing the successes obtained in schools with teachers and enabling them to express their views in decision making processes will be effective in the institutionalisation of an understanding based on governance. For this reason, the view of the teachers expressed in the statement that the teachers employed in private schools be aware of their duties and responsibilities should be taken into consideration and the institutional successes achieved in private schools should be shared with teachers and it should be ensured that the teachers take part in processes where the institutional decisions are taken.
- In order to obtain more general outcomes, further researched should be conducted where the views of diverse parties are collected.

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Adopting Proper Methods For Studying Management In Post-Transformation Economies And Their Effect On The Employment Rate

Irena MIKOVA

Pavel PUDIL

Lenka KOMARKOVA

Faculty of Management
University of Economics Prague
Czech Republic
mikovair@fm.vse.cz

ABSTRACT

This paper discusses the experience gained at our faculty when tailoring the study programme to take into consideration the links of education to other components of HDI (Human Development Index). HDI is a widely recognized index of the standard of living with education being one of its dimensions. Eurostat or the OECD reports demonstrate a strong relationship between ones education and position in the labour market, and between education and personal income. With the increasing speed of developing the information society and more recently knowledge economics, individuals participating in the labour market need other competencies and skills than those gained from previous education or training. This has been confirmed recently also by the Hays Global Skills Index 2015, a report published by Hays in collaboration with Oxford Economics. Some of these problems appear particularly in post-transformation economies. The paper outlines the missing skills and competences which are needed in managerial education and the methods adopted at our faculty with the goal of attaining them. The impact of these methods is then documented by the results university rankings of business and management faculties in our country according to the employment rate of their graduates.

INTRODUCTION

Education is a very powerful factor influencing the employment rate, income and even health status. Justifiably, education is considered to be one of the significant components of HDI (Human Development Index). HDI is a widely recognized summary index of the standard of living, combining three dimensions – life expectancy, education and the gross national income per capita. Many studies, including Eurostat or the OECD reports, demonstrate a strong relationship between ones education and position in the labour market, and between education and personal income. Studies showing and explaining a link between education and health status were already published as early as 1995 (Ross and Wu, 1995, Groot and Maasen van den Brink, 2006, Zimmerman et al., 2015). In 2013, the Office of Behavioral and Social Sciences Research (OBSSR) partnered with the Harvard Center for Population and Development Studies to examine the link between education and health and published their analysis in a special report of the U.S. Dept. of Health and Human Services, National Institutes of Health – special issue of Social Science & Medicine (Montez and Friedman, 2015).

The aim of this paper is to discuss the experience gained at our faculty when tailoring the study programme to take into consideration the above–mentioned links of education to other components of HDI. We took a chance to capitalize on the fact that we are an institution of higher education and our study programme in Management includes Human Resource Management, Labour Market and Health Care Management. Moreover, all these subjects are studied from the point of view of economics, as we are a part of the University of Economics, Prague.

With the increasing speed of developing the information society and more recently knowledge economics, individuals participating in the labour market need other competencies and skills than those gained from previous education or training. This is particularly true for the older (but still productive) generation; even for younger generations in some fields. One of these fields is management, or more specifically, education in Managerial Studies in post-transformation economies such as the Czech Republic. Prior to 1989, management was almost a "forbidden" word. Thus, the curricula in management needed to be quickly designed and gradually improved. However, the simple solution of adopting textbooks written by authors from prestigious universities and business schools abroad proved to be insufficient. Upon completion of secondary education and admittance to university education, students in our country lack the critical thinking and argumentation skills. These skills are essential, particularly for successful managers. Students in economically advanced countries, e.g. in the UK, are trained even from the very beginning of their education not to agree with their teachers, to evaluate the arguments of their teachers or classmates critically. Unfortunately, few of the graduates from secondary schools are equipped with these skills upon entering their university studies.

The importance of matching the skills required by businesses and industries with those attained by education and training is documented by the fact that it is included in the Hays Global Skills Index. This index, prepared annually together with Oxford Economics, is a complex, statistically-based study designed to assess the dynamics of skilled labour markets across 31 countries. It consists of seven indicators, from which the following three are of particular interest for us: Education Flexibility, Labour Market Participation and Talent Mismatch.

These indicators and the endeavour to take them into account are closely linked to the methods adopted at our faculty for education in management which are discussed later in this paper. The second source of inspiration for improving the education methods is based on thorough discussions with experienced and successful managers in our country who know well which skills and competences our graduates lack.

RELATION BETWEEN ACHIEVED EDUCATION AND LABOUR MARKET

It is indisputable that changes in standard of living will be related to changes in approaches to education. The education structure is changing in all European countries. The ratio of individuals in the productive ages of 15–64 years having completed tertiary education in the Czech Republic increased from 9% in 1999 to 18.1% in 2013. A similar trend was recorded in that period in all other EU countries.

Many authors dealing with unemployment are interested in the impacts of demographic changes and other characteristics of the labour market with respect to the changes of age structure. However, as Biagi and Lucifora (2008) point out, the labour market is also strongly influenced by changes in the educational structure. Again, Jefferson (2008) critically states that many authors focus on the impact of the level of education achieved on wages and the total earnings of employees but not on the behaviour and competences related to the level of education and their influence on the one's possibility of participating in the labour market.

A great deal of research has been devoted to the relation between the level of education achieved, e.g. Wolbers (2000), Lauer (2003) or Valletta and Hodges (2005). Utilizing OECD data on member countries, Cahuc et al. (2014) show that the unemployment rate decreases together with the increasing level of education. While the average unemployment rate among individuals with a tertiary education was at the level of 4.7% in 2010, this level was 12.5% among those with a lower level of education than the secondary one. The levels of the unemployment rate rose during the economic recession in 2008, significantly more for individuals with a lower level of education compared to those with a higher one. Garrouste et al. (2010) analysed data with respect to various age groups, reaching the conclusion that although education plays a significant role during the whole active working life, its influence decreases with increasing age (above the age 40). According to the authors, this fact confirms the presumption that competences are becoming gradually outdated, the presumption originated from the theory of human capital.

The state of employment rate of adults (age group 25-64) according to their education in 2013 for selected EU countries is illustrated in Figure 1. We can see that in all these countries the highest employment rate is achieved by the individuals with the tertiary education. Another common feature is that on the contrary, the lowest employment rate is achieved by individuals with a lower than secondary education. The biggest gap can be noticed especially between those with a tertiary education and a basic one. In the graph in Figure 1, we can see that the biggest differences exist just in post-transformation economics (the Czech Republic, Slovakia, Poland and Hungary).

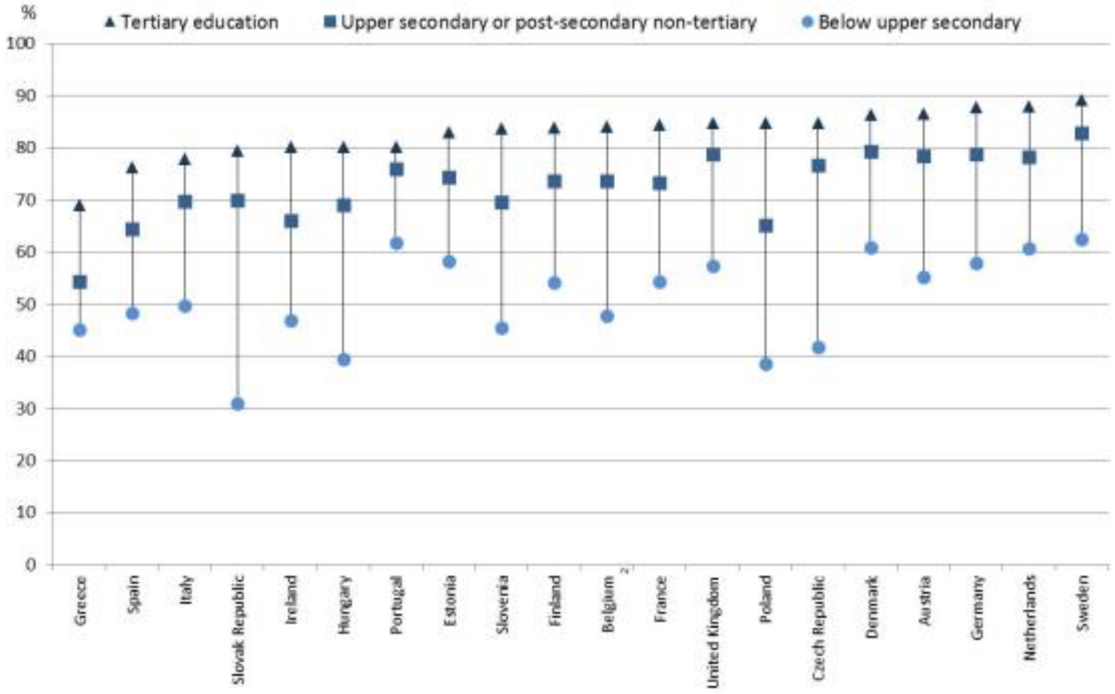

Figure 1. Employment rate for the age group 25-64 related to the education level

EDUCATION, COMPETENCES AND SKILLS

Education and competences represent mutually linked dimensions of human capital creating preconditions for asserting oneself (in the labour market as well as for the life success in general. Measuring human capital indirectly by means of the level or years of education was unavoidable at times when no research methods measuring competences and skills directly by tests were available. Hanushek a Woessmann (2012) point out that when only the number of years of education was a significant measure of human capital and no attention was paid to qualitative results of education. Therefore, acquired competences related to the economic product were not taken into account.

The situation began to change some 20 years ago when tests of skills and competences started to be used in international surveys. The first such survey for adults was the International Adult Literacy Survey (IALS) realised in several countries in 1994 (OECD, 2010), which the Czech Republic joined in 1997. This survey was followed by a much larger research project named the Programme for International Assessment of Adult Competencies (PIAAC) which was carried out in our country in 2011–2012.

It is possible to state that competences became a global currency of the 21st century, whereas the economic crisis with the high unemployment rate stimulated the urgency of their development (OECD, 2012, s. 3). The OECD Skills Strategy is formulated as an integrated intergovernmental and interdisciplinary framework aimed at learning and understanding how to optimally invest into competences so that they would drive the economy. Beside some other tasks, the main goal is to develop competences corresponding to the needs of the labour market so that the existing competences would be fully utilized, with a special emphasise on the young people (note that this corresponds to the Mismatch Index of the HGSI discussed in the following section). The goal is also to create positions requiring a high qualification and yielding a high added value. All this requires a strategic approach linking policies in a number of fields and prevents the overlapping of effort.

HAYS GLOBAL SKILLS INDEX

As stated in the introduction, the Hays Global Skills Index (further on HGSI), developed in collaboration with Oxford Economics, shows how labour markets around the world have been affected by the financial crisis and the ongoing recovery. Looking at 31 countries, it examines a range of pressure points including education policy, wage pressure, labour market participation and talent mismatch. The 2015 report stresses the necessity to ensure better training for employees and closer collaboration with schools, universities and technical colleges to deliver the skills pipeline of the future. Particularly it states: “Structured training is essential at all levels, from graduates and apprentices through to the oldest workers. There are huge economic gains at stake for countries that raise their standards of education and training to better prepare young people for the workplace. It is clear that in the long term, education, training and apprenticeship schemes to upskill employees is the best way of boosting productivity and the pool of 'home-grown' talent".

The Hays Global Skills Index provides a score for each country of between 0 and 10 which measures the pressures present in its labour market. The score is calculated through an analysis of seven equally weighted indicators, each covering different dynamics of the labour market, such as education levels, labour market flexibility and wage pressures.

The full list of indicators is as follows:

1. Education flexibility
2. Labour market participation
3. Labour market flexibility
4. Talent mismatch
5. Overall wage pressure
6. Wage pressure in high-skill industries
7. Wage pressure in high-skill occupations

An overall score of above 5.0 indicates that the labour market is 'tighter' than normal. A score below 5.0 indicates the market is 'looser' than normal. Within these overall scores, however, the scores attributed to each of the seven indicators can vary significantly, highlighting the different dynamics and pressures faced by each country. (Source: Hays-Global Skills Index - Notes on methodology).

Taking into account our goal, we are interested particularly in the indicators of Education flexibility, Labour market participation and Talent mismatch. The comparison of these three indicators for the Czech Republic and for its neighbouring countries in the central Europe (Slovakia is not included in the Hays Global Skills Index analysis) is presented in the following, together with the Overall Index Score.

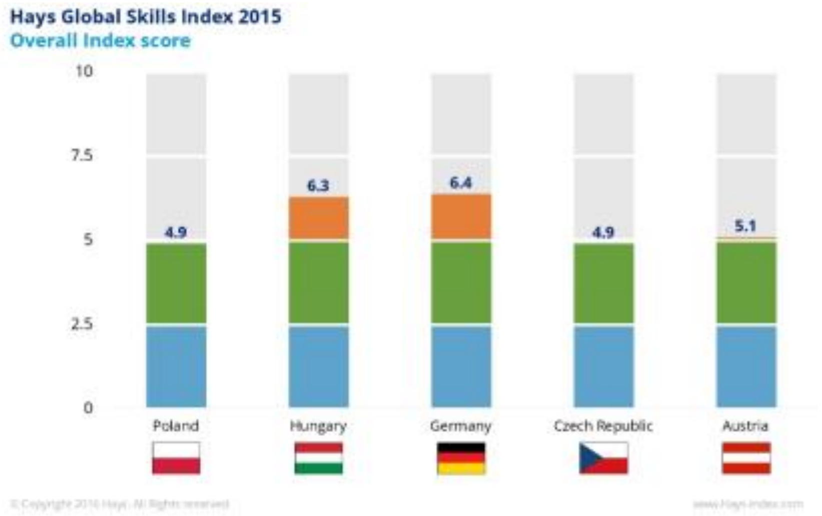

Figure 2: Comparison of the Overall Skills Index in the CR and its neighbouring countries

The comparison shows that in the Overall Skills Index 2015, the CR together with Poland has a lower score than all their neighbouring countries.

Labour market participation

Bringing more people into the workforce is a powerful way to improve economic and labour market performance. Countries that can raise the employee participation rate can gain an edge over countries with less scope to do so. The lower the score, the larger the untapped pool of workers. The higher the score, the lower number of workers there are available to join the workforce, giving less scope to boost overall participation rates.

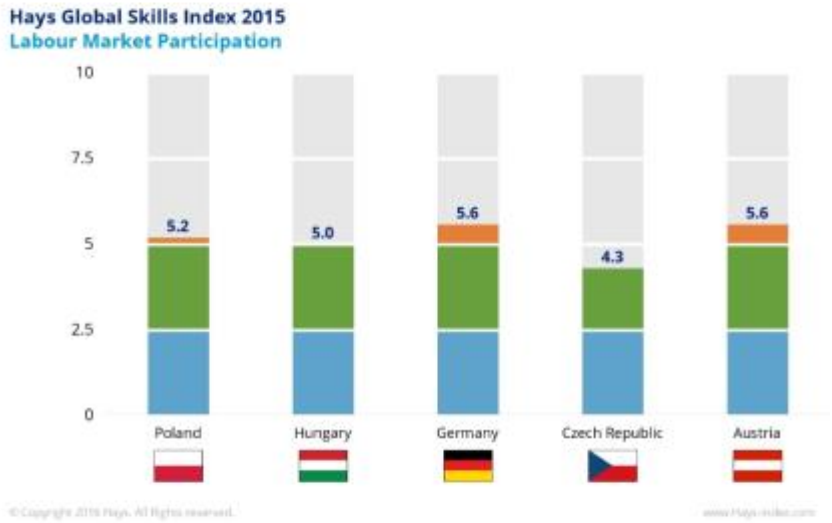

Figure 3: Comparison of the Labour Market Participation in the CR and its neighbouring countries

The comparison shows that labour market participation in CR is the lowest among its neighbours. One of the causes may be again the discussed gap between skills needed by industries and those available in the pool of workforce. This view may be supported by numerous regrets expressed by personal chiefs of companies that they are unable to fill in vacancies where certain skills are required.

Education flexibility

Raising educational standards in today's global and technology-driven economies is crucial to bridging skills gaps. This indicator provides a comprehensive view of the state of education. The lower the score, the better the chance that the education system is flexible enough to meet labour market needs. The higher the score, the less likely an education system is equipped to build a solid talent pipeline.

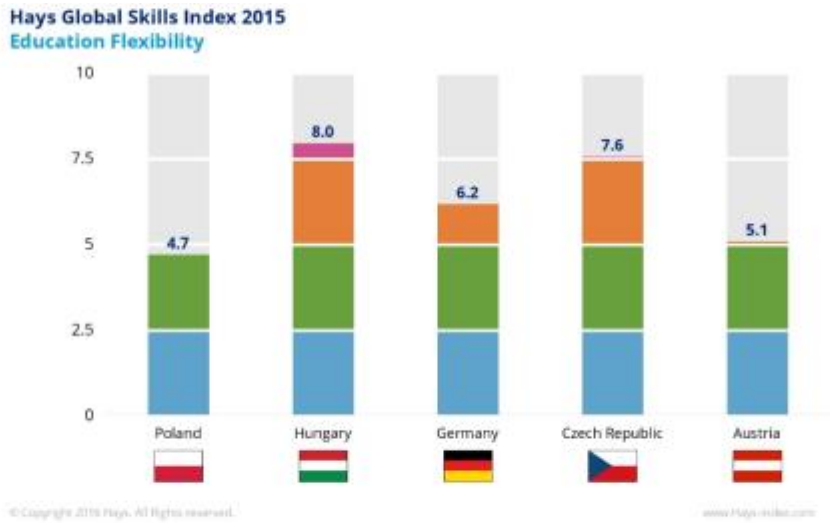

Figure 4: Comparison of the Education Flexibility Index in the CR and its neighbouring countries

Again, a relatively high score for CR indicates that its education system is not too flexible and thus some specific measures should be adopted by educational institutions (like e.g. our faculty).

Talent mismatch

This indicator measures the gap between the skills that businesses are looking for and the skills available in the labour market. A higher score indicates that businesses are facing a serious problem in matching unemployed candidates with available jobs. A lower score suggests employers are having an easier time finding workers with the skills they need.

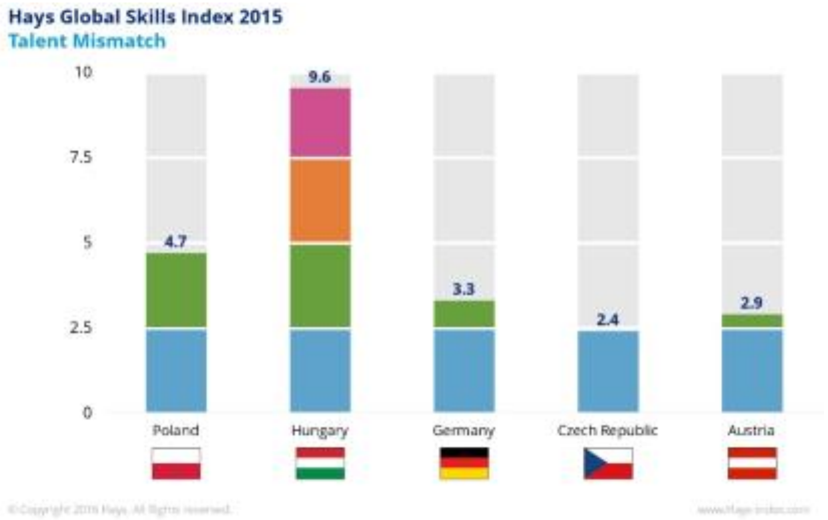

Figure 5: Comparison of the Talent Mismatch Index in the CR and its neighbouring countries

As far as this particular indicator is concerned, the position of our country is relatively good, among the neighbouring countries even the best one for potential employers. However, it does not mean that the situation is without any problems and there is no need to develop special competences and skills needed by businesses (particularly in turbulent conditions).

MEASURES ADOPTED IN TEACHING METHODS AIMED AT INCREASING THE RATE OF GRADUATES EMPLOYMENT

The comparison analysis just presented clearly shows that though an overall progress has been made in our country, some problems are remaining, among them in the education flexibility and the mismatch of talent in certain business. This is also confirmed by the Hays report 2015 for the Czech Republic (Hays GSI 2015 CR, 2015) that, moreover, emphasizes that the labour market participation rate among younger workers remain a concern.

The gap between the skills and competences acquired by education or training and those needed by industries is unfortunately increasing, as forecasted by WISE Initiative with a striking imbalance projected for 2020 (see Figure 6.) Though this forecast concerns mainly the necessity of acquiring tertiary education, the problem of the skills mismatch concerns even the tertiary education itself. The methods used at universities are not always sufficiently flexible to bridge the gap between the competences and skills they teach and the competences needed in the quickly changing information society and, more recently, knowledge economics.

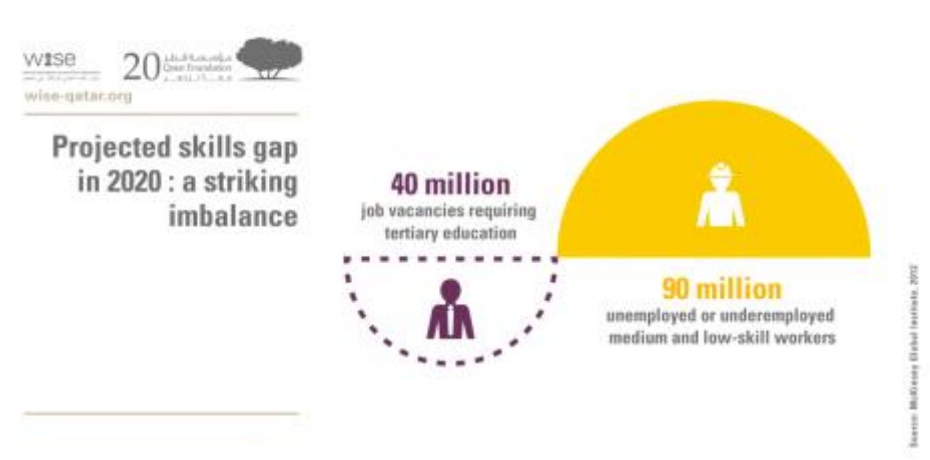

Figure 6: Projected skills gap in 2020 (Source: www.wise-qatar.org)

As stated in the Introduction, specific problems exist particularly in management studies in post-transformation economies like the Czech Republic. Throughout the course of management studies, we have to educate students who lack the skills for leading discussions and forming proper arguments, and do not have competences of critical thinking.

When innovating the curriculum of management disciplines at our faculty a few years ago we invited experienced and successful managers from practice and discussed with them what they expected from our graduates and what they lacked. One of these missing skills and competences which they emphasized was just the ability to lead discussions, put forward proper arguments and reasoning and also to work in teams. In order to train our students in these skills and competences we utilized the experience of members of our faculty who spent some time at universities abroad and witnessed methods of teaching with a high level of active student participation (particularly at INSEAD in Fontainebleau, France or Cambridge Judge Business School, U.K., and IMD Business School at Lausanne, Switzerland). We incorporated this experience into our teaching methods in the courses like Communication Skills and Rhetoric, or Managerial Decision-Making.

Teaching argumentation skills and ability to lead discussions

Case studies from Harvard Business School, used at INSEAD, were adopted for our purposes, namely for simulating managerial board discussions in the seminars of Managerial Decision-Making course.

The students, divided in several smaller groups, act as the members of a company´s managerial board and have to find arguments in favour or against the considered alternatives of strategic decisions and finally reach a decision about the optimal solution. It should be a consensual solution as in the real situation of a decision voted for only by a majority, a potential danger can arise. Those who were outvoted might have even a tendency to torpedo the solution they did not approve. In the opposite case, when they change their original opinion and on the basis of decisive and convincing arguments accept and approve the solution (which they disapproved at the beginning), the solution has a much higher chance to succeed. In such a case, there is no one defeated and the joint solution, the details of which have to be jointly planned, is considered by everyone as “their own” solution. These simulated “managerial board” discussions even sometimes last several hours and can get quite heated at moments, as it is not always easy to sway opponents with arguments.

This somewhat unusual style of seminars proved to be very successful and is highly evaluated by the students themselves. It was given a high credit in the anonymous assessment feedback even by part-time students who already work in some managerial positions and have, therefore, some experience with managerial discussions and debates in their companies.

Teaching teamwork

Problems facing managers in this quickly changing environment are often so complex that they cannot be solved by an individual but on the contrary, by a team. Therefore, another skill which students need to learn is to work and solve complex problems in teams.

The methods we use are again based on smaller groups of some 20-25 students (according to their study schedule) who have seminars together (e.g. from managerial decision-making). Each of the groups is then divided into teams consisting of 4-5 members. During the term, the teams have to choose gradually two different tasks from a set of tasks covering the material presented during the lectures. Then every team usually has 3-4 weeks to work jointly on the solution of the task assigned to them. In order to support this team work, special soundproof boxes ideal for team work of 5-6 students and equipped with Wi-Fi and wired internet were recently built during reconstruction of the faculty building.

Having prepared their solution in the form of presentation, they present it during the seminar attended by all the other students of the seminar group. In order to practice their presentation skills, all the team members have to actively participate during the presentation. After completing the presentation, one of the other teams is selected by drawing lots to critically review the presentation and the solution. In this way it is ensured that everybody has to pay attention to the presentation. Then, after other critical remarks by the teacher, the team is given another week to prepare a final report about the proposed solution. A similar approach is used also at Communication Skills and Rhetoric courses.

Lifelong learning courses

As already stated, the fields of management and public administration in our country in particular do not have such a long tradition like in Western countries. Therefore, taking into account the dynamic development of the field, many employees (regardless of the fact whether they hold or do not hold managerial positions) are in need of acquiring new knowledge and competences or brushing up on those they already have. For these individuals, the faculty organizes various courses, either with a given contents or tailored to the specific needs of a company (when a company asks to organize a course for its employees). These courses are organized for various topics in management, public administration and health care management (e.g. medical doctors and hospital directors get some training in fundamentals of management and economy). The length of these courses varies according to the needs of the participants. Sometime it is just a one off day course or a several-day one, while in other cases it may be a semester-long course.

IMPACT OF ADOPTED TEACHING METHODS ON THE RATE OF EMPLOYMENT

The effectiveness of all these measures proved to be significant, as our faculty graduates are in high demand in the labour market. A study from 2012 of the employment rate of graduates carried out by the Centre of Educational Policy (Study of the Centre, 2012) ranked our faculty first place among all the economic and business faculties in our country.

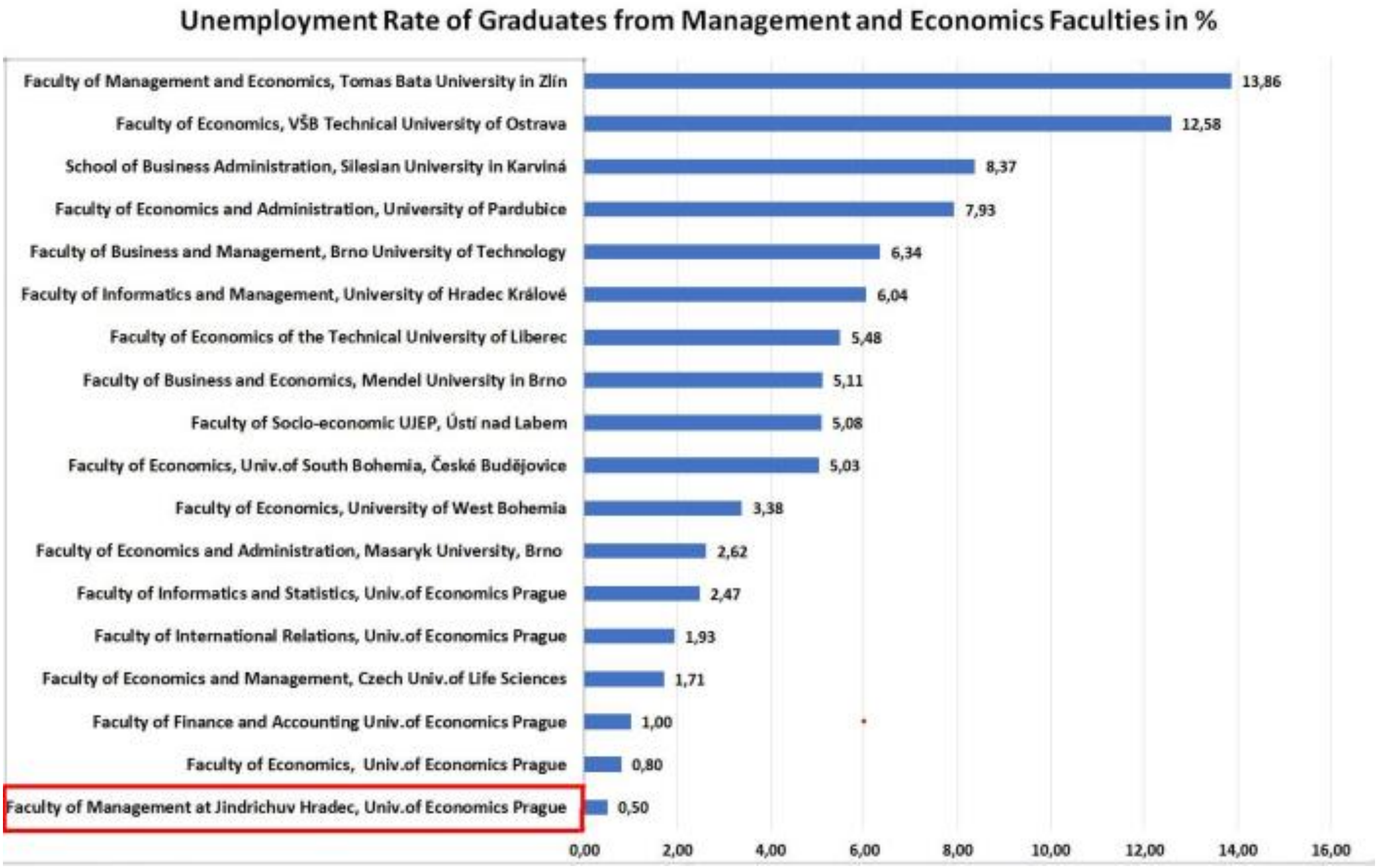

Figure 7: Unemployment rate of graduates from universities (Management and Economics faculties) according to the Centre for Educational Policy of Charles University, Prague (Source: Hospodarske noviny 25.2.2013)

A very low unemployment rate of the faculty graduates has continued until now. The University of Economics Prague carries out a survey every term where students anonymously evaluate all the courses (regardless of who teaches them) and the teachers as well in another part.

The courses where students actively participate and act as company managers and develop their critical thinking and argumentation skills get the highest score in this evaluation from some 95% of respondents.

CONCLUSIONS

In the current world there is a number of causes why competences and skills attained by previous education are becoming inadequate and out of date. This is particularly the case for adult participants of the labour market. However, in some countries, especially with post-transformation economies, specific problems are added. Students coming to universities are not sufficiently equipped with competences and skills like critical thinking, argumentation and teamwork.

Moreover, as the Hays Global Index and its indicators (particularly Education Flexibility and Talent Mismatch) show, the educational systems are not always flexible enough. Therefore, the educational institutions themselves have to try to remedy all these shortcomings.

Adopting proper methods aimed at more active participation of students during the teaching process, experimenting with simulation of real life decisions (where students act as if they are already top managers) is not only more fun for students but proves to be even more effective for acquiring missing competences and skills. This claim can be justified by the fact that the graduates of the faculty belong permanently among those with a very low unemployment rate.

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Alternative Higher Education In Precarious Conditions: The Case Of Cejus-Cide

Jaime JIMENEZ
Institute of Applied Mathematics and Systems,
National Autonomous University of Mexico (UNAM)
jjimen@unam.mx

ABSTRACT

An experience of learning and research not following the traditional track, successful in preparing individuals to get a doctoral degree and, while getting the credentials, engage in research related to the needs and desires of the regions of origin, is taking place in the mountain range of northwest Mexico, in the Sinaloa state. The Centre for Innovation and Educational Development (CIDE) is a Mexican private organization created by academics working in public universities, in an effort to contribute to the application of science to solve local/regional problems. CIDE emerges from the recognition that Mexico, as well as many countries of the Economic South, need more scientists, since the independent development of societies in the world is not possible without the creation of a critical mass capable of solving the scientific and technical problems which allow them to grow. CIDE aims to create "regional scientific communities" to help reduce the deficit of scientists in the country. The learning model combines: Learning based on problems (PBL), self-study as well as group-study, flexible curriculum, *intensive use of ICT's,* and the acquisition of generic competencies for research. The emphasis is changed from *teaching to learning*, based on personal and group study carried out by the students concentrating on specific topics of research. The individual learns to do research while engaging in the learning process. CIDE has no physical infrastructure. Professor-advisors do not receive a salary. Students and advisors meet once a month for two full days to socialize knowledge and advance the students' agenda. Students usually already teach full time in educational institutions. CIDE attracts students that are unable, for different reasons (age, workload, family obligations) to join conventional PhD programs. This leads to the formulation of individualized programs. CIDE has proved that the preparation of highly qualified, motivated scientists could be done with very limited resources. CIDE carried out its mission in several high education institutions in the Mexican province, with unequal results, until it found another alternative education project with similar characteristics and a legitimate interest in higher education, the Justo Sierra Studies Center (CEJUS) located in the mountain range of the Sinaloa state. CEJUS was covering studies from pre-primary to high school. An agreement was set up between both institutions and the resulting outcome has been the production of professionals in the sustainable exploitation of natural resources and other disciplines connected with real development.

Keywords: alternative learning and research, community development, science for development

INTRODUCTION

An experience of learning and research not following the traditional track, successful in preparing individuals to get a doctoral degree and, while getting the credentials, engage in research related to the needs and desires of their regions of origin, is taking place primarily in the mountain range of northwest Mexico, in the Sinaloa state. The Center of Innovation and Educational Development (Centro de Innovación y Desarrollo Educativo, CIDE) is a non-profit organization defined by its constituency as "a learning community based on their scientific and methodological activity, as well as in the potential of the technological platform supported by the informatics and telematics advancements (CIDE, 2002)". CIDE'S activities also take place in other states of Mexico, among them: Coahuila, Michoacán, and Puebla.

CIDE members are convinced that the Mexican society needs scientists, and that the independent development of societies in the world is not accomplished without the formation of a critical mass of scientists capable to approach the scientific and technical problems of the country, which allow them to grow based on the rational and sustainable exploitation of its natural resources.

To face a known demand of growth, and recognizing the Mexican state's limited financing capability to offer quality education, at least for the next 20 years, CIDE offers an alternative of better quality than the traditional apparatus. CIDE'S graduate offering explores new forms of education, with a stronger student –

professor interaction, carrying out learning activities in non-traditional places and schedules, according to the nature of the object of study, while making use of new generation computing technologies and virtual networks (CIDE, 2002). The following sections explain how CIDE was born, the learning model implemented by CIDE, the strategic alliance between CIDE and CEJUS, some remarkable results, and the conclusions and recommendations of this learning and research experience.

HOW CIDE WAS BORN

Miguel Arenas: The creator of CIDE (López-Pérez, Juárez-López, 2012). Miguel Arenas (1940-2016) was an indefatigable educator who dedicated his entire life to the construction of institutions. He was a veterinarian surgeon who specialized in higher education in several institutions like the Lázaro Spallanzani in Milan, Italy; the Sanitary Pan-American Office in Washington, D: C., the Institute of Agrarian Research in Madrid, Spain, and others. He was a founding member of the Autonomous Metropolitan University-Xochimilco (UAM-X) in Mexico City which right from the beginning makes use of the Modular Curriculum Proposal by Transformation Objects (Díaz Barriga, 2016), instead of the traditional curriculum by subjects used in most of the educational institutions both in Mexico and the Western world. He posed to himself the following question: "How does a man learn?" By answering this question, he starts a revolution in education, first by putting the student at the center of the process. Second, by taking as the primary premises of his method that learning must be self-directed and that scientific research must be the way of learning. The so-called Arenas Method, to be defined in the next section, has the central objective *to achieve the intellectual independence of the students through the development of abilities and attitudes for scientific research.*

Arenas put his ideas into practice in several educational institutions, namely in the Autonomous Metropolitan University campus Xochimilco, in the Graduate Nursery Program of the Autonomous University of Zacatecas, in the Graduate Farming Program of the University of Colima, in the Justo Sierra Studies Center(CEJUS) in Surutato, Sinaloa, and many others. This educational crusade usually took place mostly over the week-ends, when Arenas and some of his colleagues visited higher education institutions in the provinces. The method gradually developed -and continues to develop- with the participation of Arenas' colleagues adding to it the experience gained with its application in different academic settings.

CIDE'S formal creation. CIDE took an official format as a civil association in August 23, 2000 (CIDE-CEJUS, 2016), after several years of educational activity without bearing an official name. It looks at itself as a learning community dedicated to the attention of a wide range of adult population, at different university levels, interdisciplinary, where students of different disciplines and motivations converge to learn forms of proceeding as scientists. The number of academics pertaining to CIDE in any given time fluctuates to around 20 members. All of them are full-time professors of at least 20-year experience in innovating learning methods, working at public higher education institutions. CIDE aims to create *regional scientific communities* to help reduce the deficit of scientists in the country and increase scientific literacy. These communities are located around the sites where CIDE's method has been implemented. They are made up of the students, alumni, nearby institutions and/or labs doing science, enterprises, big or small, using the results of research done in the region, people interested in science.

Regarding infrastructure, CIDE does not have any edifice or laboratories. Their places of reunion are the installations where the students work, or any other site dedicated to science. When a student needs to use a laboratory, he gets permission to use the lab at his place of work or CIDE's members negotiate with peers to use a lab of other institution. CIDE's members are not paid for their services. The students cooperate to cover CIDE's travel expenses to the place of reunion.

THE LEARNING MODEL

Arenas was never concerned in baptizing his method with his or any other name. Actually, the method as it stands now is the product of the experience and contributions of a number of academics who accompanied Arenas in his incursions in several institutions of the Mexican province. The method continues evolving thanks to the contributions of the CIDE members. However, López-Pérez and Juárez-López baptized the method as the Arenas Method (López-Pérez, Juárez-López, 2012, p. 19). The Arenas Method combines intelligently a number of known tools: Problem-based learning (PBL), Modular Curriculum Proposal by Transformation Objects (Díaz Barriga, 2016), self-directed learning, self and group study, flexible curriculum, and of primary importance the intensive use of ICT's.

One important feature of the method is the *socialization of knowledge* that takes place once every month in a meeting of students and tutors for two full days, to share the students' advances in his personal research agendas, receiving feedback from both tutors and students. This is a multi-level inter-disciplinary meeting bringing together students of diverse disciplines and dissimilar levels of advancement to share not only knowledge of different disciplines but also the CIDE's specific methodology to collect up-to-date scientific information.

The other feature of paramount importance of the method is the construction by the students of his particular *scientific network*. The tutors recommend to the students, right from the beginning, to intensively use the ICTs to collect the most important works carried out in their field of study, and to communicate personally with the leaders of their area of interest. This network comprises not only national scientists but particularly those international scientists that are the referents of a specific discipline. By cultivating these relationships the students eventually reach a personal acquaintance with prime scientists in the field, thus opening the door to participate in international academic meetings, engaging in some cases in collaboration with these scientists, to eventually insert them in mainstream science.

THE ASSOCIATION WITH CEJUS

Surutato Studies Center (CEJUS). The Justo Sierra Studies Center (CEJUS) is another successful educational project located up in the mountain range of the Sinaloa state, Northwest Mexico (Jiménez, 1992; Jiménez, 2008a; Jiménez, 2008b). It is a rather isolated region with splendid forests, some streams, and a lukewarm climate, apt for the raising of flowers and fruits like peaches, pears and plums. The community dedicates to the agriculture of vegetables, fruit and flower rising, in addition to some family cattle rising. The community experienced a serious problem: the schools in the region were not preparing children appropriately. The teachers were frequently absent; they did not live in the community. A single teacher often had to attend two or three elementary courses simultaneously. Also the school buildings were in a deplorable condition. The parents approached J. Antonio Malacón, an engineer from Culiacán, the capital of the Sinaloa state, who had a cottage nearby Surutato. After a number of meetings with the parents, and with the assistance of other education experts Malacón brought from Culiacán, the group of parents was able to formulate a set of petitions to the highest levels of authority in the federal capital. The result of these demands was very positive: the parents were able to select new teachers, the schools were rebuilt by the community, and the federal authorities ask the parents to propose their own educational program, suitable for the local needs.

In November 1978, the Surutato inhabitants started their own Educational Program, the CEJUS, covering primary and post-primary education. The project was successful and gradually was able to offer pre-primary and full high-school. The students finishing high school were prepared to become community promoters, and were sent to open similar centers in the near-by towns.

The Association CEJUS-CIDE. After trying the Arenas Method in several higher education institutions with varied results, CIDE approached CEJUS in 2003. Both institutions signed an agreement by which CIDE would provide higher education (bachelors, masters and doctoral degrees) to the inhabitants of the Sinaloa mountain range in the Surutato region, under the auspices of CEJUS. This arrangement has produced good results for the benefit of both institutions. CIDE students spread over the Mexican territory had now a place to gather together and perform the *socialization of knowledge* prescribed by the Arenas Method. Once every month students of several states meet at CEJUS premises for two full days along with some CIDE advisors to exchange advances of their personal research agenda. Another advantage of the CEJUS-CIDE arrangement is that now CIDE can grant academic degrees, given that CEJUS has official recognition as academic institution.

SOME REMARKABLE RESULTS

As mentioned before, the conjunction of CEJUS and CIDE started in 2004 has produced very good results. A number of high quality doctoral degrees have been granted in disciplines generally connected with the human wellbeing, ranging from Veterinary Medicine, Ecology, Phytomining (the extraction of minerals by plants), Genetics Veterinary, Biology, Medicine and others. Table 1 shows data of the PhD graduates until 2014. The age of graduates is higher than the age of standard students who opt to study a PhD after getting the bachelors' degree. This is explained by the fact that CIDE students started graduate work at a later age than ordinary students; they usually work in academia as full teachers, therefore the curriculum and academic load is decided by the own students according to the time available.

Table 1. *CEJUS-CIDE PhD graduates since its association with CEJUS.*

Examination date		Name	Age	Place of work
1	July / 2008	Rocio González	48	Public Health Institute
2	July / 2008	Víctor M. Wilson	40	Public University
3	July / 2008	Ángeles Verduzco	59	Independent
4	Nov / 2008	Rosa Xicohténcatl	52	Public University
5	Nov / 2008	Carmen Reza	38	Public University
6	Nov / 2008	Nora Fernández	53	Public University
7	Aug / 2009	Marcos Bucio	47	Public University
8	Nov/ 2009	Ramiro Álvarez	50	Public University
9	Jan / 2013	Norma E. Dominguez	48	Public University
10	Nov / 2013	Félix S. Juárez	55	Public University
11	Nov / 2013	Alberta L. Granada	58	Public University
12	Nov / 2013	Victor M. Salomon	48	Public University
13	Nov / 2014	Maria N. Herrera	43	Public University
14	Nov / 2014	Ana F. Sandoval	46	Public University
15	Dic / 2014	Miguel A. Aguilera	52	Public University

Source: personal communications, Jiménez 2012: 122, and CIDE-CEJUS, 2015.

A sample of remarkable dissertations includes Marcos Bucio Pacheco's (Bucio, 2009) research in a local feature of climate change. By analyzing satellite images taken since 1970 of the northwest region of Mexico, Bucio discovered how an ecological stressed corridor was gradually augmenting in size. The clue for this discovering was the observation of a population alteration of a desert rat appearing far beyond the original desert limits.

Víctor Manuel Wilson Corral (Wilson, 2008) did research about a recent discovery concerning the property of some plants to absorb minerals called phytomining. A particular "harvest" of gold is of interest not only for scientific purposes but also as a possible viable business. Víctor selected eight plants to experiment in the area nearby a gold mine in Sinaloa. He was able to identify four vegetable species worth using for mineral recollection.

Finally, Rocío González (González, 2008) was able to identify an endemic area of a disease common in Southwest USA and Northeast Mexico. She observed that a number of patients were wrongly diagnosed as having pneumonia. Since this was a flown diagnosis, many of the patients could not survive. So she made an intensive field work both in Mexico and the USA until she discovered the cause of the desease: a fungus called Coccidioides SPP. Once the endemic area was identified, measures have been taken to prevent the infection by this fungus, thus reducing the population's mortality.

CONCLUSIONS AND RECOMMENDATIONS

CEJUS-CIDE has proved it is possible to provide a solid preparation to students who were not able to continue studies after finishing a career, with a considerable reduced budget. Indeed, the cost for obtaining a degree through the CEJUS-CIDE path is low since it has no infrastructure and Faculty doesn't get a salary. The Arenas Method is a proven tool capable of making available higher studies to individuals whose academic trajectory is not lineal (see Jiménez and Escalante, 2016). Although these doctoral recipients are ready to produce scientific research at a later age, their life span as scientists is worth in a country lacking a critical mass of scientists. Moreover, the professional interests of these academicians gyrate around real local/regional problems, thus contributing to real development. Development is not the accumulation of material goods but the solution of community problems to augment their quality of life (Ackoff, 1977).

It must be noticed that although the tutors don't belong to the mainstream science, they have the ability to conduct students in attract that leads to join scientists of the highest level.

It is clear to the author that this method will not solve the lack of researchers in the country. However, some of the features of the Arenas Method should be incorporated to the public education, such as:

- *In educational institutions, the emphasis must change from teaching to learning.*
- *The student must build his own academic network using intensively the ICTs.*
- *Students and tutors learn more via socialization of knowledge in a multi-level, multi-thematic environment.*

- *Individuals with a scientific vocation should have the opportunity to engage in a scientific career no matter the age of starting.*

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Ambidexterity Learning Process For Exploration And Exploitation: A Model Of Hybrid Ambidextrous University

Retno Kusumastuti[1]

Nurul Safitri[1]

Nur Firdaus[2]

Milla Sepliana Setyowati

Eko Sakapurnama

Prima Nurita[1]

[1]Department of Administrative Sciences, Universitas Indonesia, Indonesia
[2]Economic Research Center, The Indonesian Institute of Sciences, Indonesia
rekusuma@yahoo.com

ABSTRACT

Empirical evidence suggesting that most organizations are largely inert and ultimately fail. A second perspective argues that some firms do learn and adapt to shifting environmental contexts. Changes in the environment is very dynamic and the organization is required to be able to adjust for these changes. Capabilities of the organization should be improved as a step of adaptation in order to the sustainability of organization maintained. Ambidextrous organization refers to organization which have ability to exploring potential opportunities and finding new strategies to improve. Ambidexterityconcept is important because it can improve performance and create competitive advantage of the organization. This study aims to analyze the application of the ambidexterity concept in the university regarding to the concept is generally applied to business organizations. The study used a quantitative approach and for collecting data used questionnaires, in-depth interviews, and the benchmark study as well. The results showed that the pattern of ambidexterity at the Universitas Indonesia reflects both structural and contextual ambidexterity. The perceptions of researchers in the faculties who were the respondents indicate favorable attitudes as the ambidextrous university's indicators.

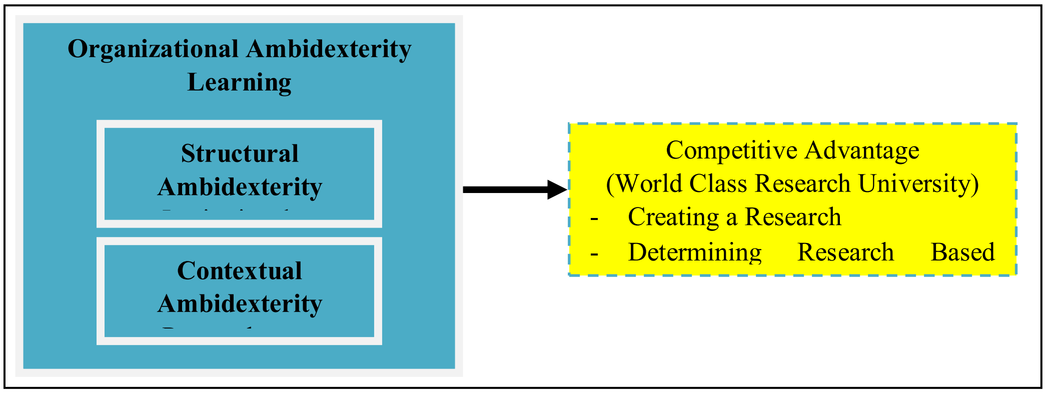
Keywords: ambidexterity, ambidextrous university, competitive advantage, world class research university

INTRODUCTION

In the face of a dynamic surrounding, organizations are required to continuously discover new ways or strategies, as well as exploring and utilizing their acquired skills to follow every changes that take place (Comez, 2013). Furthermore, Huseini (2000) explained that the efforts to explore its own potential becomes a strategy which creates value and competitive advantage for an organization. The concept of digging for potential and conducting exploration is basically contradictive to one another. However, when done simultaneously, an organization can continue to innovate, and therefore is able to create a competitive advantage and attain success. Both concepts, in the realm of strategic organization, is known as ambidexterity (namely, an ability co conduct exploration and exploitation simultaneously for the sake of innovation). Exploration, within the realm of ambidexterity, is defined as the skill which is accompanied by knowledge to conduct searches, novelty (discovering something new), experiment, innovate, creating radical changes, as well as creating in itself, be it new processes, products, or services; on the other hand, exploitation is the skill which is based on knowledge to continuously improve, modify, and make change in stages concerning the process, product, and service (March, 1991; O' Reilly and Tushman, 2008). The practice of ambidexterity proves that an organization will be able to survive if they employ exploration and exploitation simultaneously (O'Reilly and Tushman, 2008). This finding is in line with that of Jansen, et al., (2005) which claimed that exploration and exploitation is important to be done by an organization. From now on, such organization is referred to as ambidextrous organization. This research will be focused on reviewing ambidexterity within the setting of an academic organization. A university is an organization which has the duty to develop science. Therefore, the implementation of ambidexterity must remain a main priority considering the fact that science develop from time to time. Academicians are also required to continue to learn to adapt (Nguyen, 2011) to every changes that take place, therefore they are expected to become an ambidextrous university. Scientific publication is one of the proxy of scientific development and educational quality. This is in line with the claim of Lodhi (2012) which stated that academic work is an important contributing factor to the development of science-based economy which is currently ongoing. The choice of University of Indonesia as the focus of the study is due to (1) University of Indonesia has good reputation, especially in regards to its international ranking and its standing in Asia (according to QS World University Rankings), and (2) University of Indonesia is a leading university in Indonesia, especially in regards to research (according to World Class Research University).

THE STUDY

The framework used in this research is demonstrated in Figure 1. This framework is created in order to analyze the research university model as University of Indonesia's competitive advantage in realizing World Class Research University based on theories and literature revies on ambidexterity.



Source:Adapted from Birkinshaw and Gibson (2004); Chang et. al., (2009); Sivrais and Disney (2006); Zohreh et. al., (2011)

Figure 1. Theoretical Framework Scheme

The concept of ambidexterity was introduced by Duncan (1976), who referred it as a concept of dual structure that is defined as a mechanism (exploration and exploitation) which, in simultaneous and integrated manner, manage innovation and produced higher performance achievement. Kusumastuti (2013) claimed that the perspective of ambidexterity implicitly posits that exploitation and exploration are complemetary to one another in terms of learning outcome, but mutually exclusive in the context of learning approach, and are competitive in terms of research. Furthermoer, ambidexterity provides better learning benefit due to its ability to stimulate an acceleration in terms of learning within the corridor of exploitation and exploration which results into higher and more successful learning performance (Smith and Tushman, 2005; Raisch and Birkinshaw, 2008; Raisch et al. 2009). Ambidextrous organization is able to (1) reach higher performance level and sustain it, (2) prevent large or abrupt changes inside the organization, especially the costs which emerge due to those changes, such as the shift in organizational management, (3) divert organizational inertia, as well as (4) adapt and even provide benefit from the changes that take place because the organization has anticipated every change which will happen as a consequence of a dynamic surrounding (Han and Celly, 2008).

Within structural ambidexterity, different sub-units have different competence, system, incentive, proceess, and culture which will internally be aligned and adjusted for the purpose of exploration and exploitation. Meanwhile, contextual ambidexterity is "the behavioral capacity to simultaneously demonstrate alignment and adaptability accross an entire business unit" (Birkinshaw and Gibson, 2004). Contextual ambidexterity focuses on capacities on an individual level. Contextual ambidexterity is seen as a resource that is valuable, scarce, and highly costly to be immitated, and has the potential to become an important resource for a company's competitive advantage. Birkinshaw and Gibson (2004) further elaborated that cont4extual ambidexterity can be attained by building a set of system or process (combination of discipline, support, trust, and power) which enables and supports individuals within the organization to make their own judgment of the actions that are undertaken. Within the context of ambidextrous organization, Kusumastuti (2013) saw tha the the focus of ambidexterity lies on how the organization then use the activity of exploration and exploitation internally, which is then strengthened by the existence of study concerning the dynamic capability that indicates the existence interrelation between internal and external knowledge process which plays an important role in terms of renewing an organization.

FINDINGS

There are four sources of competitive advantage (Barney and Clark, 2007), namely culture, trust, human capital aspect and information technology – IT. Of all the four, academic organization (university) must be able to utilize them maximally within the creation of the achievement strategy of a research university. Several characters need to exist within the university if it wishes to be called a research university. Those characteristics include (1) possess a mission with global perspective; (2) research intensive; (3) large investment in human capital development; and many others. The basic requirement of research university achievement is through the implementation and development of research culture. In practice, building a research university desperately requires large resources in the form of human resource capacity, supporting information technology system, sufficient laboratory facility, and many others.

The process of innovative learning to become a world class research university happens in two forms, namely both structural ambidexterity and contextual ambidexterity learning process. The former can be viewed from the institutional legitimacy and organizational supports, meanwhile the latter can be viewed from the personal networking dan personal capabilities (Birkinshaw and Gibson (2004); Chang et. al., (2009); Sivrais and Disney (2006); Zohreh et. al., (2011)). If viewed from the perspective of structural ambidexterity, institutional legitimacy can be interpreted as an innovation activity implemented by University of Indonesia. Viewed from the perspective of institutional legitimacy, a majority of respondents agree that policies concerning innovation in UI includes research and development, the policy does not only apply on university-level but also on faculty-level. Aside from the form of policy, organizational support that is present within the university is also realized into many types of activity. The common practice employed to attain ambidexterity within an organization is by creating structural ambidexterity. According to Duncan (1976), structural ambidexterity refers to the existence of a separate and different unit, along with different competence, system, incentive, process, and culture which will internally be aligned and adjusted for the purpose of exploration and exploitation.

In accordance to the vision and mission of University of Indonesia to become a "World Class Research University", the focus of research becomes one of the pillars of *Tri Dharma Perguruan Tinggi* (Three Duties of a Higher Education) which needs to be conducted. As a consequence, University of Indonesia established the Directorate of Research and Community Service (DRPM), a special unit that handles numerous research and community service programs for the teaching staffs with international qualifications. The separation of research activity in this Directorate also result into different type of activity that is carried out in contrast to other existing Directorates.

Viewed from the aspect of contextual ambidexterity, there are two dimensions which become the reference point, namely personal networking and personal capabilities. Evident from the indicator of "University has a strong information network in terms of distribution of information related to research and development of teaching staffs". The discussion concerning contextual ambidexterity of this type can be seen from the existence of culture and value, incentive mechanism, mindset, and even foresight strategy. The effort to build a research culture in the context of university should not only be done by DRPM. Each faculty must be able to employ many means to boost the ability of teaching staffs in conducting research, such as counseling in creating proposal or to create clusters which are able to boost the creation of research proposal to attain grants.

According to resource-based persepective, an organization can only build its capacity to create a competitive edge through organizational culture, trust, human resource, and technology (Barney and Clark, 2007). To manifest its vision as a World Class Research University, University of Indonesia must see the construction of research culture as a necessity. The university's commitment to create a research culture within its context is evident since 2010 through the Assemblies Trustees' Decree. Therefore, the academic organization must also be able to utilize it maximally through the implementation of steps or achievement strategies to become a research based university. Aside from becoming a media of knowledge transmission, the role of university is also to become a place that produce new knowledge (production of new knowledge/innovation). Aside from that, research university is a tool, and can evenbe considered as the fastest and easisest way to attain prosperity for the state through science-based economy (Ramli, et al., 2013). Therefore, the competitive advantage through the capability of conducting research becomes an important point for a university. As of this far, University of Indonesia has exerted efforts to build research culture in accordance to the concept of the creation of research culture posited by Sivrais and Disney (2006). In several faculties which serve as our sample, there are many efforts that they have employed to develop a research culture. In general, each faculty has established strategies and steps to develop research culture according to the characteristic of their respective field.

Table 2. Stages in Building Research Culture

Stage	Implementation
Determine Direction and Research Policy of University and Faculty	• Empowerment of research organization through the establishment of structures
Organizational Support	• Allocation of research budget • Collaboration of research funding with industries and other entities.
Determine Training Neeed and Create Program	• Provision of many types of training • Scheme of Core Research Lectureres • Creation of research system and information center
Empower the role of Professors	• Empowering Professors to determine the direction of research development
Build a community	• Facilitating the establishment of special interest group in research and research cluster • Every existing research cluster will refer to the 10 focus of research are in the context of University of Indonesia
Build network with external entities	• Build, develop, and strengthen research cooperation with industrial entities. • In the realm of social science, conduct field work and research in related institutions
Create Team for Problem Solving	• Providing more value to the community through research studies required by industries, which will therefore be able to help solve problems
Recognize Individual and Groups.	• Career paths for researchers and many incentive designs for researchers that are productive in many faculties. • Incentives to disseminate research findings, be it on a national or international scale. • Many grant schemes for the publication of research
Source : Results of Researcher's Processed Data (2015)	

CONCLUSIONS

The pattern of ambidexterity in University of Indonesia indicates that there are two patterns of ambidexterity, namely structural and contextual. The tone of structural ambidexterity is reflected in UI's internal structure which distinguishes research unit from other units. Such form of structural ambidexterity handles and manages the researches carried out by the teaching staffs, be it on university of faculty level. In the realm of University, it is managed by DRPM which allocates many grant schemes to every field of science in 10 focus of research areas which covers 3 categories of science in the University, namely social humaniora, health, and natural science. Meanwhile, the support from university in the realm of faculty vary in every faculty. This is due to the different amount of research budget that is allocated according to the financial capacities of each Faculty. Meanwhile, contextual ambidexterity is reflected from the research activity and teaching that is based on capability and personal network, hence the exchange and knowledge combination between each teaching staffs are able to take place. In its implementation, the existing network of organization and individuals (researchers) as well as the personal capabilities of each teaching staffs in attaining grants also determines the success of the faculty in implementing its research policies.

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An Analysis Of The Relationship Between Curiosity And Self-Directed Learning Skills Of Teacher Candidates

İlkay AŞKIN TEKKOL
Kastamonu University, Turkey
itekkol@kastamonu.edu.tr

Melek DEMİREL
Hacettepe University,Turkey
melekdemirel@gmail.com

ABSTRACT

The aim of this study is to analyze the relationship between the self-directed learning skills and the curiosity levels of teacher candidates. Whether their self-directed learning skills and curiosity levels differ in terms of gender, department of education and achievement is analyzed as well. The study group of this research consists of the senior students attending Elementary Teaching, Turkish Teaching, Pre-School Teaching, Mathematics and English Teaching departments of Hacettepe and Kastamonu Universities. To collect data in the study, 'Curiosity Scale' developed by Erwin, Coleman and Orlando (1998) and adapted by Demirel and Diker Coşkun (2009) and 'Self-Directed Learning Skills Scale' developed by Aşkın (2015) is used. According to the results of the study, it is clear that the curiosity and self-directed learning skills of teacher candidates don't differ in terms of gender and department. According to the results of the study, it has been revealed that the curiosity levels of teacher candidates differ in terms of their achievement. In other words, the students who are more successful academically have higher levels of curiosity and self-directed learning. However, the results also show that there is a positively and medium level relationship between curiosity and self-directed learning skills.

INTRODUCTION

Curiosity

An individual's need to learn and understand what's going on around them first originated in the early periods of history and it contributes to the improvement of both the individual himself and the society he lives in. The desire to learn and understand something is defined as 'curiosity' by Turkish Language Society (2016). Curiosity emerges when an individual is born and it causes the individual to discover new things (Perry, 2001). Einstein's (1952) saying "… I have no special talents, I am only passionately curious" emphasizes the importance of being curious in terms of self-development (Seelig, 1952, as cited in Isaacson, 2007).

Curiosity has been defined as a desire to know, an interest leading to inquiry, an inquisitive interest in others' concerns, or nosiness. In academic literature, curiosity has been described in numerous ways: a drive, a personality characteristic or a motivation to explore (Koranda & Sheehan, 2014). In other words, curiosity is defined in literature as going towards new, interesting, contradictory or mysterious things; giving positive reactions such as researching and managing; displaying desire or wish to learn more about the individual himself or the environment; studying the environment and exploring new experiences and insisting on researching and examining to obtain more information (Demirel & Diker Coşkun, 2009). Curiosity is a motive that operates within definite frameworks and can be satisfied through using standard procedures. It relates to the kind of problems we meet in ordinary daily life or in a technical or scientific setting (Opdal, 2001).

Curiosity increases the self-confidence and self-respect of an individual and it enables them to gain new skills. In addition, curiosity also contributes to the individual's ability to learn. A curious learner has the tendency to do research, find a problem, ask questions and scrutinize them. People who have affective tendencies for curiosity are sensitive to unasked questions, secret facts and differences and they are able to determine deficiencies in their own knowledge and understanding. Such individuals have the ability to observe carefully, specify assumptions, produce antitheses and ask provocative questions (Demirel & Diker Coşkun, 2009).

Curious people take risks, try things out, allow themselves to become productively distracted. They know that something they learn by chance today may well come in useful tomorrow or spark a new way of thinking about an entirely different problem (Leslie, 2014). What families and teachers can do to increase the individuals' level of curiosity could be summarized as:

- Parents should let their children wonder and encourage them.

- Teachers should encourage students to learn through active exploration. Encourage questions such as ‘what would happen if…?’
- Teachers should encourage cooperative learning.
- Teachers should answer students’ questions and encourage them asking questions.
- Teachers can build strategies for develop students’ curiosity
- Teachers can implement problem based learning (Honig, Susan and Church, 2006; Engel, 2011; Young, 2015)

Self-Directed Learning

A curious individual is a person who is eager to learn, has the habit of asking questions, plans and determines what he’s going to learn in the light of his curiosity and interests and also scrutinizes what he’s learnt. Therefore curiosity takes its place amongst life-long learning skills, just like self-directed learning skills. And in literature there are some studies analyzing the relationship between curiosity and self-directed learning (Edmondson, Boyer & Artis, 2012). Some studies emphasize that self-directed learning and curiosity together increase the academic success (Reio, 2004); and some studies mention that activities that involve curiosity, discovery and games contribute to self-directed learning (Deci & Ryan, 1982).

Self-directed learning emerges when an individual determines his need to know and learn and manages his learning as a result of this. As defined by Knowles (1975), self-directed learning involves an individual’s determination of his need to learn, setting his goals in the light of these needs, his use of suitable ways of learning to reach his goals and assessing his learning outputs. In other words, self-directed learning is to be able to set the learning targets, define one’s learning needs with or without others’ help, attempt to learn, to determine resources for learning, to choose the correct strategy to learn concerning the knowledge he’s going to gain and to be able to apply it and finally, it’s the process of being able to assess the results of learning (Tough 1979; as cited in Merriam & Caffarella, 1999). Self-direction or self-directedness in learning refers either to the propensity to accept and exercise control over valued instructional functions within an instructional setting, or else the ability and willingness to learn things for oneself without institutional support or affiliation (Candy, 1987).

The first studies on self-directed learning were done in 1960s and they gained speed in 1970s. Among these studies, Houle’s (1988) study which aims to reveal why people are interested in the topic of self-direction and presents self-directed learning as a field of study steps forward. Tough’s (1979) and Knowles’s (1970, 1975) studies in 1970s pointed out the role of self-directed learning in adult education. “The Self-Directed Learning Readiness Scale”, developed by Guglielmino (1977) in his PhD dissertation, has been used in many studies, been modeled several times and taken its place as one of the most important studies on self-directed learning. Oddi’s (1984) “Oddi Continuing Learning Inventory” is also one of the most commonly used studies on self-directed learning. The studies on self-directed learning have continued since 1990s (Tough 1979; as cited in Merriam & Caffarella, 1999) until our day and this concept has taken its place in literature amongst one of the most important topics.

Self-directed learning can be defined as a method of organizing teaching and learning and is carried out under the learners’ own control. Besides this, self-directed learning could be considered as a target aimed to be reached by the learners. To reach this target, individuals accept self-determination, individual preferences and to take the responsibilities of their own learning (Kaufman, 2003). Self- directed learning contributes to individuals’ taking initiatives in learning, developing self-confidence, making them feel the urge to learn and therefore, performing a more purposeful learning. Self-directed learners are defined as individuals who are eager to learn, curious, motivated and they treasure learning (Jennett, 1992).

The aim of this study is to analyze the relationship between curiosity and self-directed learning skills of teacher candidates. In accordance with this aim, the sub-problems of the study are as follows:
1. Do teacher candidates’ curiosity levels differ according to their gender, their department of education and academic success?
2. Do teacher candidates’ self-directed learning skills differ according to their gender, their department of education and academic success?
3. Is there a meaningful relationship between curiosity and self-directed learning skills?

This study is considered as essential since it points out to the changes in curiosity levels and self-directed learning in terms of certain variables and it reveals the relationship between these two variables. When the studies carried out in Turkey are considered, no studies on the relationship of these two characteristics were found; and therefore, the findings of this study are expected to contribute to literature.

METHOD

As it is aimed to describe the relationship between the curiosity levels and self-directed learning skills of teacher candidates, in other words, as the present situation is aimed to be described, descriptive method is used.

Study Group

The study group consists of 365 students who are presently educated at the universities of Hacettepe and Kastamonu. 73.92% (n=270) of the study group is made up of female students and 26.03% (n=95) of it is male students. 23.28% (n=85) of the students are being educated at Turkish Teaching, 21.10% (n=77) are educated at English Teaching, 21.10% (n=77) are educated at Pre-School Teaching, 19.45% (n=71) are educated at Elementary Teaching and 15.07% (n=55) are educated in Mathematics Teaching. 23.84% (n=87) of the group has an academic average between 1.5 and 2.49, 47.67% (n=174) of it has an academic average between 2.50and 2.99. The students with an average academic success of 3.00 and above make up of 28.49% (n=104) of the group.

Instruments

The data of the study are collected with two different scales. The curiosity levels of the students are measured by 'Curiosity Index' which was developed by Erwin (1998) and adapted into Turkish by Diker Coşkun (2009) during her PhD thesis. The self-directed learning skills of the students are measured by 'Self-Directed Learning Skills Scale' developed by Aşkın (2015) during his PhD thesis.

Curiosity Index is a 6-Likert Type Scale consisting 47 items and 2 dimensions. The sub-dimensions of the scale are breadth and depth. Breadth is the individual's analysis of a large content of information in variety. In this dimension of the curiosity feature, the individual has the desire to live encouraging experiences. Depth is the individual's curiosity on a specific topic, idea or a person and his continuous effort to obtain knowledge about these. In this dimension the individual wants to do a detailed research on the specific subject he's interested in and he wants to gain more. During the adaptation of the scale, a factor analysis was done and the items in the scale are determined to gather in 2 sub-dimensions as in the original scale. The Cronbach's Alpha Coefficient was calculated as 0.86 and the reliability of the scale in this study is 0.91.

Self-directed learning skills formed the scale as 21 items and 4 dimensions after the exploratory factor analysis was applied. These dimensions are named as motivation, self-control, self-monitoring and self-confidence. After the confirmatory factor analysis was applied, the structure of the scale was confirmed as a 21- item model. The Cronbach's Alpha Coefficient of the 5 Likert type scale was calculated as 0.89 and the reliability of the scale in this study is 0.91.

Data Analysis

In the analyses of the data, t-test of independent groups, one way variance analysis (ANOVA) and Pearson Product-Moment Correlation Coefficient was used. SPSS 20 was used to analyze the data.

FINDINGS

Findings Regarding the First Sub-Problem

In this sub problem the changes in the curiosity levels of teacher candidates are analyzed in terms of gender, department of education and academic success. Firstly, the averages of the curiosity levels of teacher candidates were calculated. The related information is presented in Table 1.

Table 1. The Descriptive Statistics Related to Curiosity Index

	n	Minimum	Maximum	$\bar{X}$	ss
Scale (Total)	365	94	270	226,09	1,27
1. Breadth	365	45	152	125,67	,80
2. Depth	365	37	109	89,74	,52

The lowest score of the curiosity scale is 47 (47x1), the highest score is 282 (47x6), and the expected average score is 165 (47x3.5). Analyzing the data concerning the study group in Table 1, the teacher candidates' lowest score is 94 and their highest score is 270. The average score of the study group is 226.09. According to these results, the arithmetic average of the students' curiosity turns out to be above the scale average score.

In the dimension of breadth, the lowest score is 26 (26x1), the highest score is 156 (26x6), and the average score is 91 (26x3.5). In the dimension of depth, the lowest score is 21 (21x3), the highest score is 126 (21x6) and the average score is 73.5 (21x3.5). Analyzing the scores of the study group, the lowest score of the scale concerning the sub dimension breadth is 45 and the highest score is 152; the lowest score of the scale concerning the sub dimension depth is 37 and the highest score is 109. The average score concerning the sub dimension breadth is 125 and the sub dimension depth is 89.97. So these results show that the average of the two sub dimensions is above the sub dimension average scores.

The findings related to the analysis of the curiosity levels of the teacher candidates in terms of gender are shown in Table 2.

Table 2: The t-Test Results Related to the Comparison of the Curiosity Levels of the Teacher Candidates on the Basis of Gender

Gender	**n**	$\bar{X}$	**ss**	**t**	**p**
Female	270	227,84	22,81	2,33	,41
Male	95	221,12	27,80		

p>0,05

Table 2 shows that there is no significant difference between the curiosity levels and the gender of the teacher candidates. (p>0.05).

The statistics concerning the departments of education and the curiosity levels of the teacher candidates are presented in Table 3.

Table 3: The Descriptive Statistics of Curiosity Levels of the Teacher Candidates on the Basis of Departments

Departments	**n**	$\bar{X}$	**ss**
English Teaching	77	228,39	22,45
Mathematics Teaching	55	226,05	21,81
Pre-School Teaching	77	225,86	21,56
Elementary Teaching	71	230,34	24,95
Turkish Teaching	85	220,71	28,61
Total	365	226,09	24,35

Table 3 points out that the highest curiosity average score belongs to the students of Elementary Teaching ($\bar{X} =$ 230.34), whereas, the lowest curiosity average score belongs to the students of Turkish Teaching ($\bar{X} =$ 220.71). The average score of the students of English Teaching is 228.39 and the average score of the students of Mathematics Teaching is 226.05. Table 4 shows the results of the ANOVA which was done to find out whether there is a significant relationship between curiosity levels and departments of education.

Table 4: ANOVA Test Results of Curiosity Scores of the Teacher Candidates on the Basis of Departments

Source of Variance	**Sum of Squares**	**Df**	**Averages of Squares**	**F**	**P**
Between Groups	4156,72	4	1039,18	1,77	,14
Within Groups	211640,11	360	587,89		
Total	215796,83	364			

According to the results presented in Table 4, there is no significant difference between the curiosity levels and the departments of education of the teacher candidates.

The statistics concerning the achievement and curiosity levels of the teacher candidates are presented in Table 5.

Table 5: The Descriptive Statistics of Curiosity Levels of the Teacher Candidates on the Basis of Achievement

Achievement	n	$\bar{X}$	Ss
1,50-2,49	87	219,17	27,33
2,50-2,99	174	227,44	23,64
3,00 and above	104	229,63	21,83
Total	365	226,09	24,35

Table 5 shows that the students with the highest curiosity average score are the ones whose academic success average is 3.00 and above ($\bar{X}$ = 229.63). This group is followed by the group of students who have an average of 2.50-2.99 ($\bar{X}$ = 227.44). The group with the lowest curiosity level is the group of students who have an average of 1.50-2.49. The results of the ANOVA which was done to find out whether there is a significant difference between curiosity levels and academic success are shown in Table 6.

Table 6: ANOVA Test Results of Curiosity Scores of the Teacher Candidates on the Basis of Achievement

Source of Variance	Sum of Squares	Df	Average of Squares	F	p
Between Groups	5785,50	2	2892,75	4,97	,007
Within Groups	210011,33	362	580,14		
Total	215796,83	364			

$p<0,05$

According to the results presented in Table 6, there is a significant difference between the curiosity levels and achievement of the teacher candidates. ($p<0.05$). A Bonferroni Test was done to find out the reason of this difference. The analysis results are shown in Table 7.

Table 7: Multiple Comparisons of Curiosity Scores of the Teacher Candidates on the Basis of Achievement

Groups		Mean Difference
1,5-2,49	1,5-2,49	
	2,50-2,99	-8,26437
	3,00 and above	-10,46220
2,50-2,99	1,5-2,49	8,26437
	2,50-2,99	
	3,00 and above	
3,00 and above	1,5-2,49	10,46220
	2,50-2,99	
	3,00 and above	

The results presented in Table 7 show that the average concerning the curiosity of the teacher candidates with an average of 3.00 and above and between 2.5 and 2.99 are significantly higher than the ones with an average of 1.5-2.49.

Findings Regarding the Second Sub-Problem

In the second sub problem the changes in the self-directed learning skills of the teacher candidates in terms of gender, department of education and academic success were analyzed. The averages regarding the self-directed learning skills of teacher candidates are presented in Table 8.

Table 8: The Descriptive Statistics Related to Self-Directed Learning Skills Scale

	n	Minimum	Maximum	$\bar{X}$	ss
Scale (Total)	365	32	105	86,26	10,57
1. Motivation	365	13	35	30,53	3,85
2. Self-control	365	5	25	15,54	3,53
3. Self-monitoring	365	4	20	15,89	2,50
4. Self-confidence	365	7	20	17,23	2,26

The lowest score that an individual could get from the self-directed learning skills scale is 21 (21x1), the highest score is 105 (21x5) and the average score is 63 (21x3). When the data collected from the study group and presented in Table 8 is analyzed, it could be stated that the lowest score that teacher candidates got from the self-directed learning skills scale is 32 and the highest score is 105. The average score the study group is 86.26. According to these results, the arithmetic average of the students' curiosity turns out to be above the scale average score.

In the dimension of motivation, the lowest score is 7 (7x1), the highest score is 35 (7x5) and the average score is 21. (7x3). In self-control dimension, the lowest score is 5 (5x1), the highest is 25 (5x5), and the average score is 15 (5x3). In self-monitoring dimension, the lowest score is 5 (5x1), the highest score is 25 (5x5), and the average score is 15. (5x3). In self-confidence dimension, the lowest score is 4 (4x1), the highest is 20 (4x5), and the average score is 12 (4x3). The scores collected from the study group are as follows: In the dimension of motivation, the lowest score is 13, the highest score is 35; in self-control dimension, the lowest score is 5, the highest is 25; in self-monitoring dimension, the lowest score is 4, the highest score is 20; in self-confidence dimension, the lowest score is 7, the highest is 20. The average score of motivation is 30.53; the average score of self-control is 15.54; the average score of self-monitoring is 15.89; the average score of self-confidence is 17.23. These averages are above the average score of each sub dimension.

The findings concerning the analysis of teacher candidates' self-directed learning skills in terms of gender are presented in Table 9.

Table 9: The t-Test Results Related to the Comparison of the Self-directed Learning Levels of the Teacher Candidates on the Basis of Gender

Gender	n	$\bar{X}$	ss	t	p
Female	270	86,39	10,76	,389	,107
Male	95	85,89	10,05		

p>0,05

Table 9 shows that there is no significant difference between the self-directed learning skills of the teacher candidates and their gender (p>0,05).

The statistics regarding the relationship between the teacher candidates' departments of education and their self-directed learning skills are presented in Table 10.

Table 10: The Descriptive Statistics of Self-directed Learning Levels of the Teacher Candidates on the Basis of Departments

Departments	n	$\bar{X}$	ss
English Teaching	77	87,14	10,55
Mathematics Teaching	55	83,65	10,15
Pre-School Teaching	77	86,42	10,62
Elementary Teaching	71	88,04	8,45
Turkish Teaching	85	85,51	12,12
Total	365	86,26	10,57

According to the results presented in Table 10, the highest self-directed learning skill scores belong to students of Elementary Teaching ($\bar{X}$ = 88.04); and the lowest self-directed learning skill scores belong to students of Mathematics Teaching ($\bar{X}$ = 83.65). The average of English Teaching students is 87.14 and the average of Turkish Teaching students is 85.51. The results of the ANOVA done to determine whether there is a significant difference between self-directed learning skills and departments of education are presented in Table 11.

Table 11: ANOVA Test Results of Self-directed Learning Scores of the Teacher Candidates on the Basis of Departments

Source of Variance	Sum of Squares	Df	Average of Squares	F	p
Between Groups	709,11	4	177,28	1,60	,17
Within Groups	39950,69	360	110,97		
Total	40659,79	364			

p>0,05

Table 11 proves that there is no significant difference between the self-directed learning skills of the teacher candidates and their departments of education.

The statistics concerning the relationship between the academic success and self-directed learning skills of teacher candidates are shown in Table 12.

Table 12: The Descriptive Statistics of Self-directed Learning Levels of the Teacher Candidates on the Basis of Achievement

Achievement	n	$\bar{X}$	ss
1,50-2,49	87	83,30	10,77
2,50-2,99	174	87,06	10,15
3,00 and above	104	87,39	10,74
Total	365	86,26	10,57

Table 12 shows that the students with the highest self-directed learning skill scores are the ones who have an academic average of 3.00 and above ($\bar{X}$ = 87.39). Students with an academic average of 2.50-2.99 come next ($\bar{X}$ = 87.06). The group of students who have the lowest self-directed learning skills are the ones with an academic average of 1.50-2.49 ($\bar{X}$ = 88.30).

The results of the ANOVA done to determine whether there is a significant difference between self-directed learning skills and academic success are presented in Table 13.

Table 13: ANOVA Test Results of Self-directed Learning Scores of the Teacher Candidates on the Basis of Achievement

Source of Variance	Sum of Squares	Df	Average of Squares	F	p
Between Groups	1007,30	2	503,65	4,60	,011
Within Groups	39652,49	362	109,54		
Total	40659,79	364			

Table 13 shows that there is a significant difference between the teacher candidates' self-directed learning skills and their academic success ($p<0.05$). A Bonferroni Test was done to find out the reason of this difference. The analysis results are shown in Table 14.

Table 14: Multiple Comparisons of Self-Directed Learning Skills Scores of the Teacher Candidates on the Basis of Achievement

	Groups	Mean Diffence
1,5-2,49	1,5-2,49	
	2,50-2,99	-3,75682
	3,00 and above	-4,09538
2,50-2,99	1,5-2,49	3,75682
	2,50-2,99	
	3,00 and above	
3,00 and above	1,5-2,49	4,09538
	2,50-2,99	
	3,00 and above	

According to the results of Table 14, the teacher candidates with an academic average of 3.00 and above and the ones with 2.50-2.99 have higher self-directed learning skill scores than the teacher candidates who have an academic average of 1.5-2.49.

Findings Regarding the Third Sub-Problem

In this sub problem the relationship between self-directed learning and curiosity is analyzed, and the results of the analysis are presented in Table 15.

Table 15: Correlation between Curiosity and Self-directed Learning Skills

		Self-directed Learning	Curiosity
Self-directed Learing	Pearson	1	,606*
	p		,000
	n	365	365
Curiosity	Pearson	,606*	1
	p	,000	
	n	365	365

The results presented in Table 15 prove that there is a positively, medium level, significant relationship between curiosity and self-directed learning. This shows that curiosity and self-directed learning change simultaneously.

DISCUSSION and CONCLUSION

When the curiosity levels of the teacher candidates are analyzed, it has been found out that curiosity scores are above scale average score. In this case it could be mentioned that the teacher candidates have a high level of curiosity. In literature there are some studies which present that teacher candidates and university students have high levels of curiosity (Demirel & Diker Coşkun, 2009; Deringöl, Yaman, Özsarı & Gülten, 2010). Curiosity levels of the teacher candidates haven't shown a significant difference in terms of gender. There are some findings in literature mentioning about the differences of curiosity in male and female students. As a result of the study, it has also been revealed that the curiosity levels of teacher candidates don't differ significantly in terms of their department of education. This finding may have arisen as the study was carried out on students studying at the same faculty. There are some findings which point out to the differences in the curiosity levels of the students studying in different faculties (Demirel & Diker Coşkun, 2009). It could be accepted that the students studying in the same faculty have more similar characteristics compared to the ones studying in different faculties. This finding coincides with Deringöl, Yaman, Özsarı & Gülten's (2010).

According to the results of the study, it has been revealed that the curiosity levels of teacher candidates differ in terms of their achievement. In other words, the students who are more successful academically have higher levels of curiosity. Curious people are considered as individuals who have the habit of studying and analyzing to gather information about themselves and their environment; they are able to determine deficiencies in their knowledge and understanding, ask questions, are sensitive to solving problems they face with and create new problematic situations. This contributes to individuals' academic success positively. Individuals who are aware of their own deficiencies and ask questions for self-improvement can also overcome their academic deficiencies and succeed. That curiosity differs according to academic success and individuals who are more successful academically have higher levels of curiosity are mentioned in certain studies in literature as well (Maw & Maw, 1961; Hogan & Greenberger, 1969; Vidler & Rawan, 1975).

The results of the study have shown that the self-directed learning skills of teacher candidates are above the scale average score. According to this result, it could be stated that teacher candidates have high self-directed learning skills. Self-directed learning skills are considered among the expected skills of individuals with university education or individuals who attained a certain level of success. Therefore, university students are expected to have average or high self-directed learning skills. When studies on this topic are considered, it is realized that teacher candidates and university students have a high scale average score of self-directed learning skills (Aşkın, 2015; Sarmasoğlu & Görgülü, 2014). When teacher candidates' self-directed learning skills are analyzed in terms of gender, it is realized that there is no significant difference. In literature, in some studies, there is a significant difference found between self-directed learning skills and gender and in other studies, there is no significant difference between these two. In this study, it has been proven that teacher candidates' self-directed learning skills show no significant difference in terms of departments that they are educated in. In literature, there are some studies which show that there is a significant difference between the self-directed learning skills of university students being educated in different faculties. The fact that no significant difference found in this study could be explained by the study group consisting of students being educated at the same faculty.

The self-directed learning skills of teacher candidates differed according to their academic success. The findings have shown that students with high academic success have higher self-directed learning skills. Self-directed learners are individuals who have positive contributions to academic success and they are able to determine their learning needs, different learning strategies, take advantage of methods and techniques, manage their own learning process and after detecting their learning problems, they manage to overcome these problems themselves. This shows that students with high self-directed learning skills are considered as more successful academically. Some studies in literature point out that the self-directed learning skills of teacher candidates differ parallel to their academic success (Acar, 2014; Karataş, 2013).

A positively, medium level relationship has been discovered between the curiosity levels and self-directed learning skills of teacher candidates. Curious individuals are ready to learn, they ask questions, plan and specify what to learn in accordance with their interests and the things they wonder about and they are known to be individuals who question the things they have learnt about. When these features are analyzed, it is believed that curiosity and self-directed learning are concepts that are related to each other. It is accepted that the emotion of curiosity causes the individual who feels a lack of knowledge to step into action, by feeling the urge to explore his environment in order to fill in this gap (Loewenstein, 1994). And in this case, the self-directed learning skills of the individual become active (Edmondson, Boyer & Artis, 2012). In literature it is also emphasized that these two features together have positive contributions to academic success and they support each other. Deci & Ryan (1982) have stated in their studies that inner motivation is essential in order to ensure self-directed learning and the activities that trigger students' emotions of curiosity lead to inner motivation and this contributes to self-directed learning. Similar to that, Loewenstein (1994) also states that curiosity helps an individual to get motivated for learning. And Reio (2004) claimed in his study applied on 121 university freshman students that self-directed learning and curiosity together predict the learning performance. Edmondson, Boyer & Artis (2012) also did a meta-analysis of the studies carried out on self-directed learning and found a positive and significant relationship between self-directed learning and curiosity.

In the light of these findings, some suggestions could be made for future studies. It is important to provide the students attending faculties of education with activities which will help them arouse their curiosity about topics that will help them improve personally and professionally by specifying their learning needs, following their learning process and improving their assessment skills. That self-directed learning skills and curiosity being related to each other points out that both the curiosity of teacher candidates and their self-directed learning skills can be improved. And therefore, to increase their curiosity level, curricular activities within or outside the classroom could be arranged and this would help them become self-directed learners. Besides, certain experimental studies could be carried out in different educational levels in order to emphasize the influence of educational environments which will help to develop self-directed learning skills. By carrying out qualitative studies, some detailed data could also be obtained concerning self-directed learning skills and curiosity.

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An Investigation Of Physics Education Doctoral Dissertations Made In Turkey Between 2010 And 2015

Ali ÇETİN
Faculty of Education
Siirt University, Turkey
alicetin@siirt.edu.tr

ABSTRACT

The purpose of this study was to investigate doctoral dissertations on physics education conducted in Turkey between the years of 2010 and 2015. The year, institution, language, researcher's gender, advisor position, research design and method, number and properties of samples, subject, data collection tools and theme distribution of the doctoral studies were investigated. The document analysis technique, which is a qualitative research method, was used. The population for research was all doctoral dissertations in the field of physics education at various institutes in Turkey. The sampling group consisted of 78 dissertations accessed through the online National Thesis Centre. To collect data, a form of structure determination developed by the researcher was used. Data were analysed with categorical analysis techniques The findings indicated that the number of physics education doctoral dissertations has increased when compared with the number of dissertation made in the years 2001-2009. Most of these doctoral dissertations were conducted at Karadeniz Technical University and Middle East Technical University, with a mixed research method preferred by researchers. In general, high-school students and pre-service teachers were the sample for these dissertations. The theme of success and attitudes were the most frequent research topics used in dissertations on physics education.

INTRODUCTION

The investigation of historical development of scientific knowledge is needed to reveal the point where such knowledge becomes available and open to new forms of research. The point where scientific knowledge becomes a source of new research shows how much knowledge is available before that point (Bağ, Kara & Uşak, 2002). New studies related to special fields of education and new researchers, known as field educators, show these fields have developed. However, new researchers have some limitations in the field of education and in finding previous studies published in Turkey (Karamustafaoğlu, 2009). However, the construction of special departments within in education faculties can speed up development.

One developing field is physics education, which differs from physics departments and the faculties of arts and sciences in how academicians work, think and are interested in education. With the development of physics education in universities, fundamental changes have been made in instructional programmes in Turkey. For example, the instructional physics programme in high schools changed based on constructivism in 2004 (Çakıcı ve Ilgaz, 2011); this was strengthened with the reconstruction of the programme in 2011.

Developments in physics education and in instructional programmes are also reflected in doctoral dissertations. The first physics education doctoral dissertation in Turkey was published in 2001 (Doğru, Gençosman, Ataalkın & Şeker, 2012), which shows that the history of doctoral dissertations in the field of physics education goes back approximately 15 years. An increase in the number of doctoral dissertations on a subject is important for understanding how the field has developed and finding out where it is now and where it is going (Göktaş ve Erdem, 2006). In this context, there are some studies (Balcı, 2004; Altıparmak & Nakiboğlu, 2005; Gürdal, Bakioğlu & Öztuna, 2005; Çakıcı & Ilgaz, 2011; Doğru, Gençosman, Ataalkın& Şeker, 2012; Çeliker & Uçar, 2015) that investigate doctoral dissertations in Turkey.

The literature review of these studies gives three main points. First, until now master theses were mostly searched for and investigated through many variables. However, doctoral dissertations are not searched for in the same way as a master's thesis. This could be because the publishing language of some dissertations is English and there are access limitations from the doctoral dissertations' own researchers. At present, access to doctoral dissertations is easier than in past with the use of the National Thesis Centre of Higher Education Institutions. In a study conducted by Doğru, Gençosman, Ataalkın & Şeker (2012) looked at doctoral dissertations before 2009. An investigation of doctoral dissertations from 2010 to the present is needed. Because of the one-year access limitations of doctoral dissertations, this study was conducted to investigate doctoral studies between 2010 and 2015. Second, when accessing dissertations from the National Thesis Centre, more than one keyword should be used to find dissertations on a specific field. Some dissertations could not be found just through the keywords "physics education" or "physics teaching" because the dissertations were indexed in the fields of physics or engineering. As a result, the searched keywords were carefully selected to find all physics education dissertations. Finally, the independent variables searched in the studies were listed. The year, institution, language, researcher's gender, advisor position, research design and method, number and properties of samples, subject, data collection tools and theme distribution of the doctoral studies were investigated. As a result, for Turkish doctoral dissertations on physics education between 2010 and 2015 the following questions were investigated:

- What was the distribution in terms of years?
- What was the distribution in terms of institutions?
- What were the languages?
- What was the distribution of researchers' genders?
- What was the distribution of advisor positions?
- Which designs or techniques were used?
- Which research methods were used?
- What were the sample sizes and properties?
- Which physics subjects were studied?
- Which data collection tools were used?
- Which themes were used?

AIM OF THE STUDY

The purpose of this study was to investigate physics education doctoral dissertations published in Turkey between the years of 2010 and 2015. The year, institution, language, researcher's gender, advisor position, research design and method, number and properties of samples, subject, data collection tools and theme distribution of the doctoral studies were investigated.

METHOD

The document analysis technique, which is a qualitative research method, was used to investigate the doctoral dissertations in physics education between the years of 2010 and 2015. The technique covers the analysis of written materials containing information about the targeted case or cases and has five steps: (1) finding documents, (2) controlling originality, (3) understanding documents, (4) analysing data and (5) using data (Yıldırım & Şimşek, 2013).

During the study, the National Thesis Centre's online search engine was used to access doctoral dissertations on physics education. First, the years 2010 to 2015 and the situation of doctoral dissertations were selected. Second, the dissertations that used an English or Turkish physics word in the title or abstract were searched. Third, the dissertations that had access permissions and were in the category of education and training were listed. Finally, the list of titles was checked and the dissertations related to physics education field were selected for inclusion. A total of 78 doctoral dissertations were accessed this way; all were downloaded.

To collect data, the researcher developed a form of structure determination. This contained all independent variables: year, institution, language, researcher's gender, advisor position, research design and method, number and properties of samples, subject, data collection tools and themes. A total of 78 doctoral dissertations were investigated this way. The data were then coded into a computer to make categorical analysis. The collected data are presented in the findings of this study.

FINDINGS

The distributions of doctoral dissertations in terms of years, institutions, the language used, the distributions of researcher's gender and advisor positions, designs, techniques and methods used, sample sizes and sample properties, physics subjects studied, data collection tools and themes are listed below.

- What was the distribution of doctoral dissertations in terms of years?

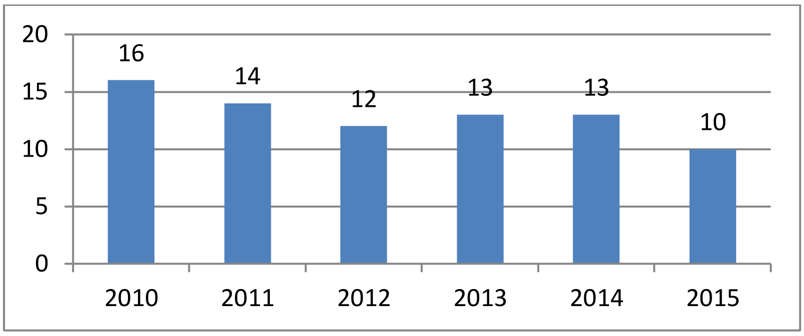

Figure 1. The distribution of doctoral dissertations in terms of years

According to Figure 1, there are 78 doctoral dissertations on physics education between 2010 and 2015. The highest number of dissertations was published in 2010 and the lowest in 2015. The decrease could be a result of the one-year access permission for doctoral dissertations. The average number of doctoral dissertations per year between 2010 and 2015 is 13.

- What was the distribution of doctoral dissertations in terms of institutions?

Table 1: The distributions of doctoral dissertations in terms of institutions

University	**Number**	**%**
Karadeniz Technical University	16	21
Middle East Technical University	15	19
Gazi University	9	12
Atatürk University	8	10
Balıkesir University	7	9
Marmara University	6	8
Dicle University	3	4
Dokuz Eylül University	3	4
Ankara University	2	3
Hacettepe University	2	3
Selçuk University	2	3
Celal Bayar University	1	1
Dumlupınar University	1	1
Ege University	1	1
Fırat University	1	1
Trakya University	1	1

Table 1 shows the distributions of doctoral dissertations in terms of institutions. There are 16 universities in Turkey that published doctoral dissertations on physics education. Karadeniz Technical University (21%) and Middle East Technical University (19%) published the most; Celal Bayar University, Dumlupınar University, Ege University, Fırat University and Trakya University published the fewest.

- What were the languages of doctoral dissertations?

Of the 78 doctoral dissertations, 15 (19%) were in English and 63 (81%) were in Turkish. Only the doctoral dissertations from the Middle East Technical University were in English.

- What was the distribution of researchers' genders in doctoral dissertations?

Of 78 doctoral dissertations, 45 (58%) were by males and 33 (42%) were by females; the number of male researchers is higher than the number of females.

- What was the distribution of advisor positions in doctoral dissertations?

In total, 35 professors (45%), 23 associate professors (30%) and 13 assistant professor doctors (17%) participated as an advisor on physics education. Four doctoral dissertations used double advisors: professor/associate professor, associate professor/assistant professor doctor, doctor/assistant professor doctor and assistant professor doctor/instructor.

- Which designs or techniques were used in the doctoral dissertations?

Table 2. The distribution of designs/techniques used in doctoral dissertations

Research design	**Number**	**%**
Pre-test/post-test control group design	42	53
Case study	15	19
One group pre-test/post-test design	6	8
Content analysis	4	5
Factor analysis	3	4
Survey study	2	3
Document analysis	2	3
Other	6	8

According to Table 2, the doctoral dissertations used 14 different research designs and the pre-test/post-test control group design was preferred. The ‘other’ category includes meta-analysis, phenomenological research method, longitudinal developmental research methods, didactic engineering research theory, material and test development.

- Which research methods were used in doctoral dissertations?

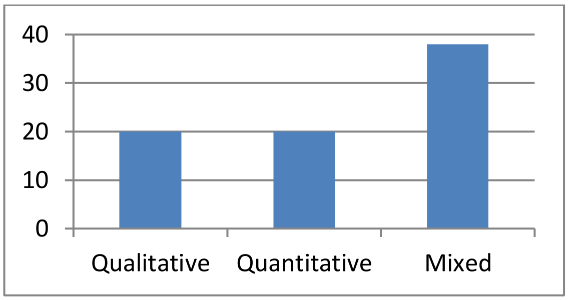

Figure 2. Research methods in doctoral dissertations

As in Figure 2, the mixed method (f=38, 48%) was most used in doctoral dissertations. The number of qualitative studies (f=20, 26%) was equal to the number of quantitative studies (f=20, 26%).

- What were the sample sizes and sample properties of doctoral dissertations?

Table 3: The Distribution of sample properties, number of dissertations and sample sizes

Sample properties	**Number of dissertations**	**Sample size**
High school students	34	4533
Pre-service teachers	36	2954
Teachers	14	1189
Parents	1	196
Articles	1	77
Doctoral dissertations	1	25
Doctoral students	1	10
Administrators	1	2
Books	1	1

According to Table 3, high-school students and pre-service teachers were preferred participants in doctoral dissertations. The numbers of studies conducted with parents, articles, doctoral dissertations, doctoral students, administrators and books were very low.

- Which physics subjects were studied in doctoral dissertations?

Table 4: Physics subjects studied in doctoral dissertations

Subjects	**Number**	**%**
Mechanics – force and motion	16	20
Electricity	14	18
Modern physics	6	8
Work and energy	5	6
Magnetism	5	6
Heat and temperature	2	3
Optics	2	3
Waves	1	1
Electrostatics	1	1
Impulse and momentum	1	1
Radioactivity	1	1
Sound	1	1
Torque and angular momentum	1	1
No subject	22	28

Table 4 shows the distribution of physics subjects in doctoral dissertations. Of the 78 doctoral dissertations, 22 (28%) did not cover any physics subjects. Mechanics (20%) and electricity (18%) were the preferred subjects.

- Which data collection tools were used in doctoral dissertations?

Table 5: Data collection tools used in doctoral dissertations

Tool	**Number**	**%**
Achievement test	48	26
Interview form	39	21
Attitude scale	22	12
Observation form	21	11
Special tools	16	9
Survey	11	6
Science process skills test	10	5
Other scales	9	5
Other tests	4	2
Misconception test	3	2

According to Table 5, 10 data collection tools were used 183 times in 78 doctoral dissertations. This shows that on average more than two tools were used in each dissertation. Achievement tests were the preferred data collection tool followed by interview forms and attitude scales. Misconception tests were used the least, which suggests they could be coming to an end within physics education.

- Which themes were used in doctoral dissertations?

According to Table 6, 66 themes were used 195 times in 78 doctoral dissertations. Thus, an average of 2.5 themes were used in doctoral dissertations. Achievement and attitudes were the most used themes in doctoral studies.

Table 6: Themes used in doctoral dissertations

Theme	**N**	**%**	**Theme**	**N**	**%**	**Theme**	**N**	**%**
Achievement	41	21	Learning styles	2	1	Cooperative learning	1	1
Attitude	22	11	Pedagogical content knowledge	2	1	Comparative education	1	1
Computer-based learning	9	5	Problem solving performances	2	1	Concept understanding	1	1
Material development	8	4	Simulation	2	1	Concept maps	1	1
7E instructional model	6	3	Inquiry learning	2	1	Conceptual change texts	1	1
5E instructional model	5	3	Drama	2	1	Conceptual physics problems	1	1
Science process skills	5	3	Mental model development	2	1	Laboratory methods	1	1
Modern physics	5	3	4mat teaching method	1	1	Mathematical modelling	1	1
Problem-based learning	5	3	Academic self-concept	1	1	Meta-analysis	1	1
Web-based learning	5	3	Active learning	1	1	Model based learning	1	1
Context-based learning	4	2	Meaning making processes	1	1	Modelling	1	1
Physics instructional program	4	2	Analogical modelling	1	1	Out of school activities	1	1
Misconceptions	4	2	Augmented reality	1	1	Literacy activities	1	1
Self-sufficiency	4	2	Science history based learning	1	1	Teaching applications	1	1
Project-based learning	3	2	Course book	1	1	REACT learning strategy	1	1
Constructivism	3	2	Affective characteristics	1	1	Hot conceptual change theory	1	1
Peer instruction	2	1	Physics experiments	1	1	Technological pedagogical content knowledge	1	1
Thought experiment	2	1	Physics courses	1	1	Test development	1	1
Critical thinking	2	1	Physics laboratory	1	1	Learning science by typing	1	1
Epistemological belief	2	1	Physics and music relationship	1	1	Creativity	1	1
Professional developmental program	2	1	Blind students	1	1	Mode-method interaction	1	1
Motivation	2	1	Internet-based learning	1	1	Method-approach interaction	1	1

CONCLUSIONS AND DISCUSSION

The aim of the study was to investigate 78 doctoral dissertations on physics education published between the years of 2010 and 2015. Document analysis was carried out for the dissertations; this is one of the most commonly used qualitative research methods. The conclusions of the study are as follows:

- The average number of dissertations published each year between 2010-2015 is 13. There were 2,6 between 2001 and 2009 according to the study conducted by Doğru, Gençosman, Ataalkın ve Şeker (2012). So the increase in the number of average dissertations shows interest in physics education is growing.

- There were 16 universities that produced physics education dissertations; Karadeniz Technical and Middle East Technical Universities published the most. Literature on this figure for previous (before 2010) the earlier years was not found; however, the number of universities is increasing as more people graduate with doctorate degrees in physics education and choose to work in this field. That could be why these universities produced more dissertations than others. Additionally, these universities are older (Çetinsaya, 2014).
- Most doctoral dissertations were published in Turkish; only dissertations published by the Middle East Technical University (METU) were in English. At METU lessons are taught in English; the others teach in Turkish.
- 58% of dissertations were written by males with the rest by females. The findings also indicated that the advisors of these dissertations were mainly professors (45%).
- The mixed method and pre-test/post-test control group design were the preferred research design and method. When these findings were compared with Doğru et al's study, it can be seen that the percentage of these methods and designs has increased. Quantitative research methods were used the most between 2001 and 2009; this then changed to mixed research methods. Çeliker and Uçar (2015) state that in science and technology dissertations, pre-test/post-test control group design was used the most, which is similar to this study.
- Similar to Doğru et al's study, electricity and mechanics were the most-studied subjects in physics education. However, while there were seven dissertations on physics education about these subjects until 2009, this study demonstrated that this number increased to 30.
- Achievement tests, interview forms, attitude scales and observation forms were most-selected data collection tools.
- According to Karadağ (2009), physics education studies have not spread because there were limited themes in doctoral dissertations. However, this study found 66 different themes in doctoral dissertations while Doğru et al found just 20 themes between 2001 and 2009. So it can be concluded that physics education studies becoming more widespread.

In conclusion, these findings indicate that physics education is developing with studies scattered over a wide range in terms of both study topics and study methods. The number of doctoral dissertations and the themes within them are increasing. Still, achievements and attitudes are the most-used themes that are repeated in doctoral studies as discussed in Karadağ (2009). The recommendation for academics is to repeat these reviews every five years because this kind of review may beneficial for other academics to see where we are in physics education. The recommendation for doctoral students is that studies should be high quality and themes should be chosen to reach the wider field of physics education.

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An Investigation On Preservice Science Teachers' Usage Social Media For Educational Purposes: Implications For Teacher Education

Hunkar KORKMAZ

Ahmet ALTINDAĞ

Department of Educational Sciences
Division of Curriculum & Instruction
Hacettepe University
Turkey
hunkar@hacettepe.edu.tr
ahmetaltindag14@hotmail.com

ABSTRACT

There is an ongoing debate regarding the integration of social media in education. Advocates of social media usage point to the benefits of using social media for academic/educational purposes and practice while critics are calling for regulations and/or the removal of such online technologies in the classroom. Finding middle ground has become a challenge. Additionally, in the literature, the number of the studies investigating the pre-service teachers' usage social media is limited. This research was carried out to determine the social media usage of pre-service science teachers for academic and educational purposes. This research was carried out by using descriptive/survey method. The participants of this study were comprised of 126 pre-service science teachers. The data were collected by the researchers and analyzed by using descriptive analyses. The results indicated 100% use of social media either for personal, academic, educational, research, or professional purposes, with the majority using Facebook for personal communication, LinkedIn for professional connections, and blogs for educational aims. Most of them think that social media can be used for educational purposes if they are used truly and effectively. The results of this study are expected to contribute to current literature on social media/network using for teaching, learning, professional development and teacher education.

Key words: teacher education, social media, preservice science teachers

INTRODUCTION

The rapid growth in Internet technologies, todays' teachers, who born in the 1990's, are digital natives (Prensky, 2001a; 2001b) who are also "digitally literate" (Meyers, Erickson, & Small, 2013). They and their future students are Internet-ready generations. Social media will play a key role in education reforms to implement 21st century learning (Howard & Carceller, 2010; Rice, Thomas & O'Toole, 2009) and as teacher educators, we need to understand our students' current practices in using social media in order to profit from the widespread availability of such tools.

Social media technologies are currently being promoted to engage 21st century learners in science learning. They have been integrated into curriculum design and implementation, providing invaluable teaching and learning settings and functions for educators and students. For example, using social media as a communications tool to communicate with students, parents, educators and experts in various fields from around the world (Facebook, Google Plus, and Twitter). Also social media is powerful, flexible, and efficient tool for collecting "real time" data/information (Wikipedia), for publishing and delivering teachers' and students' work (Pinterest, SnapChat, Flipagram, Instagram, YouTube, etc), for learning new things, and searching new academic studies, and professional/research purposes (e.g., LinkedIn, Research Gate, Academia.edu, etc) (Allen, 2012; Greenhow and Gleason, 2014; Manca and Raineri, 2013; Raodriguez-Hoyos, Haya Salmón, & Fernández-Díaz, 2015).

These opportunities in education are required changes to classroom practices and the preparation of current and future science teachers. Integration of social media into education has transformed the teaching and learning paradigm and, consequently, face to face learning has started to give way to web based instruction via internet based resources. We can also question the degree to which pre-service science teachers are technically proficient or competent in their use of social media tools. Teacher educators and teacher education programs can potentially benefit from enhanced understanding of how pre-service teachers use social media tools for science learning in their degree programs. Although there are numerous studies on social media integration into education in recent years (Raodriguez-Hoyos, Haya Salmón, & Fernández-Díaz, 2015; Greenhow and Gleason, 2014; Manca and Raineri, 2013; Gao, Luo, & Zhang, 2012; Allen, 2012; Hew, 2011; Aydin, 2011), little is known about pre-service teachers' usage social media tools. Thus, we ask the following two research questions: *(1) What social media do the pre-service science teachers prefer to use? (2) Why do pre-service science teachers prefer to use social media tools, for educational purposes?*

THE STUDY

The study is a survey of the extent to which Turkish pre-service science teachers use social media. The sample of this study consists of all first year science teacher education students (N= 126) at a large university, in Turkey. The limitations of this study include sample size and location. The size of the study is limited to the number of pre-service science teachers who are enrolled in graduate classes this year in Turkish Universities. While the location of the university is in a wealthy, suburban community, the pre-service science teachers in this study are from a variety of ethnic and social-economic backgrounds throughout the country.

A survey instrument was administrated to examine what and why these pre-service science teachers used a list of social media tools derived from the literature, including blogs, micro blogs, Wikis, Photo/Slides sharing software, Video sharing software, music and sound sharing, document managing, Syndication of content through RSS, social networking, broadcasting, location-based, social bookmarking, other tools including survey and pools, online diagrams, virtual worlds-virtual conference, team meetings, etc. (Kaplan and Haenlein, 2010; OECD, 2007; OECD, 2012).

The data was collected during the final week spring of 2016 semester. All data were entered into SPSS, which was used to conduct descriptive analyses. Descriptive statistics were used to summarize and present the quantitative data from the survey. Additionally, qualitative data from the open-ended survey items (Other………..) were content analyzed to provide more in-depth information in the pre-service science teachers' voices and chooses.

FINDINGS

The two research questions were used to organize presentation of the study results as follows.

What social media do the pre-service science teachers prefer to use?

Table 1 shows what social media tools were being used by pre-service science teachers who were participated in this study. According to the participants' self-reported frequencies, we finalized the percentage of pre-service science teachers prefer to use social media tools and also rank frequency and percentage.

Table1. Current use Social Media by Pre-service Science Teachers

Statements	**F**	**%**	**Rank**
Higher pre-service science teachers' reports			
Facebook (Social networking)	120	95.2	2.5
YouTube (Social networking)	124	98.41	2
Wikipedia (Wikis)	126	100	1
Foursquare-Swarm (location-based sharing)	65	51.58	10
Twitter (Social networking)	87	69	5.5
Slide share	69	54.76	9
Dropbox (document managing-storage and sharing)	74	58.7	8
Blogs	78	61.90	7
Facebook Messenger (Social Networking)	120	95.2	2.5
Online games	94	74.6	4
Instagram (Photo sharing)	87	69	5.5
Less pre-service science teachers' reports			
LinkedIn (Social networking)	38	30.2	11
Skype	23	18.3	13
E-bay (Selling/purchasing management system)	11	8.7	17
Flipagram (video editing- sharing)	21	16.7	14
Podcasting	9	7.1	18
RSS Feeds	3	2.4	20.5
Restricted Online Communications	15	11.2	15
Broad Casting	24	19	12
Vimeo (Video sharing)	14	11.1	16
Pinterest (Book marking)	34	24.6	12
Flickr (document mamaging-Storage and sharing)	5	3.9	19
Snapchat (Video sharing)	46	36.5	10
Other social media tools (Survey Monkey)	3	2.4	20.5
ResearchGate (Social networking)	2	1.5	22
Academia (Social networking)	1	0.80	23

As seen Table 1, social networking and Wikis tools including Wikipedia, Facebook, Facebook Messenger, YouTube, and Twitter, are the two most commonly used social media technologies among all pre-service science teachers. Similar results were observed earlier studies which were conducted on different cultural context (Guy, 2011; Poellhuber & Anderson, 2011). The ranking indicated that the most popular social media tool is YouTube among pre-service science teachers in this study context. In earlier studies, different researchers have empirically evidenced varying pedagogic effects of YouTube (Graham Borup, & Smith, 2012; Krauskopf; Zahn, & Hesse, 2012; Lee and Lehto, 2013, Szeto, Yan-Ni Cheng, & Hong, 2016). They have indicated that using YouTube in teaching is a cognitive process which needs to underpin the lesson plan. YouTube can be integrated in teaching as an online digital video resource for demonstration, a trigger for constructivist inquiry of knowledge in shaping the cognitive process.

Why do pre-service science teachers prefer to use social media tools, for educational purposes?

All of the pre-service science teachers (100%) have replied in affirmative that social media is used for educational and academic purposes. Table 2 shows the frequency distribution of pre-service science teachers' aims of social media usage.

Table 2. Frequency and percentages of the pre-service science teachers' responses on the use of social media for educational purposes

Statements	**f**	**%**	**Rank**
Using social media to			
Contribute educational/academic knowledge to other educators (Facebook, Twitter, LinkedIn, Academia, ResearchGate, YouTube etc)	103	76	3
Seek specific information about an education/academic problem/situation (Wikis)	83	65.9	4
Scan/explore educational/academic knowledge for new insights (Blogs, Microblogging, YouTube, Instagram, Pinterest, etc.)	102	80.96	2
Other (personal communication, develop personal, academic and professional skills as an educator using blogs, wikis, e-mail, messenger, Facebook, YouTube, etc)	126	100	1

As seen Table 2, the results indicated 100% use of social media tools for personal, academic, educational, research, or professional purposes. The ranking results indicated that all of the participants, 126 (100%), prefer social networking tools including using blogs, wikis, e-mail, messenger, Facebook, YouTube, etc., for personal communication and, academic, personal, and professional development.

CONCLUSIONS & IMPLICATIONS

Based on the results of this study, we are confident in the claim that all of our participating pre-service science teachers aware of social media tools and use of some of them for educational, academic, professional, and personal communication. The findings from this study suggest that there is a window of opportunity within teacher education to develop the learning potential of social media tools in our teacher education programs. The implications are that the teacher educators need to open to new technologies such as social media or Web 2.0 tools knowledge and approaches to integrating them in educational setting from a broader perspective, and to embrace the new culture of learning and teaching of digital natives as future teachers. Such an understanding is provided continuous support and guidance for our teacher candidates, answering questions and giving advice, as well as opening up their classrooms for field experience opportunities. In other words, teacher educators need to scaffold the kinds of uses of social media tools that help our pre-service science teachers bridge their social and learning worlds. In this context, teacher educators likewise must adopt changes in their own practices to both understand their students and utilize the potential of social media applications as tools for learning in the 21st century. As noted by Nielson et al. (2013), these pre-service science teachers will be teaching the next generation of scientists/children, whose digital proficiencies are likely to be even greater, thus attention at the program level in teacher education will have far-reaching consequences.

Although generalization of the findings is not the purpose in consideration of the small sample size and location, the findings can help policy makers and teacher educators envisage the impacts of the rapidly changing technological advancement on pre-service teachers' pedagogies.

The follow-up studies must be conducted with rigor and must move the science of professional learning and development forward in discernible steps to fully embrace a collaborative approach to education. Future studies should examine potential differences between other populations of teachers and other branches of teachers (art, social sciences, math, classroom teachers) in terms of their use of social media to share and exchange educational knowledge. Studies should also examine different types of social media usage beyond the sharing of knowledge with other educators.

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An Overview Of The Reports Belongs To Foreign Countries' Education Systems And Their Contents Which Guided The Education In The Republican Period (1925-1927)

Savaş KARAGÖZ
Aksaray University, Faculty of Education, Educational Sciences, Curriculum and Instruction, Turkey
savaskaragoz@aksaray.edu.tr

ABSTRACT

Both quantitive and qualitative changes resulting from the social, political and cultural changes and developments happened in education and schooling in the Turkish National Education system during the II. Constitutionalizm period after the Reforms period. It can be said that education and schooling models which were applied in the western countries made the greatest effect to these changes and developments. For this purpose, the newly established Republic of Turkey organized training trips to other countries in order to examine their educational systems on one hand and invited foreign experts to the country so that they can examine the current educational system of the country on the other hand so that it could adapt the Education System which was inherited from the II. Meşrutiyet, that is the final period of the Ottoman Empire to the modern pedagogic approach of the era. Mr. Muallim Talat, Education Chairman Mr. Mustafa Necati, Ali Enver of Uskudar, Mr. Selim Sirri, Mr. Ismail Hakki, Dr. Alfred Kuhne, Mr. Zekai, Nafi Atuf ve Audit Commitee Chairman Mr. Rıdvan Nafiz, George Stiehler, Ahmet Hilmi, Mrs.Vildan and Mr. Nizamettin, James Graham filed reports to the Ministry of Education between 1924 and 1927. This study focuses on the contents of the Mr. Muallim Talat's"Avrupa'da Maarif Tetkiki (Inspection of the Education in Europe)" In this study, Muallim Talat Bey's Impressions from "Inspection of the Ministry of Education in Europe" Trips, the report about trade schools in Germany, Great Britain and Czechoslovakia by Hakkı Bey who was the handicraft teacher of the Ankara Teacher's Institue, Mr. Nafi Atuf and Mr. Rıdvan Nafiz's report about the Russian Education, Mr. Ahmet Hilmi's reports about German forestry schools and vocational education were examined. Upon analyzing the contents of the reports it was seen that they focused on the mode of national education, the place of the handicraft courses in the curriculum and their purposes, vocational technical training, teacher training, special education, and education systems of the countries examined.

Key Words: Foreign Education Systems, Handicraft, National Education, Vocational Training, Special Education

INTRODUCTION

The Republic of Turkey entered into many pursuits in order to adapt the education system that it inherited from the Ottoman to the conditions of the period. When these efforts were examined in general it was seen that research was conducted on foreign school organizations, curriculums, approaches applied and models especially while Mr. Mustafa Necati was the Minister of Education. It was seen that two paths were followed in establishing a contemporary education environment in the country. As the first path, expert foreign educators from the related fields on demand were invited to the country and their views were taken. As the second, foreign education systems were examined in the place. Ministry of Education appointed many educators to examine the educaion systems of Germany, Great Britain, Czechoslovakia, Romania, Hungary, several Scandinavian countries and Russia. The educators who conducted these studies were asked to present a detailed report about the countries whose education systems were examined to the ministry.

1. Mr. Talat's Report:

A delegation consisting of council members, mayors, school principals and several teachers did a study and research visit to Romania and Hungary chaired by the Governor of Bilecik Mr. Talat. As a result of this visit a report about the schooling periods, school order, national discipline and national aim was written and sent to the Ministry of Education (Talat, 1926, p: 663). Looking at the content of the report it was seen that it focused especially on how and why handicraft lessons were given and the shape of the national education administration. Handicraft teaching attracted the most attention in all schools. It was seen that handicraft courses embodied other courses and helped students in understanding abstract topics. Furthermore handicraft courses plays an important role in identifying the abilities and skills of a child. The main objective of handicraft lessons is to grow children as artists. The schools which applies handicraft courses in order to improve the creativity of the children give these courses in the mornings. Our handicraft courses could not get rid of systematic form yet. In Romania, other lessons were tailored to real life through handicraft courses.

The views of the famous pedagogues of the era like Stanleyhull, John Dewey, Rabelas, Dalton, Bedalez, Herbart, Feriyyer and Kuzine was given place in schools. In Hungary, another country which was visited, it was observed that education and teaching methods were made more democratic and streamlined to teach national discipline.

It was also seen that scouting organization was given a great deal of importance in Hungary schools. According to this result, that Hungary education system is more developed than Romania education system was included in the report (Talat, 1926, p: 665). While examining the tools that has an effect on a child's education, it was observed how they used tales in education and teaching. Every nation has many heroic legends. These legends arouse a national joy in children. However, another important issue which attracted attention was that parents should not tell fairy tales to their children. It was observed that this was given great importance in Europe. It was observed that heroic legends, family history and family names were benefited from in teaching the national discipline and these subjects were included in curriculum. Another factor in teaching the national discipline is parks and gardens. Children develop their creativity in these places. When it comes to school buildings, it was stated that the more historical the school buildings are the more effective they are on children's feelings. Another instution in teaching the national discipline was libraries. Reading houses were opened to address this need in villages. Cinemas and theaters (especially in Hungary, there are many children's theaters), national museums, national music and national language were used in teaching the national discipline to the students. It was witnessed that libraries, health homes, dance halls, public baths, and pianos were used in education all around Hungary. Villagers are given lectures by the doctor or the teacher once a week. The aim of these efforts is to improve national discipline in villagers (Talat, 1926, p: 671).

2. Mr. Ismail Hakkı's Report:

Another report was given to the Ministry of Education by Mr. Ismail Hakkı (1925), a handicraft teacher in Ankara Teacher Training Institue, who was sent to Europe to examine vocational schools (İsmail Hakkı, 1341/1925, p:46). This report gives information about vocational education in Germany, the Great Britain and Czechoslovakia besides emphasizing the importance of vocational and technical education. In this report(İsmail Hakkı, 1341/1925, p:47): The most important mission of the government in economic life is to educate the citizens so that they become productive members of the society. The need to educate productive citizens requires giving importance to vocational discipline, and educate people like apprentices, craftsmen, workers and day laborers. Since our presents schools cannot act in accordance with this purpose, there is need to adapt our education institutions to economical needs of life and ongoing changes. Governments of the civil countries focused their attention on general and vocational discipline of their citizens and become countries that we need to examine.

German Trade Schools(İsmail Hakkı, 1341/1925, p:47)***:*** Contemporary trade schools in Germany has their roots in "Sunday Schools" in the 18th century. Sunday schools and new schools opened with the name (Drawing Schools for Masters) formed a basis for trade schools. Trade schools were established along with the first compulsory schools. It was the Würtenburg government who established the first Sunday school and made it compulsory in Germany in 1960. These schools were opened in Baden in 1760 and in Bayern in 1771. Drawing Schools for Artists were established especially with personal efforts of teachers and mayors who wanted to eternalize the artists' schools. Artisans Community Regulations in 1816 made these schools compulsory for apprentices and craftsmen. In 1836, industry schools were opened in Mecklenburg Schwerin in order to develop the vocational knowledge and skills of the apprentices and headworkers and teaching them useful knowledge and skills. With the Prusian Industry Regulation in 1845 it became mandatory for apprentices to learn reading, writing, mathematics, civizilation and religion. The second developmental stage of trade schools started after 1870. There is no doubt that the government who shows outstanding efforts to undertake the education and discipline or the nation will not neglect vocational education. The laws made after this date makes it mandatory to go to these schools for two or three years for children who completed primary school, besides making trade schools mandatory for girls. Seperate vocational education programs and curriculums were prepared for girls and boys. German Vocational Schools Board was established in 1900. Munich Vocational Schools Board attracted attention and established the following organization which may set an example for Germany.

1- Munich Vocational Education Schools and Industry Schools (İsmail Hakkı, 1341/1925, p:48)

Munich vocational education schools were seperated into two divisions for girls and for boys.

A- Vocational Education Schools For Boys

In 1879, these schools were opened in order to increase and develop the knowledge which was taught in primary schools. In this school the profession that the students will be oriented was not taken into account. After 1900, students of these schools were seperated into professional branches. The aim of this education was to provide jobs to individuals. The duration of these schools were 3 or 4 years. There were 8-10 lessons a day and these lessons were given in two half days or one full day. One hour religion, one hour German, one hour accounting (account book), one hour civics and civilization were the main subjects.

Physics, chemistry, art, material and equipment lessons were added according to the needs of each class. In trade-related parts, trade lessons were important. Teachers who graduated from teacher training institues were employed for German, mathematics and civics courses. Important branches and numbers of these schools are as follows(İsmail Hakkı, 1341/1925, p:49);

1- 17 schools for smithery jobs

2- 7 schools for woodworking jobs

3- 7 schools for construction jobs

4- 4 schools for graphics industry jobs

5- 6 schools for food jobs

6- 4 schools for clothing jobs

7- 2 schools for agriculture and tranportation

8- 2 schools for paper and lesson jobs

9- 2 schools for trade jobs

10- 3 schools for other jobs like music, dentist, clerk training

B- Vocational Education Schools For Girls

These schools have two classes. 6.5-9 hours of daytime courses are given a week. They are seperated into industry and trade departments. Compulsory courses in the industry department are religion, home economics and health, general manners. Apart from these compulsory courses handicraft for women, French, English, industrial drawing are also given as optional courses. Compulsory courses in the trade departments are religion, German for telecommunication and trade along with trade courses, accounting, banking, account book keeping, stenografi, French and English courses were given. The important branches of trade schools for girls are as follows(İsmail Hakkı, 1341/1925, p:51).

1- Bakery

2- Tailoring

3- Fashion

4- Accounting

5- Marketing

2- Professional Expertise Schools for Apprentices

There are two schools of this kind which gives 30 lessons a week. One is wood sculpture school and the other is dressmaking school. Apart from these two professional expertise schools, schools for apprentices are divided into two large groups(İsmail Hakkı, 1341/1925, p:53):

1- *Sunday and Night Professional Expertise Schools for Apprentices and Craftsman:*
Foundation of the schools is based on the idea of equipping students with scientific, agricultural, commercial and industrial knowledge. Women developed themselves by taking part in needlework, tailoring, cloth washing, ironing, cooking, working as a maid, shoe making, tie making and toy production.

2. Weekday Professional Expertise Schools: These are schools which gives education in certain days according to certain clasess like industrial schools. They consist of branches like construction, jewellery, stonemasonry,

locksmithry, graphics industry, carpentry, woodworking, decorative painting, glass and pocelain painting, sculpture, coppersmitry.

Industrial Schools and Industry Education in the Great Britain

Almost all British children took industry education in certain periods of their lives. Using basic tools, learning their characteristic through experience, recognizing building materials, understanding aesthetic through producing something, experiencing the joy of applied learning, training the hand and the eye, strenghtening the children's wrists are the most important objectives of British schools. Massive bridges, perfect railway works, building stores whose some floors are hidden underground, construction of factories, use of natural resources in industry, producing nice and durable goods indicates that vocational education achieved its objectives in the Great Britain(İsmail Hakkı, 1341/1925, p:59):

Works which start in the kindergartens of public schools in accordance with Froebel, Montessorie model, paper crafts, basket weaving, carpentry starting with basic wood work with a simple knife, sculpting, wire work, model making, housework for girls, handicraft for women, cooking methods in primary schools formed the basis of industry schools. Industrial schools in the Great Britain are divided into two groups as industry schools and expertise schools. First group; prepares children to jobs which requires handicraft skills like carpentry, shoemaking, tinkering, and so on. The second group trains people who will work in expertise areas like electrician, decorative painter, civil engineer. "Barbados Technical School" can be an example of the first group schools and "Art and Product Centers School" can be an example of the second.

William Berker Industrial School (Barbados Technical Schools)***:*** This school is located in Hertford Town and it belongs to Barbados Institues. It has four buildings consisting of a dining hall, a dormitory, laboratory, a library, a gym, machinery and shoemaking, tinkering and printing branches and vinegrowing rooms. Primary school graduates are accepted to Barbados institutes. Vocational education is given with the newest methods, tools and machines at this school(İsmail Hakkı, 1341/1925, p:60):

Professional Expertise Vocational School of London(İsmail Hakkı, 1341/1925, p:62) (Art and Product Centers School)***:*** This school is a industrial expertise school located in an industrial district of London. Carpentry, coppersmithry, porcelain works, drawing modelling lessons are given by famous artists and craftsmen. It has two groups of students as boarding and day students. It is a coeducational school. Teachers are selected carefully. It was seen that teaching tools are very modern and workshops are in excellent condition. There are enough workbenches and equipment available for each student.

Czechoslovakia Education Institute Vocational Schools

There are two types of vocational schools in Czechoslovakia. High and Secondary Vocational Schools, Compulsory (primary) vocational schools. The first was constructed on four classes. Graduates of these schools go to high schools. Compulsory vocational schools were opened to improve commercial, agricultural and vocational knowledge and skills in children.

Students have to graduate from primary school or graduated from the fourth year of secondary school to qualify for the entrance test to the first group schools. The students who wants to go to second group schools have to complete the mandatory education. In addition to this, the students who did not graduate from primary school can also go to compulsory vocational schools after taking a simple exam. Both of these schools are managed partially by the government and private institutions. There are three kinds of vocational schools(İsmail Hakkı, 1341/1925, p:63).

1- Trading school

2- Art and ve job schools

3- Craftsman and minor arts schools

These schools were directly managed by Ministry of Education.

Commercial Schools:

a) ***Trading academies.*** Duration of these schools is 4 years. Trading academies accept students who graduated from secondary school with a good grades without an exam. The students who graduated with low grades and the students who graduated only from primary and high school has to take a language, mathematics and geography test. Trading academies offer the most comprehensive knowledge and skills from all branches of trading. Graduates of this schools can go to Higher School of Trading. Students who will go to higher school of trading take a proficiency test. This is a written and oral test. There were 34 trading academies in Czechoslovakia 22 of which were Czechoslovak, 9 were German, 2 were Magyar and one was Ruten. %16 percent of the students at these academies were girls. There are 8 academies managed directly by the government.

b) ***One-year and two-year trading schools***: This school only teaches trade related knowledge.

c) ***School for Artisans***: Duration is two or three years. It is for apprentices in trade business and compulsory.

2- ***Vocational and Industrial Schools:*** The purpose of these schools is to provide vocational knowledge and skills training for whom wants to prepare for small industry craftsmanship. They have a number of structures and curriculums. Some of the vocational and industrial schools train individuals who will be managers at various trade branches. Academic staff of these schools also varies. Some of the teachers have high school degree while others graduted from secondary school and some even didn't have a secondary school degree. Individuals who were trained in experience schools are considered more suitable for teaching in these schools. Main types of these schools in 1923-24 are as follows: Industrial schools, Expertise schools, other vocational schools, school for preparation to a women's job (home management school, hospital knowledge schools, young lady public schools) and courses for young people who are in minor arts and trade business.

High Education(İsmail Hakkı, 1341/1925, p:65)***:*** High education is diretcly affliated to the ministry of education. Their expenses are paid by the government.

Prague German Universty High Technical School:

There are four high tecnical schools in Czechoslovakia. Two of these are in Prague. One of them is German and the other is Czechoslovak. Structure of these schools are same as the university. Departments of Prague High Technical School are: High Road and communication department, High School of Engineering, High School of Arthitecture, High School of Mechanic and Electric Engineering, High School of Chemistry-Technology.

1- High School of Trading

2- High School of Industry

3- German High School of Industry in Prague (Opened in 1803)

4- German High School of Industry in Berto 1849

High School of Metallurgy 1849, High School of Agriculture 1849, Yüksek Maden Mektebi 1849, Yüksek Ziraat Mektebi 1919, School of Fine Arts 1799, Independed University of Ukraine : Opened by Ukranian nationalists in Prague. It has a School of Law for Russians. It was also seen that there is a music school, a national conservatory school, High military schools, librarian, stenographer and driving schools(İsmail Hakkı, 1341/1925, p:64).

3. Moscow ambassador Mr. Zekai' Report

Another report which was submitted to Ministry of Education is the report about Russian Education by Moscow ambassador Mr. Zekai in 1926. When the content of the report was reviewed, the reform in the Russian education system was described as follows. It was seen that they used theatre, cinema, private papers and illustrated plates to educate people more widely than Europeans (Zekai,1926, p:33). It was also noted that some new methods called wall newspapers, live examples, and comparative tables are used in crowded places. Due tp widespread illiteracy in Russia new methods which used eyes and ears (learning by experience) were developed besides learning by reading and writing(Zekai,1926, p:35).

Handwritten wall newspapers were organized directly by children and workers, in public libraries, recration rooms in factories, public clubs, on steamboats and in every classroom of the schools. They include comparative tables and statistics which was shown with diagrams, colors and illustrations (Zekai,1926, p:35). One of the most significant reforms in Russian schools is that students govern themselves. Classses are divided into teams in Russia. Each team has ten members. Every team has a chief. There is also a class commitee consisting of these chiefs. In addition to this, commissions are formed in schools.

Some of these comissions are(Zekai,1926, p:36);

1- Library Administration Comission

2- Good Manners Comission

3- Wall Newspaper Organisation Comission

4- Schoolyard Comission

5- Aid to a Smaller Village School in the Neighbourhood Comission

6- Travel and Trip Comission

7- Buying from Worker Cooperatives Comission

I. Report of Secretary Mr. Nafi Atuf and Chariman of the Inspection Comission Mr. Ridvan Nafiz.

Another report which was submitted to Ministry of Education is the report of Secretary Mr. Nafi Atuf and Chariman of the Inspection Comission Mr. Ridvan Nafiz who visited Russia to examine the education life and organisation in the country. In this report (Nafi Atuf and Rıdvan Nafiz, 1926, p: 2);

It was noted that Republics of Socialist Board are independed, each republic has its own education comission and these comissions organize the education activities according to needs of the country. For this reason, there are some differeces in curriculums and regulations in education board of each republic(Nafi Atuf and Rıdvan Nafiz, 1926, p: 3). In the tractate which was given in order to have an idea about Russian education; the purpose of the education comissions was explanined as follows(Nafi Atuf and Rıdvan Nafiz, 1926, p: 4).

1- Facilitate the development of national economy in line of socialist principles and to increase the productive skills and abilities.
2- To educate people in line with communist principles.
3- To promote general culture and national civilization of the people all around Russia.

Mr. Nafi Atuf and Mr. Rıdavan Nafiz visited each education comission and received information from their chiefs. Mr. Nafi Atuf and Mr. Rıdvan Nafiz also spent time with students in boarding schools and interviewed their teachers, visited the villages and saw village houses, went to factories and visited the nearby schools which were opened in order to train skilled, knowledgeable workers(Nafi Atuf and Rıdvan Nafiz, 1926, p: 13).

Mr. Nafi Atuf and Mr. Ridvan Nafiz's report on Russian education includes information about, central and provincial organizations, inspection, education organization in the province, budget, school organization, preschool education, museums, school education, vocational schools, the first vocational schools, secondary vocational schools, Moscow fabric teknikum, labor schools, higher vocational schools, worker courses, other children's institutions, teacher training, and pedology institute. These were explained in detail in the report.

It was observed that the general view of the new Russia which is different from all other countries is not similar to tsarist era. That was described with great importance for the survival of the new regime. *To transmit the new principles and ideas to the people, to take the necessary steps to grow a new generation who will defend and preserve the new regime ny faith, organize the education and schooling according to this and re-establish the education instituties in line with the aim of the state.*

Lunacarsky states that raising an underdeveloped people inwardly requires a very active and tiring work. Russian schools are getting more and more developed in line with communist pedagogy. School is seperated into three groups as good, almost good and underdeveloped. A number of good schools are performing an important task in training teachers. Education administrators work very hard for developing the other two schools to the good schools level.

Lunacarsky points out that the Russian education is in a phase of gaining experience and developing. Some of the most important departments of Russian Education Comission Organization is as follows(Nafi Atuf and Rıdvan Nafiz, 1926, p: 15).

1- *Education board*: Divided into pedagogy, political education, technical education, fine arts, and province based curriculum etude branches. This is the comission which prepares curriculum, identifies the methods to administrate and evaluate the education processes, and guides schools according to data gained from this evaluation process. Each agency submit their projects to here. The comission gives these to pedalogy and pedagogy institue (there are two institues of this type in Russia). The comission declares its final decision after taking the opinion of the institue. Members of this comission are elected for one year.

2- *Social education agencyi*. The only vocational school, its tasks are common education, primary education, infant education and nursing, education of people with disorders, improving teacher quality.

3- *Vocational Education Agency: This* agency is engaged in vocational education and schooling, and it is divided into five branches.

4- *Political Education and Unschooling Agency:* The structure of this agency is more complex than the others and it has fifteen branches. It is engaged in organizing the fine arts education of the people, increasing social and intellectual level of people, and adopting people to sommunist principles. The new Russia expects a lot from this agency. It's branches are: a)Education in villages, b) Education at home, c) clubs, d) Fine arts education, e) educating the illiterate, f) Communist newspaper, g) Libraries, h) Book knowledge, i) Exhibitions, trips, j) Drawing, graphic, program, etc. This agency is managed by Lenin's wife Krupskaya. Krupskaya plays an important role in the political life and has a strong authority in Russia. A daily paper is published for teachers working in this field by this agency.

Supervision(Nafi Atuf and Rıdvan Nafiz, 1926, p: 16): The central office of education instutions is supervised by Rusya'da maarif müesseseleri merkezi, area and borough inspectors.

Education Organization in Provinces consists of five agencies. These agencies apply the orders of their administration. Their duties are(Nafi Atuf and Rıdvan Nafiz, 1926, p: 19)**;**

1- Discussing the curriculum and methods and adaptinbg and correcting the curriculums given by the state considering the local needs.

2- Introducing new curriculums to the teachers and guide the teachers in applying them.

3- Evaluating the applications of schools which want to engage in pedadogical experiences and guidig them.

4- Observing the publication activites between provinces. Benefiting their experiences.

School Organization: Schooling philosophy of Soviet education is expressed as follows(Nafi Atuf and Rıdvan Nafiz, 1926, p: 24).

1- Productive and creative activites must be the axis of every school. A child must grow up with pleasure and love of work.

2- Laboratory applications which will encourage children to engage in activities and promote their invention and production skills must be given importance in education.

3- Embedding principles of self management rather than appliying old discipline methods which demands unconscious obedience and puts pressure on their will by threatening them with disciplinary penalties. Schools must be encouraging and attractive homes homes rather than being gloomy and repulsive places.

4- Schools must open their doors to the public and nature, emphasize field work and encourage students to interact with social, economic and political activities in their environment.

5- School must not only observe the life in the city or village it is located in but also take an active role in their work life.

6- Schools will observe the labor movements both in developed countries and other countries carefully, will encourage students to take part in political life, give importance to train them as citizens equipped with skills to compete in political struggle they will encounter in the future.

7- Discrimination in the education of girls and boys will be ended, both genders will be encouraged to participate social life under equal conditions and with equal rights.

Preschool Education: First education insitutes, kindergartens and nurseries are open 6 hours a day. Education language is the mothertongue.

School Education: In the Soviet countries, primary and secondary education were combined and a new structure that is called polytechnic single job school was formed. This school is open to students between 8 and 17 years. Schools were divided into nine groups or nine classes. Schools consist of two grades. The first grade has four groups and the second grade has five. Second grade was divided into two periods. First period consists of 3 groups and the second period consists of 2 groups. The purpose of the first period was explained as follows: It is to educate students as conscious citizens of the Soviet Republic. The purpose of the second period is to prepare consciuos and licensed workers for certain jobs. Students are accepted to these groups with exams except the first group. Students are included in the groups according to their own choice. School defines the proper group for the student after a two-week observation period. Transition from one group to another is done by school commitee. Students who gradute from the second period earn the right to high schools. ın both periods, students can join social life if they opt not to go to high school. Curriculums were planned on this basis(Nafi Atuf and Rıdvan Nafiz, 1926, p: 26).

There was not an agency for vocational education in Russia before the Revolution. Vocational schools were shared between various ministries as is in our country. It is planned and executed by vocational education comission at present. Types of vocational schools are as follows:

1- *Factories and Workshops, Fabrika ve İmalathaneler*, these schools are affliated to agricultural institutions (primary vocational schools): established on the first part of single job school and its studetns are (14-17) years old. These are opened under the supervision of agricultural, industrial or commercial institutions. Puprpose of these is to have the young generations complete the general education and train them to be skillful and intellectual workers in line with communist discipline. These are divided into three divisions. Indutrial

Aprrentice schools, agricultural apprentice schools and commercial apprentice schools. Classrooms were removed from these schools and laboratories were implemented. There are separate laboratories for various lessons in the school. All expenses of the schools are met by workshops.

2- *Teknikums (Secondary middle vocational schools):* Middle vocational schools: The purposes of these schools were explained as follows. It is to supply mid-level experts to various business branches and train good workers. The duration of middle vocational schools is 3-4 years. Students have to be 15 years old and be graduated from the second grade first period of the single job school or primary vocational school. Students do not have to take a methodic ability test for being accepted to either first vocational schools or teknikums.

Information about the criteria for being acceptance to these schools, if they take the students choices and requests or abilities into account, how their abilities are identified if it is taken into account was requested from the vocational education agency. But it was stated that the studies on this matter is still in progress.

While the expenses of factory schools are met by factories, expenses of the teknikums are met by the state. Types of teknikums are: general agriculture, field and agriculture expertise, forest, cadastre, vegetable growing, fishing, topography, mechanic, construction, chemistry, metallurgy, textile, printing, tractor, agricultural machine building, cinema, fire department school, precision equipment (cadastral survey tools), private faculty, medicine, trade, cooperative, accountant training, trade goods, fiscal management, various trade branches, fine arts (painting, music, graphic arts), art teacher training schools, sculpture, theatre, music schools (Nafi Atuf and Rıdvan Nafiz, 1926, p: 28).

3- *Labor Faculties****;*** Labor Faculties, are instutions whih prepares the skillful workers for higher educaiton as quickly as possible and provide their students medium level knowledge. The duration of these faculties are 3 years for day classes and four years for night classes. School is free of charge. Requirements for these faculties are(Nafi Atuf and Rıdvan Nafiz, 1926, p: 33);

To be between 18-30 years old, literacy, minimum 3 years work experience in production field. Labor schools are divided into for sections after second grade.

1- Technical(prepares to high technical schools)

2- Biology(prepares to medicine, veterinary, agricultural institutes)

3- Socio-economy (prepares students to schools of this type)

4- Pedagogy(prepares students to pedagogy institute)

Russian education comission made the following statement about labour faculty. “

Rusya maarif komiserliği amele fakültesi konusunda şu açıklamayı yapmıştır. *“Like all other countries under the governance of bourgeoisie, peasants and workers received a very small share of education in tsarist Russia. What peasants and workers learned in the religion school of tsarist Russia was not more than the alphabet and prayers. Sometimes with the rare help of fortune, some of them got access to the high primary schools. In these schools, they trained few and mediocre people for management and techinical labor. It was very difficult for children of peasanst and workers to overcome these difficulties. Duma (legislative comission which was active in tsarist Russia between 1905 and 1917) deemed it necessary to allow peasants and workers to take high education in 1912. But the 6 year debates were fruitless. Temporary government could not show courage on this matter. We had to wait for the October Revolution and the victory of peasants and villagers before the horizons of higher education could be opened to these classes of the society. Soviet government planned to educate the best and competent workers to achieve this. Soviet government struggled to gain access for to these high schools which were controlled by proletarians for peasants and workers persistenly and achieved it. Thus, gradutes of labor faculties have access to higher schools without any exams.*

4- Courses for Major Labor: Labor Courses; Apart from labor faculties and primary and middle schools, there are training courses for elder workers who has professional abilities. The purpose of these courses to;

1- Put non-qualified workers to qualified category

2- Increase the qualifications and skills of the workers

3- Training qualified workers as expert instructors

5- High Vocational Schools: These schools accept graduates single job school graduates and teknikum graduates who wants to be promoted further with an entrance exam and the gradutes of labor schools witout exam. The purpose of high vocational schools; training experts for various social activities; prepare good educational environments at science, applied science institues and especially at high vocational schools. Providing higher education to a large portion of peasants.

Other Children Institues(Nafi Atuf and Rıdvan Nafiz, 1926, p: 36)**:** There are some institues for children in Russia. These are, mother and chil homes, forestry schools, institue for abandoned children, hospitals for children with syphilis and tuberculosis, orphanages, schools for children with disorders, detention homes for criminal children which are administered by Health Commission. Mother and child homes are located both in cities and villages. Institues for abandoned children cares children abandoned by their mothers. Another useful aspect of these schools is that they train expert women in child care.

Teacher Training: In Russia, primary school teachers are trained in pedagogy teknikums. Secondary schools teachers are trained in pedagogy insitute(Nafi Atuf and Rıdvan Nafiz, 1926, p: 38):. A pedagogy instute in Leningrad accepts graduates of nine-year single job schools. Students who complete teknikum education are accepted to first grade without any exams. Students who completes labor faculties can also register these schools without exams as they can register to other high schools and university branches. Exam is required only for disabled students. Individuals who graduated from other high schools can be accepted to first grade on if they want to go register.

Duration of the institute is four years. Student start job training at single job schools in the third year. They visit sample schools in the third year and work as a teacher in the fourth year at single job schools. Students habe to take these exams to be accepted to the school(Nafi Atuf and Rıdvan Nafiz, 1926, p: 39).

1- Sociology

2- Russian Language - Oral

3- Physics and mathematics

The institute consists of nine branches:

Social-Economic (trains literature, history, economics and geography teachers), language (Russian, German, French, Latin, Finnish were added to languages), physics and tecnhnique, (trains mathematics and phyisics teachers), Biology-chemistry (trains nature and chemistry teachers), preschool education agency trains principals, counselors and organizators for infants, psychology and pedalogy agency prepares psychology and discipline teachers for pedagogy teknikums, Social-judical pedagogy agency trains teachers who will interact with criminal children, trains teachers for deaf, blind and people with mental disorders, physical education branch organizes courses to prepare seniot teachers to new schools. On the other hand, technology institue opens courses for technical education teachers and agriculture institue opens courses for agriculture teachers.

Pedalogy Institute (Nafi Atuf and Rıdvan Nafiz, 1926, p: 40)**:** This two year old institute has a scientific purpose. It is divided into three parts.

1- Method and Program

2- Pedology and Pschology

3- General Pedadogy

Pedalogy institute mainly focuses on children living in villages. Institute has a newly build pschology laboratory. The institute has recently worked on;

1- How should schools programs be organised?

2- How should counrty information be included in the curriculum?

3- How should Dalton plan be applied?

It was also seen that the pedalogy institute exchanges information with many countries in Europe and the United States to conduct international projects.

II. Ministry of Education Student Inspector Mr. Ahmet Hilmi's Report 1:

When the the report about Forestry Schools and Vocational Education in Germany which was sent by Ministry of Education Student Inspector Mr. Ahmet Hilmi was revieved, it was seen that it focuses on school systems that were developed for students who need special education (Ahmet Hilmi, 1927a, p:8).

Forestry School – Open Air School: Valdschule- Forestry school – Education methods of Open Air School is similar to urban schools. The difference between them is that the child is always clean air and under the shining sun they are relaxed and motivated. Valdschule teacher is very careful in education and schooling. The teacher shows a great effort to grow children healthy, improve them intellectually and prepare them to life (Ahmet Hilmi, 1927a, p:10).

Economical Mechanism of Valdschule: Woman unions, child protection agency provides a great support. This school continued to exist with the support of rich families(Ahmet Hilmi, 1927a, p:12).

Government offices that are responsible for preparing the Turkish youth to life : Child Protection Agency, Red Crescent and charities like these have to give great importance to use forests and open air systems. I wholeheartedly wish that Republic of Turkey would keep the extraordinary efforts to grow the young generation as strong and healty individuals systematically and open similar institutes. As a result of this research I want to declare my opinion[1].

1- Health training should be an objecitve of education.

2- Every province need to have several school doctors and they need to be prepared by school health courses during their medical education (medicine students in Germany take school health courses and cooperate with schools)

3- Books about health education should be translated and published.

4- Especially in our cities, one or two open air schools should be opened in the most airy, wooded, highland places of every city or around them.

5- Urban schools should organize holiday camps in our most beautiful forests, mountains, vineyards and orchards, seashores or riverbanks.

6- Besides paying great attention to food in boarding schools, food and air aid should be provided to poor children.

7- Schools should have big yards and lectures should be given in open air if possible. NOTE: Especially Heybeli and Buyukada orphanages can be converted into open air schools and Adalar, Camlica, Mount Alim, Kartal, Yakacik, Bosphorus shore, mountains and forests should become headquarters of students army during summer holidays.

8- Physical examination of chilren should be given importance at schools and transition of children who need open air schools these places for a small fee should be compulsory.

9- In cities, towns, dirty places where children play should be cleaned and covered with sand and the surrounding of these places should be landscaped and converted to good playgrounds and municipalties should take care of this issue.

10- Building several modern sports facilities in every city should be compulsory.

Support School Organization: Children with mental difficulties spend the first year in primary school until their handicaps are identified. After a six year education in support school, they can take the first four year's training of the eight year public school. To be more open, it takes two years for these to learn things which normal children can learn in one year. Support schools do not accept students directly. Children are sent to these schools from other public schools' B classes or on the urgent need reported by the school doctor. Support schools were divided into departments according to disability level of the children with mental difficulties. There are seperate institues for more serious cases(Ahmet Hilmi, 1927a, p:14).

Students of support school is morally or mentally weak. These children are not only mentally disabled but also have self management and emotional problems. Support schools integrate these children with mental disorders to social life. Support school system will represent a honorable page in the history of education. Support school monitors the students for years even after they graduated**.** The first legislation on teacher training for support schools was done in 1909 (Ahmet Hilmi, 1927a, p:15).

I. VI. Ministry of Education Student Inspector Mr. Ahmet Hilmi's Report 2:

After Mr. Ismail Hilmi, another report about German vocational education was sent to Ministry of Education by Education Inspector Mr. Ahmet. In order to attract attention to education, he starts his report as follows(Ahmet Hilmi, 1927b, p:1).

.... In this part of the report about the instuties some of which I had chance to visit personally, my purpose is to present an outline of the vocational education institue, recognize their names and mention other organizations which help it by summarizing the most important points.

As an example we can mention the importance of a chemistry lab and chemistry education in brickwork and tile production education and application which seems very simple. Also in shomaking schools which seems very

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[1] a.g.r., .14.

simple, students study foot anatomy and learn different foot structures through plaster foot models and learn foot diseases. This means they are not ordinary shomaking schools but institues that are opened to technically improve young craftsmen. Another point I noted in my report is that people who are working in that area were employed in vocational institues. In some places they formed tradesmen and craftsmen societies, in other places these institues are supported by governments or municipalties. This report also mentions the relationships and interactions between vocational schools. Painting schools interacts with textile schools; textile schools interacts with tailoring schools and all of them have relationships with trade schools and these interact with muralist schools. Especially in industry, drawing has an important role for every profession.

High Vocational Schools: Their organization must be explained before talking about the aim of vocational schools. There are 11 Science High Schools in Germany today. 30 metallurgy schools were added to these. Requirements for applying science schools. Graduates of science schools or Oberrealschule and Chemnitz Industry Academy or Bavyera Industrieschule are accepted. There is no entrance exam. When its organization eamined it consists of following branches(Ahmet Hilmi, 1927b, p:6):

1- High Construction department (architecture)

2- Engineering department (civil enginering)

3- Mechanics department (Machine building, electirical installations, factory management)

4- Chemistry department (Chemical installations and factory management)Chemical engineer

5- General department (mathematics and nature)

Gradutes of Science High Schools usually have the “high engineer” title and have PhD degree.

Secondary Vocational Schools (Teknikums): There are secondary vocational schools and junior vocational schools all around Germany in addition to these. These are state, private, municipal or some are administered by factories or companies. Secondary vocational schools are divided in to two sections as secondary engineering division and machine building division. Engineering division(mechanical and electirical engineer), machine building department trains formens and technical officers. The first division’s duration is five semesters, the second division’s duration is three semesters. Konstanz teknikum has the same characteristics too. Graduates of oberschules are accepted to technical schools like these. According to requirements of the job, one to three years experince in a factory is compulsory. (Ahmet Hilmi, 1927b, p:18).

Vocational Courses: A course was opened at Charlotenburg technical high school in Berlin for vocational school teachers by Prussian government. These courses are in five indutrial branches(Ahmet Hilmi, 1927b, p:23).

1- Mining Industry : machinery, electirician, locksmitry, stove making, technical drawing, tool courses, material courses

2- Construction industry:

3- Industrial decoration. Decorative drawing, graphics, drawing methots education, occupational accounting

4- Food industry: Practical training for grain, chemical and occupational knowledge, techical drawing, material courses, tool courses, bakery, butchery, pastry, cooking, etc…

5- Clothing indutry: Tailoring, shoemaking, knitting, greenhouse farming, technical drawing, applied training, material courses and the history of these arts.

Teacher courses offer lectures in religion, teaching methots, civil knowledge, economics, German, physical education regardles of the branches.

Other vocational schools in German are(Ahmet Hilmi, 1927b, p:23-26).

1- Construction Works school

2- Machine building schools

3- Business schools

4- Textile schools

5- Handicrat and fine arts school

6- Private vocational schools

7- Farming schools

8- Photography school
9- Leatherworks school
10- Tailoring school
11- Food Industry schools

CONCLUSION

When the content of the reports were viewed, what took the most attention in the curriculums was they suggest that handicraft lessons form a basis for other lessons. It was also seen that tales, child names, family history, cinemas, theaters, libraries, parks and gardens has an important role in national education. It was noted that the basic idea is to grow each children as a productive member of the society and that vocational and technical training were given in the scope of formal education.

It was understood that vocational and technical education started earlier in Germany than other countries. The first Sunday school was opened in 1960. Due to this experience it can be stated that Germany is more advanced in the vocational and technical fields. Many schools were open in iron, wood, construction, graphic industry, professions related to food, clothing, agricultural transportation, paper and lesson works, trade professions, music, dentist, clerk training areas with 1900s. In Germany, formal schools were open in the fields like bakery, tailoring, fashion, acounting, marketing in order to provide jobs for girls.

The basic philosophy of the British education system is also to train each individual as an expert in a profession. It was noted that vocational and technical training institue teachers were selected carefully in Germany and the Great Britain. Czechoslovakia applied German model in the education system and many schools in Germany set examples for Czech people.

Russian education system was introduced the public in a socialist frame after the revolution. Effort were made to train each individual to have a profession and be productive. It was seen that pedagogy institues played an important role in the curriculum development process. Studies were made to train students so that they would have self management skills and be responsible members of the society. Vocational and technical training had a very important place in the Russian education system as it did in Germany and the Great Britain and it was seen that they continued their education at the Polytechnic schools. Education of individuals who need special training had an important place in the German education system. Both treatment and jobs were provided for these students. Through sanatorium schools.

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Analysing The Factors Affecting Student Achievement In E-Learning Education

Eser GEMIKONAKLI
Institute of Applied Sciences,
University of Kyrenia, Turkey

Tolgay KARANFILLER
Computers and Instructional Technology Teacher Education, Faculty of Education
Cyprus International University,Turkey

ABSTRACT

This study investigated the factors that affect student success in an online computer course. In this research, the authors developed a questionnarie and several dimensions were taken into account for it to shed light on student achievement in e-education. Students, who have taken the above-mentioned course which is taught in English in the academic year 2015-2016, participated in the study. The differences in overall marks of such students were investigated to find the underline reasons for the differences in the performance of such students on the online programming course. Information obtained on demographical data, such as educational backgrounds and lifestyle factors were examined. Data obtained from around 482 students were analysed by using SPSS v.21. Results obtained from this research showed that the performance of the students who have taken this online-computer course for the first time were highly affected. Moreover, the academic performance of working students is directly related with the prior e-learning experience.

1. INTRODUCTION

During the last decade, advances in information technology and the Internet have affected educational delivery methods. Therefore, the idea of using online education for learning has been caused a noticeable interest with the development of e-learning in universities. Hence, some studies have focused on finding out the factors affecting student success in e-learning education which may affect the universities policies about course offerings, student support services and assigning resources for instructional technologies (Bubaš, 2008; Colorado, 2010).

From the student's perspective, the reasons for taking online courses instead of traditional courses may be varied due to their needs and challenges. Today, unlike the traditional behaviorism approach, the use of instructional technology under the principles of a student-centered constructivist approach is more demanding among working students because of its flexibility of hours (Dobbs, 2009).

Educational backgrounds may be another factor that influence student success. Some of the existing studies indicated that having prior experience in e-learning should be taken into account as planning an effective learning environment to improve student success(Colorado, 2010). According to (Haverila, 2011), having prior experience with e-learning influenced the perceptions of the students and this may affect their success in e-learning courses.

This study aims to analyse the factors affecting students success based on their educational background and life styles. For this purpose a questionnarie was developed consisting of a series of questions about demographical data of students.

2. REVIEW OF LITERATURE

Up to today, there has been a reasonable amount of reserach to identify the important factors for the student success in the field of e-learning. To date, the focus of published work has been largely on the impact of e-learning on students' perceptions and their contentments for academic success. Most of these studies considered motivational features affecting student's behavioral intention and usefulness of e-learning (Bubaš, 2008; Dobbs, 2009; Rhema, 2014). However, few of these studies have been looked the effect of having prior e-learning experience and its motivation to the student's perception affecting student success (Vidanagama, 2016; Hixon, 2016). Beside these studies, limited number of researchers argued the impact of demographical characteristics and working status to the student success in e-learning(Colorado, 2010; Pi-Tzong, 2012).
Dobbs (2009) believed that, having prior experience in e-learning is one of the significant dimension influencing student success. Therefore, Hixon (2016) have founded that advanced knowledge in e-lerning provided positive intention on students' perception and this leaded having better learning outcomes. In line with these studies, Haverila (2011) indicated that taking an e-learning course before is significantly correlated with achieved student success. On the other hand, Vidanagama (2016) stated that having prior experience has no effect to the perceptions of students for success in an online course.

Student age may be one of the significant demographical characteristic affecting student success in e-learning that needs to be taken into account. Therefore, Colorado (2010) indicated that student age did not significantly affect academic performance. In the line with the study mentioned above, Amro (2015) also indicated that online course did not impact the student grade.

Unlike the studies mentioned above, correlation between employment status and academic success in e-learning discussed in (Erdogan, 2008). According to Erdoğan, working status significantly affect academic performance in online courses. Hixon (2016) believed that employment status for working students has to be considered in connection with student experiences and perceptions. On the contrary,Battalio (2009) concluded that employment status did not significantly affect the student success in e-learning.

Moreover, it is concluded in (Pi-Tzong, 2012) that prior e-learning and working experience differences had no impact on students' perspective and their success in e-learning. Yüceltürk (2007) founded that employment characteristics on student success was inconclusive.

Hannay and Nawvine (2006) indicated that e-learning is an efficient way to learn more than traditional classroom (Dobbs, 2009). Also, the authors in (Dobbs, 2009) concluded that students did more readings in an online course than a traditional course.

THE STUDY

In general, this paper was motivated to analyse the factors affecting student success in e-learning. The results outlined in this paper mainly focused the impact of the students' age, educational backgrounds and their lifestyle factors to the student success. The following research questions quided the research presented in this article:

1. What is the relationship between student age and course performance?
2. What is the impact of having previous e-learning experience to the student success?
3. What is the impact of employment status to the student success?
4. Is there a positive effect of having previous experience to the student achievement for working students?

Almost 482 undergraduate students participated in this study. The course was offered in the academic year 2015-2016, at the fall semester, and delivered via e-learning platform moodle. Students' demographical characteristics collected were mainly consisted age, gender, e-learning experience and work status as given in Table 1. The majority of respondents were male (n=297) and 185 were female. Students' ages are varied from 18 up to 34 with the largest group consisting of individuals between the ages of 18 and 23 (%88.2). There were respondents in the 24 to 28 age group (%11.2) then the 29 to 34 (%0.6). Although most of the students took the course first time (%91.9), more than half of the respondents had e-learning experience before (%57.1). Over %74 of the students were not working during the course.

Demographic Factors		Frequency(N)	% of total(P)
Age (n=482)	18-23	425	%88.2
	24-28	54	%11.2
	29-34	3	%0.6
Course experience (n=482)	First time	443	%91.9
	Repeat	29	%8.1
Work status (n=482)	Currently working	125	%25.9
	Currently not working	357	%74.1
Gender (n=482)	Female	185	%38.4
	Male	297	%61.6
Elearning experience (n=482)	Having e-learning experience	275	%57.1
	Not having e-learning experience	207	%42.9
Grade (n=482)	A	9	%1.9
	A-	12	%2.5
	B+	26	%5.4
	B	30	%6.2
	B-	14	%2.9
	C+	47	%9.8
	C	48	%10.0
	C-	43	%8.9
	D+	76	%15.8
	D	91	%18.9
	D-	64	%13.3
	F	21	%4.4
	NG	1	%0.2

Table 1 Demographical characteristics of participants

The students' responses were assessed by the prepared questionnaire. The survey questionnaire was uploaded to moodle. The students accessed to the system and replied all the questions in a given limited time and therefore the data collection was carried out by using the moodle. All analysis were performed by using the SPSS v.21 for Windows. Considering purposes of the study, one-way and two way ANOVA, Independent sample t-test, and Pearson moment's correlation were figured out in data analysis. The statistical significance level was accepted as .05 in the study.

THE FINDINGS

In this study, the following results were found according to the problem statement and research questions of the study. For demographical characteristics involving more than two independent categories, one-way analyses of variance were conducted to compare the variable with academic performance. Independent sample t-test were used for variables using two categories.

According to the results obtained, the student's age did not significantly affect academic performance in e-learning course ($p=.001 < 0.05$). The findings in this research showed that there is a significant correlation between employment and course performance where non-working students had better results in e-learning course.

Similar to the study discussed in (Vidanagama, 2016), this study also concluded that there is no relationship between student success and prior e-learning experience ($p=0.690>0.05$). However, the authors found that there is a relationship between prior e-learning experience and course performance for working students ($p = 0{,}001$, $p < 0{,}05$), as provided in Table 2. Please also note that the average of academic achievement of working students who took before e-learning course was 0.29 while for others was 0.16.

Experience	N	P	$\bar{X}$	Sig.
working and having prior e-learning experience	48	39	0,29	.001
Working and not having prior e-learning experience	76	61	0,16	

Table 2 E-learning experience for working students

N: Number of Students who attend the study, P: Percentage of students who attend the study.

$\bar{X}$: Mean

	Freqency				P	$\bar{X}$
	Strongly Disagree	Disagree	Agree	Strongly Agree	df	
Working students	15	104	206	34	.000	0.31
E-learning experience	15	104	206	34	.000	0.71

Table 3 Working status and e-learning experience effects on students' perceptions

In Table 3, the impact of working status and e-learning experience on student's perceptions for academic success was evaluated. To obtain the result, one-way Anova test was applied. It was asked to the participants whether e-learning is an efficient way to learn. The impact of e-learning on working students' perceptions was investigated and found significant differences for $p=.000<0,05$. The same question was used to evaluate the students' perceptions but this time considering the students who had prior e-learning experience. The results indicated significant differences among these students ($p=.000<0,05$).

Moreover, student academic success was compared against working status by using sample t-test. The part-time and full-time students' feedbacks were analysed. The findings indicated that student success did significantly differ in terms of employment status since $p=.01<.05$.

CONCLUSIONS

The results of this study has concluded that prior e-learning experience for working students has positive effect on the improvement of student success. According to authors point of view, having prior e-learning experience provided ease usage of e-learning platforms and this may be resulted to enrich the motivation of the students to have better grades. Therefore, the universities policies should be changed about course offerings. For the working students, workshops including some basic fundamental knowledge and the quidence for using e-learning platforms should be mandotory in order to register to any e-learning course.

It is also found that part-time students were more successful than full-time students. This may due to the reason of having overloaded working hours for the full-time working students. It is also conflicted with the idea that e-learning courses are more easier that traditional courses.

Moreover, it is found that student age did not impact the student success in e-learning. This showed that e-learning can be offered to all students in any age group as a lifelong education option.

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Analysis Of The Attitudes Of Pre-Service Science Teachers On Renewable Energy Sources

Mustafa UĞRAŞ
Firat University, Education Faculty, Elementary Science Education Department, Elazig, TURKEY
mugras@firat.edu.tr

Şeyma AKSAKAL
Firat University, Education Faculty, Elementary Science Education Department, Elazig, TURKEY
s.aksakal@firat.edu.tr

ABSTRACT

The present study was conducted to determine the attitudes of pre-service science teachers on renewable energy sources. Mixed methodology was used to determine the attitudes of pre-service science teachers in depth in the study. Study sample included 116 freshmen, sophomore and junior students attending Fırat University Faculty of Education, Science Teaching Department. Renewable energy sources attitude scale developed by Güneş, Alat and Gözüm (2013) and which has a reliability coefficient of .87, and an interview form were used as data collection tools. Study findings demonstrated that pre-service teachers generally had a positive attitude towards renewable energy sources. It was determined that training on renewable energy sources was important since there would be projects in classes in their future careers. Pre-service teachers stated that utilizing renewable energy sources would contribute to national economies and their development and the environment would be protected. Pre-service teachers demonstrated that Turkey was not a developed country in renewable energy use due to the lack of adequate technological infrastructure and awareness among the people.

Keywords: Socio-scientific subjects, renewable energy sources, attitude, pre-service science teachers.

INTRODUCTION

The development level achieved as a result of rapid increase in world population and industrialization came with several needs and problems. Energy leads these needs and humankind fulfill this need utilizing fossil energy sources. These resources cause different environmental problems such as global warming, acid rain and nuclear radiation (Akova, 2008). Furthermore, the possibility of depleting fossil sources is significant in underlining the need for a transformation to renewable energy sources (Avinç, 1998; Akın, 2005; Orbay, Cansaran and Kalkan, 2009; Doğan, 2011).

In a period where bearing towards renewable energy sources is necessary for a sustainable environment, the responsibility of teachers in creating the required sensitivity for this issue in generations is paramount. Educational activities that teachers conduct about renewable energy sources would enable the students to acquire a positive attitude on the issue (Kaldellis, Kapsali and Katsanou, 2012). Teachers who have positive ideas about renewable energy sources, would guide students in achieving adequate abilities to utilize these sources in their daily lives (Liarakou, Gavrilakis and Flouri, 2009). In this case, teachers' attitudes on renewable energy sources would affect the attitudes of their students on the issue.

Previous studies measuring the attitude and perceptions of teachers and pre-service teachers related to renewable energy sources were conducted (Güneş, Alat and Gözüm, 2013; Bilen, Özel and Sürücü, 2013; Saraç and Bedir, 2013).

Since renewable energy sources is a subject in science course curriculum, the present study aims to research the attitudes of pre-service science teachers towards renewable energy sources that are one of the most important methods to reduce pollution and for a sustainable environment.

RESEARCH MODEL

To investigate the attitudes of pre-service science teachers towards renewable energy sources in depth, mixed research method where qualitative and quantitative research methods are used in conjunction was utilized in the present study (Creswell, 2003).

Study Group

Study sample included 116 freshmen, sophomore and junior students attending Fırat University, Faculty of Education Science Teaching Department.

Data Collection Tool

To determine the attitudes of pre-service teachers towards renewable energy sources, renewable energy sources attitude scale for pre-service science teachers developed by Güneş, Alat and Gözüm (2013) was used. This scale contains 4 factors and the scale reliability coefficient was calculated as .87. An interview form was developed based on the analysis conducted after the scale was applied to pre-service teachers. Developed interview form was organized based on expert opinion and finalized.

Data Analysis

Data collected with renewable energy sources attitude scale for pre-service science teachers were interpreted based on never = 1.00 - 1.80, little = 1.81 - 2.60, partially = 2.61 - 3.40, considerably (4) = 3.41 - 4.20, extremely (5) = 4.21 - 5.00 ranges. Semi-structured interview data were assessed by the authors. To determine the reliability of comparative agreement, between the assessments of the researchers, Cohen kappa number was calculated as .80. This value shows that there was an almost perfect agreement between the researchers.

FINDINGS

The responses given by pre-service science teachers to renewable energy sources attitude scale were analyzed based on mean values and interview data were analyzed through categories.

Renewable Energy Sources Factors	$\bar{x}$
Willingness to Implement	3,06
Importance of Education	3,45
National Interests	3,60
Environmental Awareness and Investments	3,00

Table1: Pre-Service Science Teachers' Factor Averages in Renewable Energy Sources Attitude Scale

Renewable energy sources attitude scale factor averages for participating pre-service science teachers are presented in Table 1. It was found that the attitudes of pre-service teachers towards renewable energy sources education and its contribution to national interests were quite positive. It was determined that they had partially positive attitudes towards the willingness to implement applications related to renewable energy sources in their professional lives. Furthermore, they also had partially positive attitudes towards investments in these resources and the effects of these investments on the environment.

It was determined that they had partially positive attitudes towards the willingness to implement applications related to renewable energy sources in their professional lives. Based on this fact, a semi-structured interview was conducted with pre-service teachers. The thoughts of pre-service teachers on conducting applications related to renewable energy sources in their professional lives were scrutinized. The responses given by pre-service teachers are categorized and presented in Table 2.

	Categories	F	%
Thoughts of pre-service teachers on conducting applications related to renewable energy sources.	*Devices that could charge cell phones using solar energy could be developed.*	6	31.5
	Transportation vehicles that use RES could be developed.	6	31.5
	Devices that could charge computers could be developed.	5	26.3
	Devices that could charge home electronics could be developed.	4	21.05
	Solar panels could be installed on farm fields	1	5.2
	Initially projects to increase RES awareness could be conducted	1	5.2

Table 2: The thoughts of pre-service teachers on conducting applications related to renewable energy sources

Data analysis demonstrated that pre-service teachers had quite a positive attitude towards the view that students' awareness for renewable energy sources could be achieved with educational activities. Based on this finding, the views of pre-service science teachers on active renewable energy sources training in their professional lives were asked during the interview. The responses given by pre-service teachers are categorized and presented in Table

3.

	Categories	F	%
The views of pre-service science teachers on active renewable energy sources training in their professional lives .	*I would try to bring material to the class related to RES (such as weathercock)*	6	31.05
	I would explain the importance and benefits of RES.	5	26.3
	I let them to watch a related video first.	5	26.3
	I would design an experiment fort he students.	3	15.7
	I would assign a Project homework on the subject..	1	5.2

Table 3: The views of pre-service science teachers on active renewable energy sources training in their professional lives.

It was found that the attitudes of pre-service teachers towards the contribution of renewable sources to national interests were quite positive. Based on this finding, what would be this contribution to national interests was asked during the interview. The responses given by pre-service teachers are categorized and presented in Table

4.

	Categories	F	%
The views of pre-service science teachers on the contribution of renewable energy sources on national interests	*These would contribute to the development levels of the nations.*	9	47,37
	They would have a great contribution to national economy.	8	42,11
	If it would become national policy, more aware individuals will be trained and it would contribute to the increase in the number of qualified individuals.	2	10,52

Table 4: The views of pre-service science teachers on the contribution of renewable energy sources on national interests

It was concluded that pre-service teachers had quite a positive attitude towards the investments in renewable energy sources and the effects of these on the environment. Based on this finding, the views of pre-service science teachers on the utilization level of renewable energy sources in Turkey and its relationship with the environment were asked during the interview. The responses given by pre-service teachers are categorized and presented in Tables 5 and 6.

Views of pre-service science teachers on the utilization level of renewable energy sources in Turkey	Categories	F	%
	Level of use is insufficient in Turkey. Because the technology that could utilize these is not available in our country.	11	57.8
	Level of use is insufficient in Turkey. Because the awareness is insufficient.	8	42.10

Table 5: Views of pre-service science teachers on the utilization level of renewable energy sources in Turkey

Views of pre-service science teachers on the relationship between utilization level of renewable energy sources and the environment	Categories	F	%
	There is a direct relationship. Increase in RES use would result in more preservation of the environment.	19	100

Table 6: Views of pre-service science teachers on the relationship between utilization level of renewable energy sources and the environment

RESULT AND DISCUSSION

The present study was conducted to determine the attitudes of pre-service science teachers towards renewable energy resources. As a result of the study, it was determined that pre-service teachers shared partially positive views on renewable energy sources. This finding was parallel to the results of previous studies in the literature (Çelikler and Kara, 2011; Akçöltekin and Doğan, 2013; Bilen, Özel and Sürücü, 2013; Zyadin, Puhakka, Ahponen and Pelkonen, 2014). Pre-service teachers gave examples such as development of devices that could charge cellular phones using solar energy and manufacturing transportation vehicles that utilize renewable energy sources for applications in their professional lives. This finding was consistent with the results of a study by Bozdoğan and Yiğit (2014) in the literature.

It was determined that their attitudes towards the understanding that students' awareness for renewable energy sources could be established through educational activities were quite positive. Pre-service teachers stated that they head ideas such as developing related material and explaining the importance of these sources about the renewable energy sources training methods that could be implemented in their professional lives. This finding was parallel to the results obtained in a study by Bozdoğan and Yiğit (2014) in the literature.

It was identified that pre-service teachers had quite positive views on the contribution of renewable energy sources to national interests. They stated that renewable energy sources would greatly contribute to nations' development levels and economies. This finding was consistent with the finding obtained in the study by Seçken (2008) that renewable energy sources would contribute to energy savings.

It was determined that the views on investments in renewable energy sources and the effects of these investments on the environment were partially positive. They stated that these resources were not utilized sufficiently in Turkey, and that was due to lack of sufficient technology and awareness. Furthermore, they stated that as the utilization of renewable energy sources would increase, the environment would be preserved further. There are similar results in the literature (Avinç, 1998; Zeray; 2010; Bozdoğan and Yiğit, 2014; Saraç and Bedir, 2014).

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Analysis Of Views About Constructivist Learning In International Studies

Gürbüz OCAK
Afyon Kocatepe University, Faculty of Education, Turkey.
gurbuzocak@gmail.com

İjlal OCAK
Afyon Kocatepe University, Faculty of Education, Turkey
iocak@aku.edu.tr

Serkan BOYRAZ
Afyon Kocatepe University, Faculty of Education, Turkey
serkan.boyraz@gmail.com

ABSTRACT

Constructivism which depends on the idea that people learn new information by constructing it on previous knowledge and experiences have been the dominant approach in education for long years and every part of curricula is continuously reformed depending on the changes and improvements in constructivism. As a result, there are many studies investigating constructivism idea in many different aspects. The aim of this study is to present the tendency of studies selected by given criteria: i) consisting “constructivism”, “constructivist” or “constructive” in its title, ii) available in ScienceDirect and EBSCO databases, iii) employed survey method and iv) carried out from 2005 to 2016 (until March). Snowball sampling will be used to find other studies starting from current ones and going through the past. Documentary analysis will be used as the method of the study while descriptive analysis in order to present the data as it is and content analysis in order to analyze the data deeply will be used as data analysis. As a result, readers will be able to current situation of studies related to constructivism.

Keywords: constructivism, survey studies, document analysis, literature review

INTRODUCTION

Constructivism dates back to Socrates and Plato as a theory and it is as old as our traditions (Hawkins, 1994). It is a theory about knowledge and learning and describes not only what knowing means but also how one comes to know. According to this theory which combine the findings of works in psychology, philosophy, science and biology, knowledge is not truths to be transmitted or discovered but emergent, developmental, nonobjective, viable constructed explanations by humans engaged in meaning-making in cultural and social communities of discourse (Fosnot, 2005). In constructivism theory, learning is an active process in which learners construct new ideas or concepts based upon their current or past knowledge (Brandon & All, 2010). Constructivist views are on individual process of knowledge-building and individual interaction with the environment to create their knowledge (Kala, Isaramalai, & Pohthong, 2010). Instead of explaining the learning as a prescriptive theory, constructivism explains learning as the way people learn or develop which is descriptive (Richardson, 1997). Constructionism is the further development from behaviorism to cognitivism.

Studies on constructivism in education have become common starting at 1990s (Glasersfeld, 1989; Hawkins, 1994; Steffe & Gale, 1995). According to Applefield, Huber, & Moallem (2001) constructivist perspectives on learning have become increasingly influential in the past twenty years and can be said to represent a paradigm shift in the epistemology of knowledge and theory of learning. Even though studies on constructivist education started with some pioneering studies such as Yaşar (1998), Yanpar Şahin, (2001) and Erdoğan & Sağan (2001), the real influence of constructivism in Turkish education system started with curricula reform movement in 2005.

Problem
What is the tendency of the studies on constructivism in education in international literature published between 2005 and 2016?

1. What is the distribution of the studies on constructivism between 2005 and 2016?
2. Which methods were employed in those studies?
3. Who were the sample of the studies?
4. What number of samples were used in the studies?

5. What topics were studied in those studies?

Aim

The aim of this study is to present the tendency of the studies in international literature (limited with ScienceDirect and EBSCO databases) on constructivism in education published between 2005 and 2016 in order to give an opportunity of comparing with national literature to researchers in Turkey.

METHOD

The descriptive analysis that helps to summarize the data collected in many different ways according to pre-determined themes and interpret it and content analysis that includes exploration of themes which cannot be directly seen but can only be coded or categorized and of their relations with each other (Yıldırım and Şimşek, 2003) were used together for data analysis.

Data Collection

Data collection was carried out through documentary analysis. It is a very helpful analysis method that is beneficial to examine the changes of situations, cases, etc. in a longer period (Cohen, Manion, & Morrison, 2007).

Reliability

Miles and Huberman (1994) inter-rater reliability formula was used to check the reliability of independent coding by the researchers. The result shows 84% matching which is above the minimum expected level of 70% by Miles and Huberman, so coding is accepted as reliable.

Sample and Universe

Following four criteria were taken into account in study selection process. The study should be published:

1. In a journal indexed in EBSCO and ScienceDirect databases,
2. Between 2005 and 2016 (until May when data collection was carried out),
3. With one of the keywords in its title
    a) Constructivism
    b) Constructive education
    c) Constructive approach
4. And its method should be survey.

A two-stage process was followed in the sampling. The purposive sampling was done as there were some pre-defined criteria and 19 studies in EBSCO and 19 studies in ScienceDirect databases were collected. Following this stage, snowball sampling was done by checking the references of previously collected studies and 17 more studies were collected. A total of 54 studies were collected but in initial control 14 of them were seen not to be appropriate to the topic of the study.

FINDINGS

Sub-problem-1: What is the distribution of the studies on constructivism between 2005 and 2016?

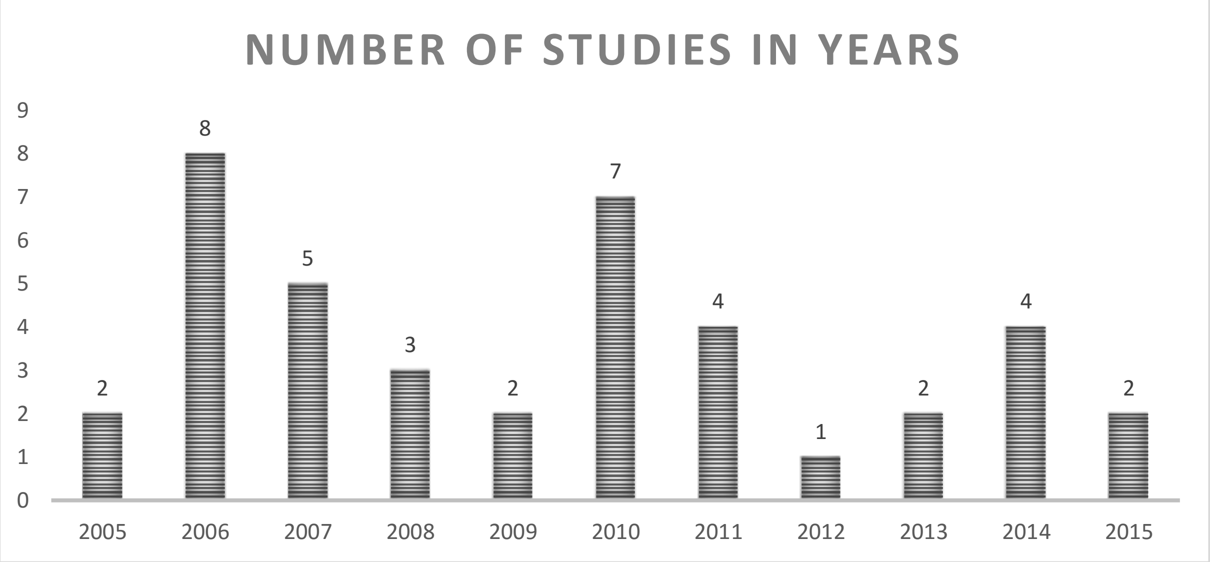

Figure-1 Studies categorized according to publish year

When the collected studies were categorized according to publish year (Figure-1), it is seen that there were no studies found in 2016. The years with higher number of publications are 2006 with 8 and 2010 with 7 studies.

Following these two years comes 2007 with 5 studies and 2011 and 2014 with 4. There are 3 studies in 2008 while there are 2 in 2005, 2009, 2013 and 2015. In 2012, there is only one study.

Sub-problem 2: Which methods were employed in those studies?

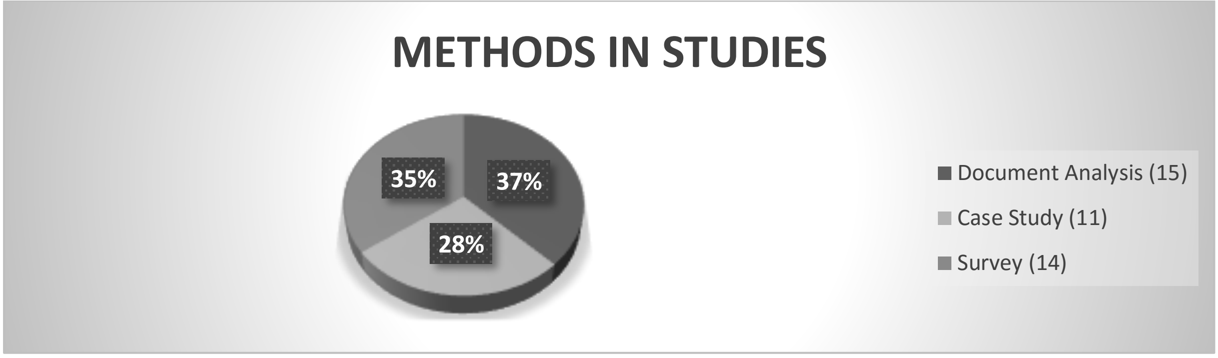

Figure-2 Methods of The Studies

The collected studies were seen to be employing one of the three methods (Figure-2): document analysis was employed in 15 studies and it is 37% of the total. There were 14 survey studies counting as 35% and 11 case studies as 28% of the total.

Sub-problem 3: Who were the samples of the studies?

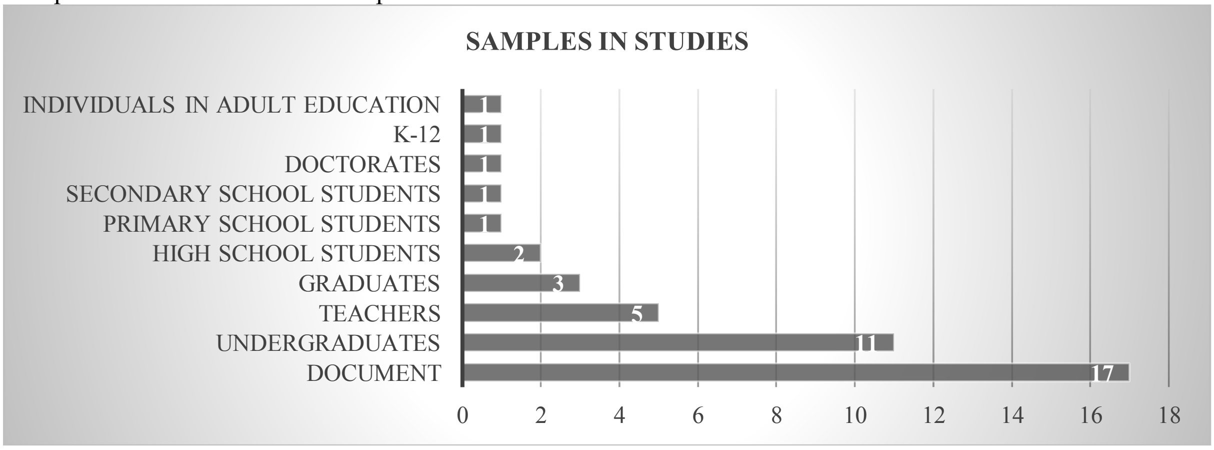

Figure-3 Samples used in studies

The most common sample in the collected studies is the document which was used in 17 studies. It is followed by undergraduate students in 11 and teachers in 5 studies. While graduates were taken as sample in 3 and high school students in 2 studies, individuals in an adult education program, K-12 students altogether, doctorates, secondary and primary school students were all taken as sample in 1 study each.

Sub-problem 4: What number of samples were used in the studies?

Table-1 Number of Samples in the Studies

Group	**Number of Samples in Different Studies**									
Undergraduates	5	5	10	18	42	67	190	209	229	301
Teachers	4	24	25							
Graduates	17	34	188							
High School Students	967	1079								
Primary School Students	67									
Secondary School Students	4									
Doctorates	Not given									
K-12 Students	66									
Individuals in an Adult Education Program	541									

High school students were taken as sample in two studies both of which are really high in number, 1079 in one and 967 in the other. The other sample with highest number is individuals in an adult education program with 541. Undergraduates are the second most common sample and their number in the studies change between 5 and 301. The least number of sample in the rest of the studies is 4 and the highest is 188. The study sampled doctorate students did not give the exact number of participants (Table-1).

Sub-problem 4: What topics were studied in those studies?

Table-2 Topics of the studies in 2005

Author(s)	Year	Topic
Rebekah k. Nix; Barry J. Fraser and Cynthia E. Ledbetter	2005	Development of a constructivist learning environment scale
David Palmer	2005	The role of the motivation as a variable in the success of constructive learning

Two studies were collected for the year 2005 (Table-2) and the one by Nix, Fraser and Ledbetter is a validity and reliability study of a constructivist learning environment scale. The other one by Palmer examines motivation as a variable in the success of a constructive learning environment.

Table-3 Topics of the studies in 2006

Author(s)	Year	Topic
Jonathan Miller-Lane	2006	Constructivism in democracy education
Jere Brophy	2006	Graham Nuthall's ideas on Social Constructivism
Kevin C. De Berg	2006	Constructivism in chemistry education researches
Peter Boghossian	2006	The relation between Socratic pedagogy and behaviorist and constructivist approaches
Liberato Cardellini	2006	An interview with Ernst von Glasersfeld on the basics of Radical Constructivism
David Gijbels; Gerard Van De Watering; Filip Dochy; Piet Van Den Bossche	2006	Student views on the difference between lesson-centered and constructivist learning environments
Ernst von Glasersfeld	2006	A look at the experimental basics of mathematical concepts through a constructive approach
Keith S. Taber	2006	The nature of constructivism in science education: general critics and future perspectives

There are 8 studies in 2006 (Table-3) and two of them (Brophy; Cardellini) consist of the ideas of two pioneering characters' ideas on social and radical constructivism. Four studies (Miller-Lane; De Berg; von Glasersfeld; Taber) examine constructivist pedagogy in four different courses: democracy, chemistry, math and science. The study by Boghossian questions the relation of Socratic pedagogy with behaviorist and constructivist approaches. Gijbels et. al research how student views differ on lesson-centered and constructivist learning environments.

Table-4 Topics of the studies in 2007

Author(s)	Year	Topic
Marnie K. Jorenby	2007	Changing student ideas by learning experiences formed appropriate to the constructivism
Sofie M. M. Loyens; Remy M. J. P. Rikers; Henk G. Schmidt	2007	Identification of student perceptions on knowledge construction, cooperative learning, self-regulation and authentic problem solving in constructivism
Emery J. Hyslop-Margison & Johannes Strobel	2007	A literature review of constructivism in order it to be understood better by teacher educators and teachers
Younghee Woo; Thomas C. Reeves	2007	The evaluation of meaningful interaction in web-based learning as an interpretation of social constructivism

There are 4 studies in 2007 (Table-4). While Jorenby examines how constructive learning experiences change student ideas, Loyens et. al tries to identify student perceptions on some basic concepts of constructivism such as knowledge construction, cooperative learning, self-regulation and authentic problem solving. Margison and Strobel offer a collection of constructive literature to help teacher educators and teachers understand it better. Woo and Reeves look at social constructivism from a different perspective and use a web-based learning experience to try to provide a meaningful interaction which is an important factor in social constructivism.

Table-5 Topics of the studies in 2008

Author(s)	Year	Topic
Farrah Jackson Chandler & Dewey T. Taylor	2008	The outcomes of a constructive learning based lesson at undergraduate degree
Mustafa Cakir	2008	The explanation of constructive learning, conceptual change and cognitive development
Mansoor Niaz	2008	Teacher awareness of different constructive approaches in science education
Florence Mihaela Singer; Hedy Moscovici	2008	The proposal of a new model that is appropriate to constructivism for organizing the classroom interactions

There are 4 studies in 2008 (Table-5). Chandler and Taylor explain the results of a constructive learning based lesson at undergraduate degree. Cakir gives an outline of some basic concepts and Niaz researches for the teacher awareness of different constructive approaches in science education. A model proposal is provided by Singer and Moscovici on organizing the classroom interactions through constructive approach.

Table-6 Topics of the studies in 2009

Author(s)	Year	Topic
Elaine H. J. Yew; Henk G. Schmidt	2009	The role of constructivist approach in problem-based learning
R. J-C. Chu & C-C. Tsai	2009	A model explaining the factors that affect adult education in a constructive web-based learning environment

In the two studies in 2009 (Table-6), Yew and Schmidt explain the role of constructivist approach in problem-based learning and Chu and Tsai propose a model which explain the factors that affect adult education in a constructive web-based learning environment.

Table-7 Topics of the studies in 2010

Author(s)	Year	Topic
Perry J. Hartfield	2010	Active learning strategies and development of team-work
Pia Williams & Sonja Sheridan	2010	Creation of a co-operative learning and constructive competition environment
Beatriz Martín-del-Campo; Lidia Rodríguez García; Manuela Martínez Lorca; Gema de las Heras Mínguez; María del Rosario Díaz-Perea	2010	Use of techniques appropriate to constructive learning in teaching reading & writing to children with special needs and their resistance
Sasikarn Kala; Sang-arun Isaramalai; Amnart Pohthong	2010	A model on integration of constructive approach into electronic learning
Cheryle Moss; Laurie Grealish; Sarah Lake	2010	Student opinions on a lesson organized appropriate to constructive learning
David Samper; Jorge Santolaria; Ana Cristina Majarena; Juan José Aguilar	2010	A constructive approach model proposal on teaching camera calibration
Hsiu-Mei Huang; Ulrich Rauch; Shu-Sheng Liaw	2010	Learner opinions on virtual reality environments designed on constructive approach

There are 7 studies in 2010. Hartfield represents active learning strategies and development of team-work as a part of constructive learning. Similarly, Williams and Sheridan argue how to create a co-operative learning and constructive competition environment. Campo et. al explain the results of an intervention in teaching reading and writing to the children with special needs through constructive approach. Kala, Isaramalai and Pohthong proposes a model on integration of constructive approach into electronic learning. In a similar study, Samper et. al propose a constructive model on teaching camera calibration. Moss, Grealish and Lake explain students' responses to a constructive lesson. Huang, Rauch and Liaw represent Learner opinions on virtual reality environments designed on constructive approach.

Table-8 Topics of the studies in 2011

Author(s)	Year	Topic
Graham D. Hendry; Nikki Bromberger and Susan Armstrong	2011	The effect of constructive guidance and feedback on learning
Mei-Shiu Chiu; David Whitebread	2011	How teachers accustomed to traditional approach perceive and apply new mathematics curriculum designed on constructive approach
Young-Jin Lee	2011	The difficulties teachers face while preparing a constructive learning environment and their ideas on it
Andrea R. Milner; Mark A. Templin; Charlene M. Czerniak	2011	The effect of constructive classroom contextual factors on motivation and learning strategies

As seen in Table-8, there are 4 studies in 2011. Hendry, Bromberger and Armstrong explain the results of constructive guidance and feedback in an intervention. Chiu and Whitebread research traditional teachers' perception of a constructive curriculum and how they apply it. Lee represents the difficulties that constructivism brings in terms of teachers, especially when they need to create a constructive learning environment. Milner, Templin and Czerniak investigate the effect of constructive classroom contextual factors on motivation and learning strategies.

Table-9 Topics of the studies in 2012

Author(s)	Year	Topic
Marijke van Bommel, Kitty Kwakman & Henny P. A. Boshuizen	2012	Observation of a case that authentic learning context overemphasizes the effective use of the information and self-directed learning challenges students much both of which are constructive components

There is only one study that match the selection criteria and published in 2012 (Table-9). In that study by van Bommel, Kwakman and Boshuizen question if authentic learning context and self-directed learning both of which are constructive elements overemphasize the effective use of the information and challenge students much.

Table-10 Topics of the studies in 2013

Author(s)	Year	Topic
Hongliang Yan	2013	Effect of a constructive unit in a Tourism PhD. program on students' attitudes
Peggy A. Ertmer; Timothy J. Newby	2013	Comparison of Behaviorist, Cognitive and Constructive approaches in terms of teaching design

In the study by Yan which is one of the two studies published in 2013 students' attitudes towards a PhD. program on tourism after a constructive unit are represented while in the other study in that year by Ertmer and Newby a comparison of Behaviorist, Cognitive and Constructive approaches in terms of teaching design is given (Table-10).

Table-11 Topics of the studies in 2014

Author(s)	Year	Topic
Nita L. Cherry	2014	Constructivism in life long/vocational education
Barbara T. Duane; Maria E. Satre	2014	Student views on the use of constructive learning theory in collaborative testing
Lina Kantar	2014	The use of constructive approach in problem-based teaching
Yu-Chun Wang	2014	The use of wikis in language teaching as a social constructive approach

There are four studies in 2014 (Table-11). Cherry investigates how constructivism works in life long/vocational education while in another study by Duane and Satre constructive learning theory in collaborative testing is questioned through student opinions. Similar to Cherry, Kantar argues the use of constructive approach in problem-based teaching. Wang gives an example of technology integration to constructive approach by using use of wikis in language teaching as a social constructive approach.

Table-12 Topics of the studies in 2015

Author(s)	Year	Topic
Yee Wan Kwan; Angela F.L. Wong	2015	Relation between constructive learning environment and critical thinking ability
Marijke van Bommel; Henny P. A. Boshuizen; Kitty Kwakman	2015	Student opinions on a constructive curriculum that fills the gap between theory and practice

Kwan and Wong investigate the relation between constructive learning environment and critical thinking ability in their study and van Bommel, Boshuizen and Kwakman represent Student opinions on a constructive curriculum that fills the gap between theory and practice (Table-12).

RESULTS

This study examines the tendencies of the international studies published in journals indexed in ScienceDirect and EBSCO databases between 2005 and 2016 on constructivism in education and a total of 40 studies were appropriate for the aim of the study while 54 were collected. One of the things to notice is that the number of studies in the years 2006 (8 studies) and 2010 (7 studies) is more than one third of the total and there is only one study collected from the year 2012. When the studies are examined in terms of the method, the most common is documentary analysis with 15 studies and 37%. These studies were seen to be giving the details of the constructivism, providing new models for using constructivism in new environments and explaining new types of constructivism such as radical or social. The second most used method is survey with 14 studies and 35% and dominantly teacher and/or learner opinions on constructive approach, constructive learning environments and constructive learning activities were collected. The least used method in the examined studies is case study in 11 studies with 28% and observations and interviews were used to collect data about the effect of constructivism, constructive learning environments and activities on opinions and behaviors of small samples.

Undergraduates have been the most used data source with 11 studies after documentary analysis in 17. The main reason behind it may be the freer environment at universities to organize the lessons appropriate to the constructive approach. Sampling size differs between 5 and 301 in studies with undergraduates; 4 and 25 with teachers, 18 and 188 with graduates, 967 and 1079 with high school students. The number of sample in the study with primary school students is 67; it is 4 with secondary school students, 66 with K-12 and 541 with adults.

The collected 40 studies were examined in terms of their topics to find if they had similar themes. The two studies published in 2005 examine the constructive learning environment and motivation as an element that effects the success of the constructivist approach. In 2006 which is the year with highest number of studies with 8, 4 studies include application of constructivist approach into different contexts, difficulties experienced in that process and critics; 3 include information about constructivism and types of it like social or radical constructivism; 1 includes a comparison of traditional and constructive classrooms through student opinions. There were 5 studies in 2007 and 4 of them present student opinions on and perceptions of the classroom applications of constructivism while 1 includes a literature review to explain the approach in general. 2 studies of 3 that were published in 2008 are again a literature review to explain some basic concepts of constructivism and the other explains the change in student behaviors after a constructive lesson. Some findings about the results of integration constructivism into different learning environments are represented in the two studies published in 2009. The year with second highest number of studies is 2007 with 7 studies and 4 of them explain applications of constructivist ideas in different courses. There are model proposals for applying constructivism to educational context in 2 studies and a literature review on explaining the cooperative learning and constructive competition that are important factors of constructivist approach in the other study. Of the 4 studies published in 2011, there is a literature review that explains some components of the constructivist approach in two studies and teacher opinions on and reactions to the transition from traditional to constructive approach. There is a case study in the only study published in 2012 examining the critics about that constructivism overloads student responsibilities. There is not a common theme in the two published studies in 2013 and one of them questions the effect of constructivism on students' attitude towards the lesson and the other is a literature review on the comparison of constructivist approach with behaviorist and cognitive ones. There is an explanation about the results of the application of constructivism in different areas in 3 studies of 4 in 2014 and the other study presents student opinions on the evaluation and assessment principles of constructivism. There is not a common theme in the two studies published in 2015; one of them examines the relation between constructive learning environment and critical thinking ability and the other study presents student opinions on a constructive program.

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Analyzing The Relationship Between The Secondary School Students' Attitudes Towards The Educational Computer Games, And Their Reflective Thinking Skills

Mustafa KAHYAOĞLU
Faculty of Computer Education and Instructional Technologies Department
Siirt University
mustafa.kahyaoglu56@gmail.com

Mithat ELÇİÇEK
Faculty of Computer Education and Instructional Technologies Department
Siirt University
mithatelcicek@gmail.com

ABSTRACT

The aim of this study is to reveal the relationship between the secondary school students' attitudes towards the educational computer games, and their reflective thinking skills. As the model of the research, it's utilized from the correlational research model. The target population of the study consists of secondary school students that receive education in city center of Siirt. And the sample that is composed of 653 students in total, being as 262 girls and 391 boys, is determined according to the appropriate sampling method among the selective sampling methods. A personal information form which includes variables like gender, class, computer and internet ownership status of the students who participated to the research; the "*The Educational Computer Games Attitude*" scale developed by Çankaya and Karamete (2008), and the "*Reflective Thinking Skills Towards Problem Solving*" scale developed by Kızılkaya and Aşkar (2010) were used as the data collection tools. In the analysis of data, in order to determine the students' attitudes towards the educational computer games and reflective thinking skill levels, the descriptive statistics; to determine the relationship between the variables, the correlation analysis; and to determine the predictive power, the linear regression analysis are used. At the end of the research, it's determined that there is a significant relationship positively and in an intermediate level between attitudes towards the educational computer games' and reflective thinking skills' levels. Also, it's observed that attitude towards the educational computer games is a significant predictor of the students' reflective thinking skill levels.

Keywords: The educational computer games, secondary school students, reflective thinking, attitude

INTRODUCTION

The emerging developments in the educational technology requires the learning environments in the teaching process to be rearranged in such a way that enable the student-centered applications. Prensky (2002) indicated that, in the 21st century, the most important innovations can be possible only by making the education enjoyable (qtd. in: Tüzün 2006). This can be maintained easily by the educational computer games. The educational computer games provides environments where students can spend enjoyable times and also learn important information for themselves. According to Güngörmüş (2007), the educational computer games are the softwares that the lesson contents which are intended to be thought to the students are prepared in a game format. And Hwang et al. (2012) state the educational computer games as softwares designed according to the students' interests and motivations in order to reach the educational goals. Pinnell (2015) states it as entertaining environments that make the students show interest to the lesson content by developing their will and interest towards learning. Within this scope, when related terms in the body of literature are reviewed, the educational computer games are the introduced environments that will empower the students' learning experience, make them concentrate on learning contents, encourage them to learn, improve their self confidence, increase their creativeness and provide visual, tactual and intellectual stimulus (Bouzid, Khenissi, Essalmi and Jemni, 2016; Calvo- Ferrer, 2016; Peterson, 2016). When the literature regarding the educational computer games is analyzed; in the study where the educational computer games effect on students' academic success is analyzed Yağız (2007) indicated that there is a significant difference in favor of students' academic success. Kula (2005), in his study analyzing the effect of the educational computer games on students' basic transaction skills, determined that the educational computer games have a significant effect on students' basic transaction skills' development. In the study carried out by Papestrergiou (2008), he stated that the educational computer games have a significant effect on students' learning and motivation levels. It's declared that the educational computer games develops students' characteristics like decision-making, discussing and affective bonding by revealing their imagination (Prensky (2008). Hence, it's stated that, a learning environment is formed by the educational computer games, where the student forms its own knowledge, and which sees the relations between these knowledges and the previous ones, organizes the knowledge and produces new ones, and grounds on the constructivist learning approach (Bakar, Tüzün and Çağıltay, 2008).

Lately, by the developing learning technologies, the usage of the educational computer games in teaching environments by utilizing from its entertaining and motivating feature shows an increasing tendency (Egenfeldt-Nielsen, 2010). Along with this, Kirriemuir and McFarlane (2004) indicate that the educational computer games can be used conveniently for students in making them gain cognitive skills like reflective thinking, planning , struggling, competing, communicating and decision-making. It's also stated that the educational computer games visualize the abstract concepts hard to learn, and this way reduce the learning anxiety (Chen et al., 2012; Sönmez and Artut, 2011). Also, it's emphasized that educational computer games improve students' creative and reflective thinking skills (Can and Çağıltay, 2006), help to improve their problem solving and reflective thinking skills (Demirel, Seferoğlu and Yağcı, 2003).

Rodgers (2002) defines the reflective thinking as a smart action movement that is based on analyzing, which reveals as a result of the experiences, while John Dewey (1993) defines the reflective thinking as active and terminal learning process that is based on the cause and effect relation of the related information. John Dewey (1993) lists the characteristics the individuals should have in order to carry out the reflective thinking as being open-minded, tam willingness and responsibility. Kızılkaya and Aşkar, (2010) stated that reflective thinking reveals by the result of perceiving the problem and can be monitored most easily during the problem solving process. Hence, it's observed that the reflective thinking skill towards problem solving is an improvable skill but a range of supportive strategies are needed for this. These supportive strategies include strategies like asking questions by oneself, constructing one's knowledge by its own statements, decision-making, planning and self-assessment, and also can support by a range of educational computer games. In the body of literature, it's possible to come across with many studies on both the educational computer games and the reflective thinking skill. But in the body of literature, studies analyzing directly the relationship between the attitudes towards the educational computer games and the reflective thinking skill of the secondary school students have not been come across with. The research arose from the need of filling this gap in the body of literature and analyzing the relationship of the attitudes towards the educational computer games and the reflective thinking skill of the secondary school students.

Aim Of The Study

In this research, the aim is determining the relationship between the secondary school students' attitudes towards the educational computer games and the reflective thinking skills. With this common aim, it was searched for answers for the below questions:

1- Is there a relationship between the secondary school students' attitudes towards the educational computer games and the reflective thinking skill?
2- Are the secondary school students' attitudes towards the educational computer games predicting the reflective thinking skills?
3- Do the secondary school students' attitudes towards the educational computer games and the reflective thinking skills' levels show a significant difference due to the variables as gender, class, computer and internet ownership at home status?

METHOD

Research Model

In this research, correlational research method is used.

Target Population and Sampling

The target population of the research is composed of the students who receive education in the secondary schools in the city center of Siirt affiliated to Provincial Directorate for National Education, in 2015-2016 school year's spring term. Its sample is composed of 653 students receiving education in four schools determined by the appropriate sampling among selective sampling methods. Findings concerning the demographical features of the students that participate to the study are given in Table 1.

Table 1. *Distribution of the students according to their demographical features*

Demographical Feature	**Category**	**N**	**Percentage (%)**
Gender	Boys	391	59,9
	Girls	262	40,1
Class level	5. grade	183	27,9
	6. grade	156	23,9
	7. grade	147	22,5
	8. grade	168	25,7
Computer ownership status	Available	594	91
	Unavailable	59	9
Internet ownership status	Available	346	53,1
	Unavailable	307	46,9

When Table 1 is reviewed, regarding the students participating to the research, 40,1% of the students are boys and 59,9% of them are girls. 27,9% of them are 5th grade students, 23,9% are 6th grade, 22,5% are 7th grade and 25,7% of them are 8th grade students. 91% of the same students own a computer at home and 9% of them do not. In addition, it's determined that 53% of the students have internet connection at home, and 46,9% of them do not.

Data Collection Tool

A personal information form which includes demographical information of the students; the "*The Educational Computer Games Attitude*" scale developed by Çankaya and Karamete (2008), and the "*Reflective Thinking Skills Towards Problem Solving*" scale developed by Kızılkaya and Aşkar (2010) were used as the data collection tools. Attitudes towards the educational computer games scale is a five point likert scale, and consists of 5 items. The Cronbach alpha reliability coefficient is stated as .66. In our study, the Cronbach alpha internal reliability coefficient of the scale was calculated as .84. And the reflective thinking skills towards problem solving scale is a five point likert scale, and consists of 14 items and 3 dimensions: causation, questioning and assessment. The developed scale's Cronbach alpha internal reliability coefficient for the whole scale, from the sub-dimension of .83, is indicated as .71 for causation, .73 for questioning and .69 for assessment. And in the study we carried out, the Cronbach alpha internal reliability coefficient of the scale was calculated as .75. For the sub-dimensions, it's calculated as .68 for causation, .73 for questioning and .66 for assessment.

The Analysis of Data

In the analysis of data gathered in the research, SPSS 22.0 statistical data analyze program is used. Also, to determine the relationship between students' attitudes towards the educational computer games and reflective thinking skills, arithmetic mean, standard deviation, correlation and regression analysis techniques are used. In order to determine if the students' attitudes towards the educational computer games and the reflective thinking skills differ or not according to the gender, class, computer and internet ownership at home status variables, independent samples t-test and one-way Analysis of Variance (ANOVA) are used. To determine the root of the intergroup difference, it's utilized from the Turkey-HSD test.

FINDINGS

In order to determine the relationship between attitudes towards the educational computer games and reflective thinking skills of students who participated to the research, the findings obtained are shown as below. The results concerning the secondary school students' attitudes towards the educational computer games and reflective thinking skills are given in Table 2.

Table-2. The results concerning the secondary school students' attitudes towards the educational computer games and reflective thinking skills (n=653)

	$\bar{x}$	**sd**
Attitude towards the educational computer games	2.95	.636
Reflective thinking skill	3.06	.671
Causation	2.96	.815
Questioning	3.12	.762
Assessment	3.07	.799

As can be seen in Table 2, the arithmetic mean of the scores that secondary school students got from the students' attitudes towards the educational computer games scale is found as 2.95 and the arithmetic mean of the scores that they got from the reflective thinking skill scale is found as 3.06. When arithmetic means of the sub-dimensions of the students' reflective thinking skill, the determined scores are 2.96 for causation sub-dimension, 3.12 for questioning sub-dimension, and 3.07 for assessment sub-dimension. It's observed that scores of the students' attitudes towards the educational computer games and the reflective thinking skills are in an intermediate level. The results regarding the relationship between the secondary school students' attitudes towards the educational computer games and the reflective thinking skills are given in Table 3.

Table 3. The results regarding the relationship between the students' attitudes towards the educational computer games, and the reflective thinking skills towards the problem solving levels.

	Attitude towards the educational computer games
Causation	.620**
Questioning	.549**
Assessment	.609**
Reflective thinking skills	.698**

** p<.01

As can be seen in Table 3, a positively and significant relationship between the secondary school students' attitudes towards the educational computer games and the reflective thinking skills' levels (r=,698; p<.01) are determined. And when the relationship between the causation, questioning and assessment, which are the sub-dimensions of the reflective thinking skill of the students, and the attitudes towards the educational computer games, there is again a significant relationship positively and in an intermediate level between the sub-dimensions causation (r=.620; p<.01), questioning (r=.549; p<.01) and assessment (r=.609;p<.01), and the attitudes towards the educational computer games. The regression analysis results concerning reflective thinking skills towards problem solving's prediction of the students' attitudes towards the educational computer games are given in Table 4.

Table 4. The regression analysis results concerning reflective thinking skills towards problem solving's prediction of the students' attitudes towards the educational computer games.

Predicted Variable	Predictor Variable	Reg. Kat.	St. Error	R	R^2	Stable	t	P
Reflective Thinking Skill	Attitude Towards The Educational Computer Games	0,737	0,030	0,698	0,488	0,698	24,887	,000

As can be seen in Table 4, it's observed that according to the regression analysis results, the secondary school students' attitudes towards the educational computer games are a significant predictor of the reflective thinking skills (R=0,698, R^2=0,488; p<.01). According to this, it's determined that 48% of the total variance concerning the students' reflective thinking skills is explained by the attitude towards the educational computer games. The results of the t-test carried out in order to determine if there is a significant difference in the secondary school students' attitudes towards the educational computer games or not, according to the variables as gender, class, computer and internet ownership at home status, are given in Table 5.

Table 5. T-test results of the attitude towards the educational computer games and reflective thinking skills concerning variables as gender, computer and internet ownership status

Variables			Attitude Towards The Educational Computer Games			Reflective Thinking Skills		
		N	$\bar{x}$	sd	t	$\bar{x}$	sd	t
Gender	Male students Female students	391 262	3,03 2,83	,682 ,540	3,87**	3,06 3,06	,711 ,608	-0,14*
Computer ownership status	Available Unavailable	594 59	2,95 2,,95	,618 ,651	-0,08*	3,23 3,04	,486 ,685	-2,01**
Internet ownership status	Available Unavailable	346 307	3,00 2,90	,618 ,651	-2,08**	3,13 2,99	,672 ,664	-2,67**

*p>.05; **p<.05

As can be seen in Table 5, among the students who participated to the research, according to their gender, it's determined that there is a significant difference in favor of male students (t=3,87; p<.05) between the attitudes towards the educational computer games; and according to the internet ownership status, it's determined that there is a significant difference in favor of "Available" (t=-2,08; p<0.05) between the attitudes towards the educational computer games. Notwithstanding, it's determined that there is no significant difference between the students' computer ownership status and attitudes towards the educational computer games (t=-0,08; p>0.05). As can be seen in Table 5, when the t-test results of the students' reflective thinking skills concerning the variables as gender, computer and internet ownership status are analyzed, it's determined that there is no significant difference according to the gender variable (t=-0,14; p>.05); but there is a significant difference in favor of " Available" according to the students' computer (t=-2,01; p<.05) and internet (t=-2,08; p<.05) ownership status. Findings concerning the arithmetic mean and standard deviation results regarding the students' attitudes towards the educational computer games and reflective thinking skills according to the class level variable are given in Table 6.

Table 6. The arithmetic mean and standard deviation results regarding the students' attitudes towards the educational computer games and reflective thinking skills according to the class level variable

Class level variable		Attitude Towards The Educational Computer Games		Reflective Thinking Skill	
	N	$\bar{x}$	sd	$\bar{x}$	sd
5.grade	182	3.13	.634	3.29	.653
6. grade	156	2.78	.523	2.85	.594
7. grade	147	2.77	.604	2.92	.639
8. grade	168	3.06	.682	3.14	.698

As it can be seen in Table 6, the arithmetic mean of the students' attitudes towards the educational computer games according to the class *(level)* variable is determined as 3.13 for the 5th grade, 2.78 for the 6th grade, 2. 77 for the 7th grade, and 3.06 for the 8th grade. And when the arithmetic mean of the students' reflective thinking skills level according to the class *(level)* variable is analyzed, it's determined as 3.29 for the 5th grade, 2.85 for the 6th grade, 2.92 for the 7th grade, and 3.14 for the 8th grade. The ANOVA analyses and Turkey-HSD results concerning the differences between arithmetic means of the students' both attitudes towards the educational computer games, and the reflective thinking skills, according to their class level variable, are given in Table 7.

Table -7. The ANOVA analyses and Turkey-HSD results concerning the students' attitudes towards the educational computer games and reflective thinking skills

	Source of the Variance	Sum of squares	sd	Average of squares	F	Turkey-HSD
Attitude towards the educational computer games	Intergroup	17,46	3	5,82	15.330**	5-8 6-7
	Intra-group	249,48	649	,380		
	Total	263,95	652			
Reflective thinking skill towards problem solving	Intergroup	20,44	3	6,81	16,18**	5-8 6-7
	Intra-group	273,36	649	,421		
	Total	293,81	652			

**p <.01

As can be seen in Table 7, significant differences are determined between the secondary school students' current class level and both their attitudes towards the educational computer games (F=15,33;p<.01) and the reflective thinking skills (F=16,18;p<.01). In the result of the Turkey HSD test carried out to determine the source of the significant difference, both the attitude towards the educational computer games and the reflective thinking skills towards problem solving are determined between the 5th grade to 8th grade, and between the 6th grade to 7th grade.

THE ARGUMENT AND THE RESULTS

At the end of the study, it's observed that the secondary school students' attitudes towards the educational computer games, who participated to the research, and the reflective thinking skills have a significant relationship positively and in an intermediate level between each other. And this state can be interpreted as the reflective thinking skills can be improved when the students' attitudes towards the educational computer games are enhanced. When similar studies done on the body of literature are analyzed; in the study carried out by Donmuş and Gürol (2015), it's indicated that the educational computer games have a positive impact on the students' permanence and access levels. In a study done by Topçu, Küçük and Göktaş (2014), they indicated that the educational computer games make the students' learning more permanent, and improve their thinking skills by visualizing the concepts and reinforcing the knowledges learnt.

When the students' attitudes towards the educational computer games are analyzed in terms of various variables, a significant difference in favor of the male students is observed in the variables of internet connection and gender. Internet connection ownership of the students can be interpreted as this may enhance their attitudes towards the educational computer games and a higher enhancement may occur in male students' attitudes. In a study done by Çankaya (2007), a difference occurring in favor of male students in the students' attitudes towards the educational computer games, and in a research done by Egenfeldt-Nielsen (2004), the internet connection's effect occurring on the school students' attitudes towards the educational computer games, correspond to the findings of this research. In addition, according to the variables as the gender, and the computer and internet ownership at home status, no significant difference is observed in students' reflective thinking skills, but in the class level variable, significant differences in favor of 8th and 5th grades are determined.

Nevertheless, within the research, it's observed that attitude towards the educational computer games is a significant predictor of the reflective thinking skill. It's thought that this situation originates from presenting the experience and questioning based activities of the educational computer games together with the entertaining feature (Tüzün et al., 2006). In this regard, the reflective thinking skill's state of being a skill based on questioning where the mistakes and corrects are determined by analyzing (Dewey, 1993), promotes this opinion. And this shows that the educational computer games should be overemphasized regarding the increasement of its efficiency. As there are no studies in the literature analyzing directly the relationship between the attitude towards the educational computer games and the reflective thinking skill, as the research results have not been compared enough with other research's findings, and as the study was carried out with a limited number of students that receive education in secondary school level, all these can be considered as a limitation. In studies to be done according to this, it is possible to utilize from a wider community that receive different levels of education.

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Antecedents Of Trait Aggressiveness Among Sports Students

Lucia MONACIS
Department of Humanities
University of Foggia (Italy)
lucia.monacis@unifg.it

Silvana MICELI
Department of Psychological Science, Pedagogy and Formation
University of Palermo (Italy)
silvana.miceli56@unipa.it

Antonio ANTEFERMO
Department of Educational Sciences, Psychology, Communication
University of Bari Aldo Moro (Italy)
a.antefermo@hotmail.it

Davide Giuseppe PEPE
Department of Educational Sciences, Psychology, Communication
University of Bari Aldo Moro (Italy)
nocode5@hotmail.com

ABSTRACT

In light of the speed increase of aggressive episodes and disorderly incidents in sporting contexts both on and off the field of play, psychologists' interest has been focused on normative standards regarding socio-moral interaction such as sportspersonship and fair play, as well as on those intra and interpersonal factors influencing aggressiveness. The current research aimed at pinpointing the extent to which self-determined motivation and trait self-control influence aggressiveness considered as a personality trait. 448 students (M = 240, F = 208; M_{age} = 23,04, SD = 6,65) enrolled in Italian Faculties of Sport and practicing competitive sports filled out a questionnaire composed by: the socio-anagraphic section, the Sport Motivation Scale (SMS), the Aggressiveness Questionnaire (AQ), and the Brief Self-Control Scale (BSCS). Descriptive and regression analyses were applied to the data. Results showed that aggressiveness was negatively predicted by self-determined motivation and trait self-control. Consequently, practical recommendations should be addressed to coaches, trainers, etc. to plan appropriate intervention strategies for enhancing students' higher levels of self-control and motivational dispositions.

INTRODUCTION

In the 1960s the notion of aggressiveness was introduced by Buss in terms of personality trait formed by a habit to attack, i.e., a relatively stable characteristic to react frequently and intensively to stimuli (Buss, 1961, 1989). In this sense, aggressiveness should be distinguished from aggression, a process commonly defined as a behaviour directed toward another individual in order to cause harm (Bushman & Anderson, 2002, p. 28). In spite of this distinction, both notions are indifferently used in scientific literature because they generally refer to maladaptive behaviours (e.g. Archer, 2004; Sherrill, Magliano, Rosenbaum, Bell, & Wallace, 2016).

Nowadays, aggressive behaviours represent an emerging social problem involving many aspects of everyday life, including the context of sport. Although sport should develop moral values such as support, fair play, and cooperation, many episodes of athletic aggression are prevalent before, during, and after competitions: not only athletes become aggressive and violent towards opponents, coaches, and spectators, but also spectators become aggressive and violent towards coaches and police (Kerr, 2004). In the last decades sport psychologists, in identifying the main risk factors that could predict maladaptive and aggressive behaviours, have assumed different orientations, from the psychoanalytic to neo-associationist approaches vs. the social-learning and social-cognitive approaches, on one hand, and the personological vs. experimental-social psychological approaches, on the other hand. Among the personological approaches, one of the most traditional variants was focused on personality traits considered as inborn dispositions that account for variations between people in aggressive behaviours (Buss & Plomin, 1984; Caprara, Barbaranelli, & Zimbardo, 1996). According to this perspective, trait aggressiveness was found out a robust predictor of aggressive behaviour in sport (Bushman & Wells, 1998).

In addition, in line with the assumption that anti-social behaviour increases when self-regulatory strength is impaired (Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009), the effects of low self-control were investigated revealing that athletes with lower self-control capacity and higher levels of anger and aggressiveness are also more prone to show a bad performance (Englert & Bertrams, 2012; McEwan, Martin Ginis, & Bray, 2013). To our knowledge, there have been only few studies that have examined the relationship between trait aggressiveness and self-control. For example, Denson, Pedersen, Friese, Hahm, and Roberts (2011) found that a two week self-control training reduces individuals' aggressive responses, and Sofia and Cruz (2015) indicated that trait self-control, considered as a personality structure, has a central role in the regulation of aggression, since a large multivariate effect has emerged between athletes groups with high and low trait self-control capacity.

A theoretical key framework useful when understanding the phenomenon of adaptive/maladaptive behaviours is the self-determination theory (Deci & Ryan, 1985, 1991), according to which individuals behave in an agentic or autonomous way in their daily activities. This theory postulates three different types of motivations, i.e., intrinsic motivation (involving high levels of competence and autonomy), extrinsic motivation (characterized by feelings of constraint and lack of competence), and amotivation (the relative absence of motivation). The findings of certain studies converged on the conclusion that intrinsic motivation is associated to positive outcomes, whereas extrinsic motivation and amotivation are linked to adverse consequences in multiple life domains, including prosocial and maladaptive behaviours in sport (e.g. Chantal, Robin, Vernat, & Bernache-Assollant, 2005; Chantal, Soubranne, & Brunel, 2009; Dunn & Dunn, 1999; Monacis, de Palo, & Sinatra, 2014, 2015).

The set of variables taken into account in the current research was targeted on the basis of the above-mentioned investigations with the primary concern of examining the extent to which self-determined motivation and trait self-control influence aggressiveness. The integrated examination of these factors, which were separately analyzed in the previous research, may provide the beneficial information about the nature of their relationships.

METHOD

Sample

The sample consisted of 448 students (M = 240, F = 208; M_{age} = 23,04, SD = 6,65) enrolled in Italian Universities of Sport and practicing competitive sports. After the consent form was signed, the participants completed voluntary the questionnaire before the training session with the presence of the authors, who explained that the questionnaire was anonymous and that personal data would be disclosed or used only for research purpose.

Instruments

The variables considered for analyses were sport motivation, trait aggressiveness, and trait self-control.

Self-determined sport motivation was assessed adopting the back-translated version of the Sport Motivation Scale (Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). The scale consists of 28 items rated on a 5-point Likert scale (from “strongly disagree” to “strongly agree”). In line with past research mean scores on the SMS subscales were combined into a composite index obtained by weighting each of the above-mentioned types of motivation according to its position on the self-determination continuum, and then by summing the products (Vallerand & Bissonnette, 1992; Vallerand, Pelletier, & Koestner, 2008; Monacis, de Palo, & Sinatra, 2014, 2015). In particular, the mean scores were combined as follows: (2 x (IM to know + IM to accomplish things + IM to experience stimulation)/3 + (EM Identified regulation)) – ((EM Introjected Regulation + EM External Regulation)/2 + (2x Amotivation)). Higher positive scores on this index reflect higher self-determined sport motivation, while higher negative scores show low levels of self-determined motivation (Vallerand & Rousseau, 2001). In this study, the level of internal consistency was high with Cronbach’s alpha of .88.

The Italian translation of the short version of the Aggression Questionnaire (AQ-SF; Bryant & Smith, 2001) is composed of 12 items rated on a five point Likert scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). The AQ-SF includes four components. The physical and verbal components refer to the behavioural dimensions of aggression; the anger and hostility components refer to the cognitive dimensions assessing the anger-related arousal and the sense of control and the feelings of resentment, suspicion, and alienation, which increase the likelihood of anger responses. Numerous studies have provided evidence for the reliability and validity estimates of the AQ-SF (Abd-El-Fattah, 2013; Ang, 2007). For the statistical analyses it was considered the total score with a Cronbach's alpha of .80.

The Brief Self-Control Scale (BSCS; Tangney, Baumeister, & Boone, 2004) consists of 13 items designed to assess dispositional self-regulatory behaviours (e.g. "I have a hard time breaking bad habits" and "I do certain things that are bad for me, if they are fun"). Each item is rated on a five-point Likert scale (1 = not like to me at all, 5 = very much like to me). Evidence of stability and internal consistency of the BSCS were provided (de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012). In this study reliability was $\alpha = .83$ for the total score.

FINDINGS

In Table 1 descriptive statistics for the total sample, males and females, in scoring scales are showed. T-test was performed to examine gender effect on the variables of interest. Data showed no significant differences ($p > .05$) in scores between males and females.

Table 1: Descriptive analyses

	Total Sample		Males		Females	
	Min - Max	**Mean (SD)**	**Min - Max**	**Mean (SD)**	**Min - Max**	**Mean (SD)**
Trait Aggressiveness	12 - 46	24.03 (7.04)	12 - 46	24.54 (7.40)	12 - 44	23.44 (6.55)
Self-determined Motivation	-20 - 42	19.79 (9.21)	-12 - 42	19.08 (9.43)	-20 - 39	20.62 (8.90)
Trait Self-control	20 - 65	45.47 (8.45)	20 - 65	45.09 (8.77)	20 - 62	45.91 (8.07)

Bivariate correlations coefficients are showed in Table 2. Results showed negative associations of aggressiveness with self-determined motivation and trait self-control and a positive association between self-determined motivation and trait self-control.

Table 2: Bivariate Correlations among the variables of interest

	Trait Aggressiveness	Self- Determined Motivation
Trait Aggressiveness	-	
Self-Determined Motivation	$-.282^{**}$	-
Trait Self-control	$-.435^{**}$	$.294^{**}$

** $p < 0.01$

Causal relationships were examined by hierarchical regression analysis with aggressiveness as dependent variable and the other constructs as independent variables. The criteria for entering variables into the regression model were based on the r coefficients: the first predictor with the largest correlation was trait self-control (step 1) and the second predictor with the next highest shared variance was self-determined motivation (step 2). The first step accounted for 19% of variance ($Adj\ R^2 = .19$), the second for 21% of variance ($Adj\ R^2 = .21$). Self-control significantly increased the predicted variance, $Adj\ R^2\ change = .19$, whereas self-determined motivation moderately increased the predicted variance, $Adj\ R^2\ change = .03$. Aggressiveness was negatively predicted by trait self-control ($\beta = -.39$) and self-determined motivation ($\beta = -.17$).

CONCLUSIONS

The current investigation sought to examine the intrapersonal factors influencing aggressiveness in an Italian sample of university athletes. Trait self-control, strictly related to personality trait, and self-determined motivation were considered together in order to clarify the extent to which each of them accounted for variation in aggressiveness. Findings supported the expected associations, i.e., both dispositional factors were negatively linked to aggressiveness showing that higher levels of self-control and self-determined motivation were related to a lower tendency to adopt aggressive behaviours. These associations were further confirmed by regression analyses, which revealed that trait-aggressiveness was negatively predicted by individual differences in terms of motivation and self-control. Consistently with previous studies (e.g. Chantal, Robin, Vernat, & Bernache-Assollant, 2005; Chantal, Soubranne, & Brunel, 2009; Dunn & Dunn, 1999; Monacis, de Palo, & Sinatra, 2014, 2015), individuals with lower self-determined motivation tend to develop unsportsmanlike and aggressive behaviors. Likewise, the ability to interrupt undesired behavioral tendencies determines a lower level of aggressiveness (Denson, Pedersen, Friese, Hahm, & Roberts, 2011). It is worth noting that self-control resulted the best negative predictor of aggressiveness: this influence could be justified by the inhibitory nature of the personality antecedent considered a mechanism for controlling maladaptive conducts in sport domains, too (Sofia & Cruz, 2015). Moreover, the positive association between self-control and self-determined motivation could indicate the protective role played by such factors against the tendency to react frequently and intensively to provoking stimuli (Pelegrín-Muñoz, Serpa, & Rosado, 2013).

In agreement with Anderson and Bushman's assumption that "certain traits predispose individuals to high levels of aggression" (Anderson & Bushman, 2002, p. 35), this investigation lends an empirical evidence to the general framework based on personality-traits and aimed at understanding how particular personality variables predict aggressive behavior in sport contexts. To this regard, the authors have underlined that the development of aggression-related knowledge structures can shape personality increasing the likelihood to engage in aggressive behaviours. In addition, as greater levels of aggressive behaviours have been likely associated with self-regulation failure (Caprara, Regalia, & Bandura, 2002), a particular focus on the main role of trait self-control would fill the gap in most current theories of aggression, which have paid a limited attention to this personality trait.

The findings of the current research added empirical information to the patterns of relationship between dispositional factors and aggressiveness, thus increasing the knowledge of aggressive and violent behaviours in sport. However, the status of the variables as mediators/moderators, as well as the differences across gender and types of sport (team and individual, contact and no contact, etc) were not explicitly assessed. Further studies should expand the scientific exploration of these issues to clarify such a status by using sophisticated path-analytic models.

Finally, in terms of practical implications, the kind of information emerged in this study could be useful because it provides a more broader comprehension of those factors on which coaches should intervene with appropriate aggression/emotion-management trainings. The purpose is to enhance students' higher levels of self-control and motivational dispositions, which promote good performance, more success and athletes' well-being, thus reducing maladaptive behaviours. Likewise, educational interventions on fair play programs, including workshops and lectures, videos, etc., could develop those moral values, i.e., support, sportspersonship, and cooperation which should be favoured and developed by sport.

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Application Of Complexometric Titration Of Bismuth Subnitrate In The Ingredient Whitening Skins Cosmatics

CHANYAPAT SANGSUWON
Department of Chemistry, Faculty of Science and Technology,
Rajabhat Suansunandha University, Thailand
Chanyapat.sa@ssru.ac.th

ABSTRACT

The experiments were designed and were advanced for the titrations technique of acid-base in the chemistry laboratory course. The students were skilled in using organic solvents extracted the organic compounds, monitoring components by thin layer chromatography and calculated the bismuth ions by complexometric titration. The cheap whitening creams have the ingredient in cosmetics which was keratolytic agents for the whitening skins. It was toxic when used overdose and repeated or prolonged. Quantities of bismuth ions were titrated with ethylenediamine acetic acid (EDTA) as a chelating agent (ligand). Xylenol orange is indicator that showed the endpoint color changing from red to yellow. The applied experiments in laboratory for students were able to improve their problem solving skills and understanding of concepts of titration of complexing of metal.

KEYWORDS: Bismuth subnitrate, chelating agent, complexometric titrations, keratolytic agents, indicator

INTRODUCTION

The cheap whitening cosmetic cream certified reference material contained titanium dioxide (TiO_2), zinc oxide (ZnO_2), bismuth subnitrate ($Bi_5O(OH)_9(NO_3)_4$)(BS) and the keratolytic agents such as salicylic acid, resorcinol, sulfur and Kojic dipalmitate are not well absorbed in the dermis skin layer and are safe during pregnancy and lactation (Andersen, 2003).The components in the facial whitening creams have control limited quantity and quality by Food and Drug Administration (FDA) instituted of government of Thailand (Ng & et.al, 2015).Women can buy them at the local market and convenient stores (Bird,Caldwell, & DeFanti, 2010).Thai women have believed when they have white skins are symbolized youthfulness, high quality, wealth whiich the reasons were attractive for men (Chaipraditkul, 2013). The desire for beauty became to addict the whitening cosmetic products and used them for prolongs which caused the irritant skins (Numata, 2015).This study selected BS because it has used agents in the facial whitening creams and it used as a cosmetic white pigment (Viseras & etal, 2007). BS is the white crystalline, almost odorless, and is used pharmaceutically in wound dressing, ointment component and as an antacid. Toxicological properties of BS was reported by Material Safety Data Sheet (MSDS) which is harmful by inhalation, skin and eye were irritated when contacted it (Bocca & et al, 2014). Laboratory of chemistry have teaching about an acid-base titration for the determining of the concentration of an acid or base by exactly neutralizing and was calculated the concentration acid or base. BS is complexed metals, and is ingredient in the facial whitening creams. The complexometric titration (CT) technique is used for analyzing the quantitative of BS. CT is determined the concentration of the bismuth ions. Bismuth have oxidation number are +3 and +5 can complex ligand with EDTA disodium EDTA is commonly used to standardize aqueous solutions of transition metal cations and forms four coordinate covalent bonds to metal cations at pH 2.0 and xylenol orange as indicator (Raoot,1985). The students have the opportunity to develop higher-order skills in the methods of titration and applied to analyzing the quantity of metals in the other products to using in them life (Reid &Shah, 2007). The steps of experiments required the students to preparing the samples by solvent extracted, accuracy and precision measurement out by using pipettes and burets. The xylenol orange indicator is changing color red to yellow. The accuracy was considered by the end pointed is nearly equilibrium points. CT was developed their problem-solving skills when performing the calculated bismuth ion in the cosmetic whitening products (Mistry& etal, 2016).

MATERIALS AND METHODS

Sampling of the facial whitening cream products

A total of 30 facial whitening cream samples were purchased from the local markets and convenient stores in Thailand. The samples were certified check by FDA instituted of government of Thailand that were certainly causing interference of lead or mercury.

Materials

The reference of bisnuth subnitrate was purchased from Sigma (0.001 M, $Bi_5O(OH)_9(NO_3)4$; Mol.Wt. 1464.99, (Sigma,USA), xylenol orange tetrasodium salt (0.1 gram in 10 ml of deionized water, $C_{31}H_{28}N_2O_{13}SNa_4$; Mol. Wt.760.6)(HIMIDIA, India) is indicator, ethylenediaminetetraacetic acid disodium salt-2-hydrate (0.001M of EDTA in buffer solution, pH 5.5; $C_{10}H_{14}N_2Na_2O_8.2H_2O$; Mol.Wt. 372.24)(Sigma,USA), nitric acid(0.1 M, HNO_3; Mol.Wt. 63.01 (RCI Labscan, Thailand) and organic solvent; n-butanol and $CHCl_3$(RCI Labscan, Thailand). Buffer solution, pH 2.0 is preparing by dissolve 40 g of anhydrous sodium acetate in 500 ml of distilled water. Add 35 ml of concentrated AR acetic acid and dilute to one litre with water.

METHODS

Experiments

A facial whitening cream was accurately weighed 1.000 g and extracted with the organic compounds with the solvent system of deionized water: n-butanol (10ml: 10ml). In the layer of water was repeated extracted with chloroform and kept the water layer for quantitative analysis of BS. BS in water solution was dissolved in 0.1 M of nitric acids and adjust in 100 ml by volume metric flask. Pipetted 10 ml of BS solution and added a pinch of xylenol orange indicator. Titrate slowly using 0.001 M EDTA to complete by changing color from red to yellow. Perform points 3 three times minimum. Calculated mass of bismuth in grams in the original sample in formula: $m_{Bi}v_{Bi}=m_{EDTA}V_{EDTA}$. These methods were repeated with the 29 samples. CT involved titrating metal ions with a complexing agent or chelating agent (ligand) and the metal ions are transformed into a metal complex or metal co-ordination compounds and the equivalence point is determined by using metal indicators Figure 1.

$$\begin{array}{c}\text{Metal ion}\\\text{(analyte; cation)}\end{array} + \begin{array}{c}\text{Chelating agent}\\\text{Ligand}\end{array} \xrightarrow{\text{Metal-ion Indicators}} \begin{array}{l}\text{Chelate complexing ion}\\\text{Metal co-ordination compounds}\\\text{Metal complex}\end{array}$$

Figure 1. Reactions of CT.

Course structure and experiment design

The experiment was introduced to a third-year undergraduate students in laboratory course for the project research of requirement of chemistry. The senior research was planned and the teacher advised and trained the students for the project research. For 25 students are separated for 5 groups which each group kept 5 samples of the facial whitening creams in their local markets and the samples were low cost in 30-50 cents US$. Structure of the experiment were designed by recorded the data of ingredient of the facial whitening creams samples, planning the experiment, educated the theory of the CT, preparing the equipment and chemical experiment and joining and summarized the data of experiments Figure 2. The study used 1 month in the end of semester.

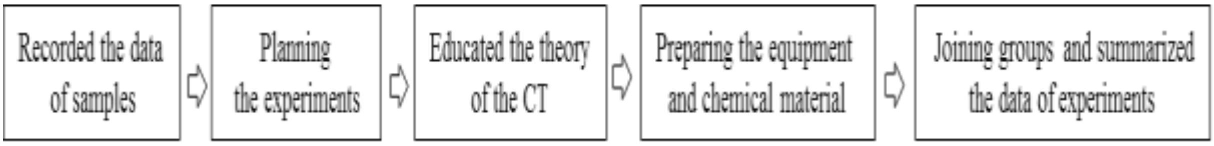

Figure 2: Planning of experiments.

RESULTS

For 30 samples of the facial whitening creams were used CT methods for calculated and quantitative analysis of BS in the environment of EDTA. Usually, EDTA titrations are conducted in alkaline conditions under which EDTA will be present in different forms including H4Y, H3Y-, H2Y2-, HY3-, and Y4- . Therefore, controlling of Bi ions in the pH 2 is one major factor that affects complexation. The indicator is xylenol orange changing color from red to yellow. Experiments used 1 g/sample and prepared in the nitric acid solutions. Then, an accurately known volume of the sample solution for 10 ml, is pipetted into a titration vessel and the analyze of interest is carefully titrated with standardized with EDTA solution an appropriate titrant to the endpoint or equivalence point of the titration of 30 samples showed in Table 1.The Quantitative of BS were calculated in formula of

$$m_{Bi} = m_{EDTA}V_{EDTA}/V_{Bi.}$$

Table : 1 The volume of EDTA in the end point of 1g for each of sample

Sample No.	V_{EDTA}(ml)	Sample No.	V_{EDTA}(ml)	Sample No.	End point of EDTA(ml)
1	1.63	11	2.10	21	1.65
2	1.73	12	1.57	22	1.53
3	1.93	13	2.01	23	1.73
4	1.53	14	1.93	24	1.60
5	1.60	15	1.63	25	1.78
6	1.89	16	1.88	26	1.63
7	1.77	17	1.58	27	1.46
8	2.10	18	1.77	28	1.81
9	1.85	19	1.49	29	1.58
10	1.56	20	1.43	30	1.52

The molar of m_{Bi} were multiply the molecular weight of BS 1464.99 gave the gravimetric of BS and were calculated the percentage of BS in the facial whitening creams of 30 tradition bands in Table 2.

Table : 2 Quantitative and percentage of BS in the facial whitening creams for 30 samples

Sample No.	g/1 bearing	%BS	Sample No.	g/1 bearing	%BS	Sample No.	g/1 bearing	%BS
1	1.91	47.86	11	2.46	61.53	21	1.65	48.34
2	2.03	50.79	12	1.84	46.00	22	1.53	44.93
3	2.27	56.65	13	2.36	58.89	23	1.73	50.79
4	1.80	44.93	14	2.26	56.55	24	1.60	46.88
5	1.88	46.88	15	1.91	47.76	25	1.78	52.15
6	2.22	55.38	16	2.20	55.08	26	1.63	47.76
7	2.07	51.76	17	1.85	46.29	27	1.46	42.78
8	2.46	61.53	18	2.07	51.86	28	1.81	53.03
9	2.17	54.20	19	1.75	43.66	29	1.58	46.29
10	1.83	45.71	20	1.68	41.90	30	1.52	44.54

When the experiments were completed. The students were knowledge the steps of research which were handling the experiments in the course times and save times. The teacher aim to improve our student's ability to perform inquiry based experiments and develop their higher-order cognitive skills, guided-inquiry experiments have been introduced into the project research of chemistry.

DISSCUSION

The one sample of facial whitening cream was bought it in cost of 30-50 cents of $US. Manufactory reduced the costs by using the chemicals which low toxic and low costs. Although, FDA instituted of government of Thailand are control the dose for ingredient in the cosmetic. The worker women have low income used these facial whitening creams for prolongs which have not the knowledge and the 30 samples of facial whitening creams have average of BS in 49.85 % when the women used them and detection the sunlight for longs times the BS were irritated skin and eye. Skin-whitening agents are mostly thought to be safe, but there are some reported cases of allergic contact dermatitis due to the ingredients of these agents.

CONCLUSIONS

This experiment is an example of a classic titrimetric analysis. Classical methods of analysis such as titrimetric and gravimetric analyses are usually capable of very high precision and accuracy. Bismuth can be determined by instrumental method, in particular spectroscopy. However, it reacts easily with EDTA forming stable coordination compounds even in acids, so this method is worth consideration, too.

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Appraising The Innovation Week Paradigm In Line With Malaysian Ministry Of Higher Education Blueprint

Maher Fouad SEFEIN
Surgical Based Department
Faculty of Medicine and Health Sciences
Universiti Malaysia Sabah, Malaysia
msefein@ums.edu.my

Daw Khin Saw NAING
Community and Family Medicine Department
Faculty of Medicine and Health Sciences
Universiti Malaysia Sabah, Malaysia
dksnaing@ums.edu.my

Aza SHREEN
Faculty of Medicine and Health Sciences
Universiti Malaysia Sabah, Malaysia
azashern@ums.edu.my

Zainal Arifin MUSTAPHA
Faculty of Medicine & Health Sciences
Universiti Malaysia Sabah, Malaysia
drzainal@ums.edu.my

Kamarudin D. MUDIN
Universiti Malaysia Sabah, Malaysia
kmarudin@ums.edu.my

ABSTRACT

Malaysian Education Blueprint 2015-2025 (MEBP) identified 10 Shifts to be capable of producing job-creating graduates. In turn, the Faculty of Medicine and Health Sciences (FMHS) took the initiative by conducting the Innovation Week (IW) annually to implement these shifts. The IW paradigm was composed of five main activities which were *Seminar competition, Exhibition show, Smart Model competition , On- Line Quiz and Hands-on Workshop*.

The theme of the *seminars* was related to the application of technology in medical fields and community. The *exhibitions* showed the innovative projects and medical gadgets. The *hands-on* workshops had sharpened the students' skills and promoted the spirit of research. These skills were supportive in executing projects .The number of projects created by students in the *smart model competition* had significantly increased year after year. So also was the participation in the *on-line quiz*. The latter aimed to increase the participants' curiosity. The high number of participants, their satisfaction, and appreciation for IW activities indicate that IW paradigm is not just an annual event, but it is also a learning process. The analysis of activities revealed that IW paradigm addressed the substantial component of 10 shifts towards global education standards and it also flourished variety of intelligence among students.

Keywords: Innovation week, Blueprint, intelligence, experiences, skills, creativity, online, curiosity, prototype

BACKGROUND

Malaysian Education Blueprint (MEBP) 2015-2025 has introduced 10 shifts in the education system aiming to develop high caliber graduates who are skillful, creative and well equipped with appropriate ethics and attitude towards overall social development (Ministry of Education Malaysia, 2015). In the current competitive market, only the intelligent, creative and innovative graduates could secure the good chances for employment. As such, achieving the above goals is crucial for the graduates generally. The educators at large are trying hard to overcome the foreseeable obstacles to reach those goals. As for the medical graduates, these goals are an integral part of the professional standards. Medical students face particular challenges in promoting their creativity. They have to encounter an abundance of information they should absorb, digest and stored in for further application. At the same time, compact schedules of learning activities in both preclinical and clinical phases allow them a minimal chance to stimulate their creativity and innovative skills, in comparison to their colleagues in faculties of Arts and Engineering. Sir William Bragg said "The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them". (Gurteen,1998). The faculty (FMHS) has established annual Innovation Week paradigm platforms for exploring and exercising creative skills among students and staff alike. Also it is an opportunity to invest students' intelligence, talents and skills since 2012. Meanwhile this IW paradigm is a main channel to implement the Blueprint (MEBP). This appraisal work was done to assess *to what extent the IW paradigm could address various components of 10 shifts introduced by (MEBP) and activate students' multiple intelligence.*

THE IW PARADIGM

Since the inception of the Faculty of Medicine and Health Sciences (FMHS) under the auspices of Universiti Malaysia Sabah (UMS), the faculty has identified that there is a need to promote innovative ideas and enhance creative talents of the students. In response to that need, a joint student and staff club for nurturing, promoting and exchanging innovative ideas and creative thinking among members was established. The club is named da'Vinci in inspiration by the thinking ways of the brilliant and visionary Leonardo da Vinci (1452-1519) (Gelb, 2009.p38). The club members (the Davincians) worked together to develop activities in which all students and staff can participate in a delightful way and at the same time explore their creativity, personal talents, and innovative ideas. Then the concept of Annual Innovation Week (IW) was born and gradually translated into activities. The faculty promoted the IW paradigm every year since 2012. In the context of IW paradigm, three competitive events, one major exhibition and one co-curriculum workshop had been organized yearly. Each activity was designed to address a particular aspect of students' intelligence and interests as proposed by the students and faculty members.

The first competitive event was the ***Seminar*** session which was a platform for brainstorming innovative ideas about different medical issues. In 2015, the theme of the seminar was "Application of Technological Advances in Medicine", whereas in 2016 it was "Usefulness of Technology in Community Practice".

It was opened to all medical and nursing students in FMHS. The the seminar proposal was usualy prepared 3 months prior to the event (Appendix 1) . The guidelines of the seminar and application forms were available on-line to all participants to help them in organizing the presentation systematically. Each seminar managed around 10 presentations . The presenters were in groups. The composition of the group allowed inter-professional education and ensured horizontal and vertical integration as students from different levels (year of studies) and different professions (medical and nursing) could be in one single group. Each group got an allocated time of 10 minutes to deliver their own presentation and 5 minutes for question and answer (Q&A) session . This interaction between presenters , audience and panel was achance for exchanging ideas, suggestions and further brain storming. Fairness of evaluation was guaranteed by having a panel of 10 judges from various disciplines together with the students' representative. The overall marks given by the panel were ranked to choose the best presentations. The top three winning groups were appreciated with attractive awards to motivate a further generation of innovations and creations.

Within the above event, two keynote speakers were invited to enhance culture of creativity and innovation among the students. These lectures covered multidisciplinary issues usually untouched in the formal curriculum. The **keynote speeches** included topics like "*How to develop creative thinking?", "How to appreciate fine arts?"* and *"Concepts of technology applied in medical gadgets*" etc.

The second competitive event under the IW paradigm was the *Online-Quiz Competition*. The Davincians developed the quiz with the help of faculty members and the quiz was opened to all students and staff. The FMHS e-learning system was the channel used to conduct the Online-Quiz Competition. The questions were in multiple choice (MCQ) format and prepared in three different levels of difficulty. Generally, it aimed to increase the participant's curiosity and interest in innovation, science and critical thinking. Those achieving highest scores in this competition were also awarded grand prizes during the annual events of the faculty.

The third competitive event designed in the Innovation week was the ***Smart Model Competition***. It was set to enhance psychomotor skills, spatial intelligence and artistic capabilities of students and meant to motivate students to learn the complex basic sciences while developing the models. The event promoted the culture of learning-by-doing in which students comprehended and analyzed the complex concepts and structures by creating interactive or static models. The competition was opened for all students and they had submitted the models as individual project or team project. As the organizers had gained experiences over the successive years, the rules and regulations were revised and updated to keep the competition effective and interesting. Creating dynamic models and practical prototypes were encouraged.

Parallel to the seminar, an ***exhibition*** was held to display the real examples of technology in medical practice. The FMHS invited third parties to showcase their innovated appliances in the medical field. The posters, prototypes, innovative designs and projects created by the FMHS lecturers were placed in the interactive corner of the exhibition. This exhibition aimed to expose the students to current innovations in medical and health fields so as to inspire them to create own projects. In 2016, the students managed to sell own created products as an income-generating attempt for the da'Vinci club. Also, a competition among students on "Hands-on Cardiopulmonary Resuscitation (CPR)" using a high fidelity simulator, was sponsored by the invited third party company. It aimed to make learning a pleasant quest.

The fifth event in IW paradigm were ***Hands-On Workshops*** which was catered to expose the students to relevant para-curricular concepts. Each workshop was designed to inculcate the research and inventing culture among students in a unique approach. With the intent of bridging the gap between biology and technology, two hands-on workshops namely *Robolab and Mechatronics workshop* were held in 2014 with the instructors from the faculty of engineering. In the Robolab workshop, students learned how to design simple robots using ROBOLAB and MINDSTORMS Education, version 4.0 from LEGO Company. Students attempted experiments with the robots to simulate the laws governing the nervous system. In Mechatronics workshops, the students learned how to construct simple electronic circuits which are the cornerstones of basic robots and medical gadgets. In 2015, the Department of Pathobiology and Medical Diagnostics in conjunction with the da'Vinci Club conducted a *Histo-Technique workshop* to expose students to the skills of preparing pathology slides. Meanwhile, in 2016, a *Medic-Art workshop* was held in collaboration with the Faculty of Arts and Humanities. The students learned how to use practical and affordable materials in creating aesthetic medical models .The number of students in each workshop was limited to a maximum of 20 participants to allow individual quality time for hands-on experiences and close supervision by instructors.

METHODOLOGY

This study aims to appraise the IW paradigm in line with the Malaysian Education Blueprint 2015-2025 (MEBP) and to explore its role in enhancing creative and innovative culture among students and staff of the FMHS-UMS. The parameters for appraising this paradigm includes the magnitude of students' participation in each activity (Appendix 1) , the quality and quantity of submitted projects and models and students' satisfaction after each event (Appendix 2). As hundreds of schools across the globe have incorporated principles of Multiple Intelligence into their missions and curricula for better performance and improving academic standards (Davis, Christodoulou , Seider,& Gardner, 2013) , this study also analyzes both MEBP and IW activities in view of multiple intelligence theory.

RESULTS

Overall, the tendency of the students to contribute in IW paradigm activities has been increased in the last couple of years in comparison to the previous year as shown in figure 1.

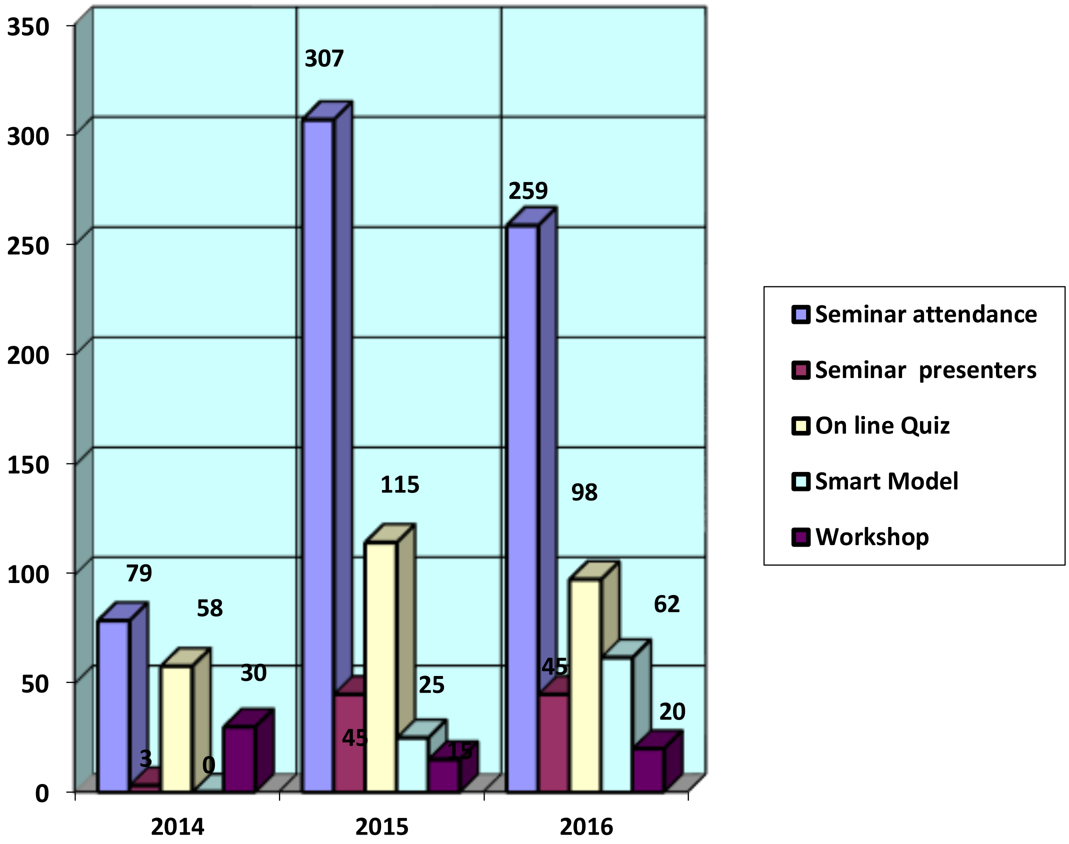

Figure 1:The students' participation in Innovation Week Paradigm activities from 2014 to 2016

PARTICIPATION AND ATTENDANCE IN THE SEMINAR:

The peak of *seminar* attendance was in 2015, in which 307 attended it. It dropped to 259 in 2016 as the nursing students were in semester break. Anyhow the attendance in both years is higher than 2014 when only 75 members attended. 13 groups (45 students) presented in 2015, compared to 10 groups (35 students) in 2016 and only one group of students in 2014. The majority of presenters were from freshmen years. Only one group from year 4 medical course contributed in 2016 and eventually got the first prize. Most of the presentations reflected general topics related to basic concepts and principles of medicine and technology relevant to the first year learning contents.

Figure 2, represents the breakdown of disciplines presented in 2015 seminar. The first winner in 2015 seminar proposed a medical gadget. However, they could not develop it into a prototype because of the heavy study workload in the successive years. However, the first winner in 2016, introduced new ideas of telecommunication to bridge the doctor-patient relationship. The range of scores for the first 3 ranks was wide (85% to 72%) in 2015, but was narrower (73% to 71%) in 2016 indicating the close competition among the participating groups Students` feedback was asked on a rating scale in response to the structured questionnaires, each component focusing on specific aspects of the seminar. In 2016, the overall Program gained 83% of attendee satisfaction. The Scientific Contents (Q1+Q2+Q3 + Q4) obtained 69% satisfaction and the venue and time management (Q6+Q7) was rated as satisfactory by 76% of attendees. In order to gather further opinions, comments and suggestions, the questionnaires also included an open-ended section. 33.35% of students in 2015 claimed that the seminar had introduced new concepts and generated creative ideas and several students put up constructive criticism and suggestions for improvements.

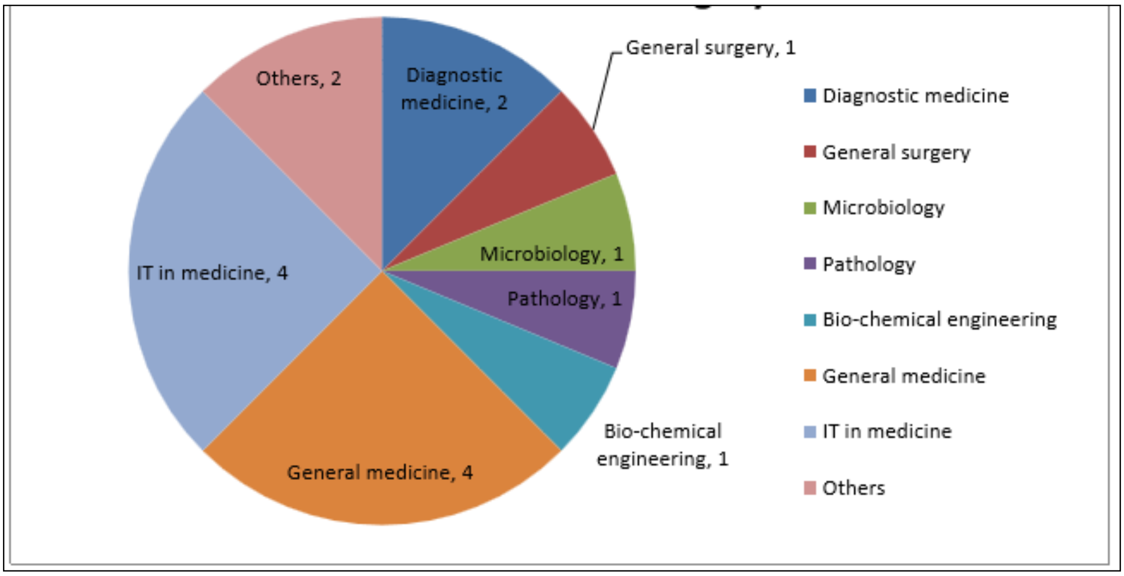

Figure 2: Disciplines of presentations in Seminar competition Innovation week 2015
(Some presentations covered more than one category)

PARTICIPATION IN EXHIBITIONS

Almost all students attending the seminar participated in the *exhibition*. The activities during the exhibition in IW 2016 were graded as highly satisfactory by 70% of attendees. Students got opportunities to test with the innovation models created by the faculty members and tried the CPR simulator. The interest and assistance by the FMHS staff promoted the success of the event.

PARTICIPATION IN ONLINE-QUIZ

For the *On-Line Quiz* competition, the highest number of participation was 115 in 2015, but a bit declined to 98 participants in 2016. However, it was still higher when compared with 2014 in which only 58 participants were recorded. Both students and staff participated in all years indicating the level of interest ignited by the online quiz within the faculty.

PARTICIPATION IN SMART-MODEL COMPETITION

The number of prototypes created by students in *Smart-Model* competition had significantly increased year after year. In 2015, 25 students presented only 17 projects. The majority were from first-year medical program and nursing program. In that year, the 3 best models were created by nursing students. In 2016, 62 projects were submitted for the competition by first and fourth-year medical students. Nursing students submitted 8 projects. The best model in 2016 was a dynamic model for extra-ocular muscles submitted by the fourth year medical students. They claimed that the idea was incepted in their freshmen year, but was only able to develop the model after gaining some in-depth knowledge of eye movements. The rising number of smart-model project submissions indicates that culture of innovation is flaring up among students.

Figure 3, illustrates some important facts about the smart model projects submitted in 2016. The majority of projects created by year 1 medical program followed by nursing students and the minority from senior students. Most of the projects were done individually but about 20% were developed by teams. Most of the projects accomplished in less than one week time. The majority of students made those models by themselves at home and at the da'Vinci club

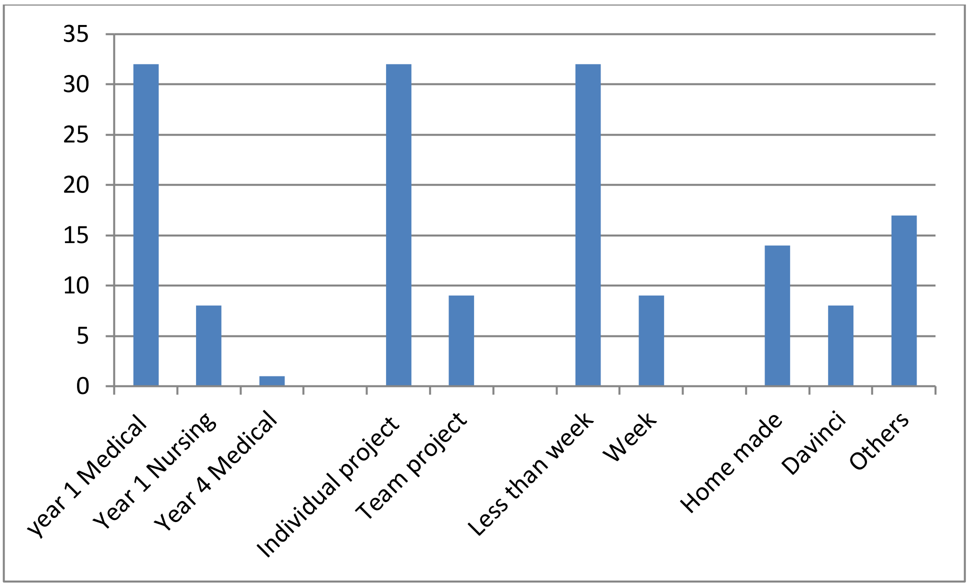

Figure 3: Facts about Smart Model projects submitted in 2016.

In figure 4, the pie-chart shows the materials used in creating Smart Model projects. 30% of participants used paper clay in their projects. Using paper clay in modeling was introduced to the students during *Medic-Art workshop* which was held earlier in February 2016.

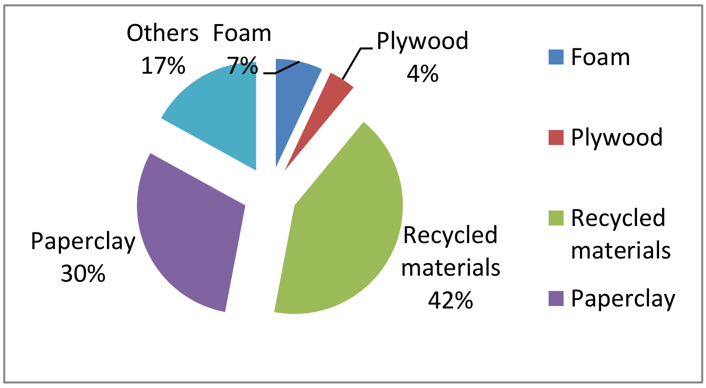

Figure 4: Materials used in creating Smart Models.

In 2016 feedback about Smart-Model Competition, 88% of participants reported that they got new skills by joining the competition (Appendix 2). Around 80% found it was really motivating for them to create new projects. The rules and regulations were perceived by the students as quite clear. 50% of participants came to know about Smart Model competition during the launching of the Innovation week and they implemented the projects after that. 78% used the materials and tools available in da'Vinci club. In the open-ended questionnaires, 38 students expressed that this competition helped them to improve their skills, enhanced their creativity (by 17 students), they got better understanding to basic sciences (by 3 students), managed to think critically and creatively (by 3 students), and improved their artistic skills (by 4 students). 10 students responded that they enjoyed making models and 3 students found it was interesting and amazing.One project was chosen in 2015 to be upgraded for the competition at the university level. It was awarded a bronze medal in PEREKA 2015 (a yearly competition for research and innovation held by the university). From Smart–Model 2016, 2 projects had been chosen to be upgraded and compete at the university level in September 2016.

PARTICIPATION IN HANDS-ON WORKSHOPS

The attendance was based on the limited number of seats available for each workshop. Students' feedback in response to Hands-On Workshops reflected their high satisfaction of the contents and processes. Overall they acquired new skills and had been motivated to think and perform creatively. Table 1 represents the percentage of attendees grading excellence or highly satisfactory in specific categories. Over 3 successive years, more than 90% categorized the workshops as excellent. Students were impressed by the 2014-workshops' exposure to basics of robotics, mechanics and electronics and were appalled by their capability in making basic circuits on their own. It bridged the gap between technology and biology, as the students picked up the concepts of diagnostic and therapeutic gadgets used in medical field.

Table1: Comparison between workshops held in IW 2014 until IW 2016

Feedback analysis	2016 Medic-Art	2015 Histo-Tec.	2014 Robo Lab	2014 Mecha-Tronics
Mean (Q1,3,4,6) Scientific content	89.9%	97.5%	92%	90%
Mean (Q5) Inspiriting Innovation	90.5%	86.7%	83%	95%
Mean (Q2,7) Logistics of workshop	83.3%	86.7%	90%	90%
Mean (Q8) Overall activities	97.6%	100%	93%	93%
Attendance	20	15	18	12

The students found Histo-Techniques workshop held in 2015 well scheduled and optimally managed within the allocated time. The scientific content delivered during the workshop was said to be appropriate and relevant for their future application. Feedback from participants of Medic Art Workshop in 2016, was highly positive. Some participants described it as "*interesting, fun and useful in spite of being tiring!*". It is worthy to note that the multidisciplinary workshops inspired innovation among 89.3% of the participants according to their feedback.

DISCUSSION

Preparing Malaysian youths to thrive in the ever-advancing future and competing market requires a fundamental transformation in the higher education system. For this reason, MEBP (2015-2025) outlined 10 shifts for developing graduates who are active job creators rather than passive job seekers and able to shape their own future (Sani, 2015). This study thus appraises the concepts and outcomes of IW paradigm as a tool in implementing MEBP at the faculty level. Parallel to that, IW paradigm is discussed as a compatible medium to flourish students' multiple intelligence (MI) because the graduates need to ignite their intelligence, skills and experiences to be able to compete globally.

INNOVATION WEEK (IW) AND MULTIPL INTELLIGENCE (MI)

According to Gardner's analysis, only two types of intelligence (linguistic and logical-mathematical) out of eight have been valued and tested for in modern education. In further studies, Sternberg (1985, 1990) categorized theses 8 bits of intelligence in a triarchy theory of intelligence that identified analytic, creative, and practical intelligence (Davis et al.,2003). The intelligence in this sense , can be developed throughout life and offers a powerful inspiration for aspiring people to think like da'Vinci (Gelb,2009, p.4) . IW paradigm with its different activities flourished most of MI categories offered by these theories. The only the intelligence which could not be practiced in this paradigm was the musical one. The students could be trained, encouraged and valued by the academic culture; but development is by own effort and external coach (Davis et al., 2013). Table 2 matches IW activities with the compatible intelligence that is required to perform it.

Table 2: Matrix of IW activities, 10 shifts of MEBP and multiple intelligence

Innovation Week Paradigm						10 Shifts MH Blue Print	Multiple Intelligences							
Hands-On Workshop	Smart Model comp.	On-Line Quiz	Seminar Present.	Seminar Audience	Exhibition		Logic-math.	Linguistic	Spatial	Naturalistic	Musical	Kinesthetic	Interpersona	Intrapersona
X	X	X	X	X	X	Innovation Ecosystem	X	X	X	X	X	X	X	X
X	X	X	X	X	X	Holistic think.	X	X	X	X	X	X		X
X	X	X		X		Life Long learning	X	X	X	X	X	X		X
X	X		X			Transfer. skills	X	X	X	X	X	X	X	X
X	X		X			Talent Excellence	X	X	X	X		X		X
X	X		X		X	TVET	X	X	X	X	X	X	X	
		X				Online Learn.	X	X						X
	X				X	Entrepreneurship	X	X	X		X		X	

During IW, *On-line Quiz* and *Seminar* presentations activated linguistic, logical-mathematical and interpersonal and bodily-kinaesthetic intelligence. *Smart model competition and Hands-On workshops* encouraged spatial and naturalistic intelligence.

Different activities in IW paradigm opened the gate for the organizers and participants to discover their capabilities, which is also another important shift in MEBP. The special intention was given to arrange multidisciplinary *Hands-On workshops*. Through different workshops, new skills and experiences could be acquired. were great chances to acquiring new skills which demand to learn new techniques and gain experiences to flourish the related intelligence. In the Hands-On workshops candidates learn by imitation first, then they progress to practice, experiment and create own ideas or products (Wissink, 2013.p 69). Gardener sees skills as the cognitive performances resulting from the operation of one or more intelligence (figure 5). Meanwhile, *intelligence* is a combination of heritable potentials (*talents*) and *skills*, and can be developed through relevant *experiences* (Gardner & Moran, 2006).

Figure 5: The interrelation between skills and intelligence

In the *seminar* presentations, most of the presenters took the chance to improve their communication skills. Meanwhile some showed exceptional skills in using body language, bodily-kinaesthetic and social intelligence. They got compliments from the judges as they were able to speak confidently. These are crucial skills for medical students to pass the examinations and for the practitioners to work effectively. The seminar is a good occasion for training to develop these types of intelligence which may or may not be offered in medical courses (Chazal & McCarter, n.d.). Extensive research has shown that "*no matter how knowledgeable a clinician might* *be, if he or she is not able to open good communication with the patient, he or she may be of no help* "(IHC, 2011). As IW is considered a student-centred activity. It sharpened their leadership and decision-making skills. In IW, the senior brothers and sisters from year 2 guided their juniors from year 1 to develop projects, presentations and models for IW activities. A significant increase in participation was thus observed.

INNOVATION WEEK (IW) AND 10 SHIFTS OF MEBP

THE INNOVATION ECOSYSTEM is required to move from academia operating in isolation to the development and commercialisation of ideas. MEBP encourages universities to establish co-utilisation of infrastructure and sharing talent development programs (MEM,2015). Davis et al (2013) define the ecosystem is an environment that influences and shapes students' intelligence, skills and creativity.

IW paradigm enhanced the Ecosystem in the faculty as it nurtured an environment of creativity and an atmosphere of innovation utilizing most of the faculty facilities and infra-structures. The e-learning portal of FMHS, the da'Vinci club facilities and fine arts gallery were fully utilized during implementing IW activities. The exhibition was another chance to bring in the real world of innovation to the preclinical students, so they could see, feel and try the medical technology. Also, Ecosystem was inculcated as teamwork culture was essential to get along with IW activities. In 2016, a team of 20 academicians, 11 staff and 32 students worked in harmony to facilitate 5 grand activities and manage around 400 participants and competitors. During that experience, the team had to find some creative means to handle different attitudes, behaviors and skills. It was a challenge to inculcate the habit of being creative in every minute of students' lives and in every decision and interaction (Gurteen,1998). On the other hand, as IW was established as an annual event, the culture of innovation was sustained among faculty members. These loop of creative activities where students learn (in hands-On workshops), practice and experiment (in the da'Vinci club), compete and rewarded (in Smart Model competition) implement the concept of the ecosystem in FMHS. This sequence in the IW paradigm motivates the students mass to display their best capabilities, invest their intelligence and build a rich foundation of creativity and innovation culture (Wissink,2013,p.75).

HOLISTIC AND BALANCED GRADUATES

Developing of **Holistic and Balanced students** is another shift MEBP would like to achieve. Preparing the graduates for future requires imbuing the students with transferrable skills, instilling ethical foundations and impregnating the spirit of resilience to forge new opportunities for themselves and others (MEM, 2015).

IW paradigm helped the faculty to implement the concept of balanced and holistic curriculum through its themes. The diverse activities in the paradigm invested the different bits of intelligence and encouraged brainstorming among studens. The brainstorming approach was developed by Alex Osborn in the 1950s. *In brainstorming, quirky ideas are welcomed, so many of the issues of group problem-solving are overcome*. (Cook,n.d.). The ability to think divergently and to stimulate the process of generating as many ideas as possible defines our creativity (Mean, 2006.p35). Creativity involves solving problems or fashioning products in a novel way (Davis et al., 2013) . Sufficient mastery of a domain is required to formulate new techniques, ideas or products and it might take thousands of hours to master a domain, (Hayes, 1989; Simon & Chase, 1973). Continuity of IW activities (workshops and competitions) year after year exposes the students to various domains and motivates them to master the learned skills and create new ideas. The successful implementation of creative ideas is the precursor and starting point of innovation which demands the skills of creativity (Taylor, 2013.p18). The balanced activities and different techniques of holistic thinking, came out with fabulous ideas and products in IW. At the same time, it inculcated a crucial attitude in practicing clinical medicine (Ramanathan, Gupta, Walk & Carstens, 2015).

TALENT EXCELLENCE

MEBP intends to **attract, recruit and retain best talents**. Developing and promoting talented students, researchers and educators are vital for higher education instates (MEM, 2015). During IW paradigm, the loop of activities synergized the students' talents and creativity. So, the medical student could transform the academic knowledge into an innovative project in *Smart Model* or an interesting presentation in the *Seminar* by using the creative skills learned in *workshops*. The talented candidate could be recognized during his/her performance in this process.

In this study, IW paradigm was seen as an opportunity to discover potential talents among staff and students. During implementing IW paradigm activities, the personal differences and the profile of intelligence were highlighted (Davis et al.,2013). The IW activities required many tasks as planning , leading , administrating, designing flyers , developing IT system , communications, creating multimedia materials, etc. Accordingly different tasks had been assigned to the committee members to give them a chance to master their talents. The IW had identified few creative talents among quiet students and staff. In 2015, a student created an interactive model which was awarded a gold medal. With guidance from the faculty members, the model got improved and upgraded and was awarded at the university level (figure 6). In the 2016 season, a student (with moderate cognitive achievement) had shown high spatial intelligence. He designed the project and completed the prototype in a relatively short time. He showed a high level of skills in using a variety of tools. This project was awarded a gold medal in Smart Model competition (figure 7). Davis et al.(2013) found that the skills act on the external world, so it may be flourished by the supports or discouraged by the constraints of the environment.

Figure 6: Swallowing process (left) & figure 7. Extraocular muscles model (right)
Dynamic projects were created by talented students in 2015 and 2016 respectively.

GLOBALIZED ON LINE LEARNING

As Internet penetration in Malaysia is currently ranked at the seventh highest position across Asia, MEBP aims to encourage the power of online learning. It emphasizes on **Globalized Online Learning** and encouraging the **Life Long Learning** (MEM, 2015). During the IW activities, the campus website, the cyber infrastructures and personal electronic devices were used in conducting *On-Line Quiz*. This quiz enhanced the Life Long Learning as it attracted not only students but also academicians and staff alike. The e-learning system was used in publishing IW announcements, rules and regulations online, thus reducing the paperwork and helped to go green in line with the University's Eco-campus drive. The seminar was teleconferenced to students in district posting stationed 200 kilometers north of the campus to encourage distance learning. Using e-portal system in this activity is an example of blended learning system in FMHS. Nowadays, it is highly recommended to use blended learning in medical education, combining e-learning, learning by doing, traditional teaching and simulation training. (Cleland& Durning ,2015; Scheele,2012).

QUALITY TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING GRADUATES

To meet the growing and changing demands of the marketplace, the ministry of education blueprint aims to acquire programs to develop high quality of **Technical and Vocational Education and Training (TVET)** graduates (MEM, 2015). Developing the high-quality adult graduates requires appropriate facilities, committed trainers and willing trainees. Houle (1961) highlighted three types of adult learners: those who are learning oriented, the goal oriented and the activity oriented. The learning oriented adult is driven to learn simply by the pleasure derived from learning (Green, 2004). It is a challenge in medical education to design a curriculum in such a way that learning is pleasurable and supported by different styles of teaching and learning (Scheele ,2012).

To overcome this challenge, para-curriculum workshops were included in IW paradigm. During hands-on workshops, the students learned new skills by doing. Those workshops helped in flourishing cognitive spatial, kinesthetic, interpersonal and intrapersonal intelligences. 89.3% of participants agreed that the training settings motivated their creativity. In this study, the learned technical skills in Medic-Art workshop were applied in 30%

of projects submitted for Smart Models competition. That means such training was fruitful in developing the trainees' skills and enhancing their creativity. According to CLIP methodology, innovation in any organization can be encouraged when four factors are provided in a loop. These four factors were described as (a) having the facilities and venue to practice (*Creative workstation*), (b) learning new skills (*Learning*), (c) sharing and brain storming ideas with experts (*Ideas*) followed by building a product or finding a solution (*Prototyping*) (Sefein, Iftikhar, Ali & Mariappan, 2011;Kourdi,2015.p88). Yet, preparing graduates with high technical qualities could be enhanced by increasing the opportunities of training all over the academic year to address different interests and types of intelligence among the students. Sustainability of IW paradigm improves the students' training in particular areas. In IW 2016, the top winners in seminar presentation and Smart Model competition were senior students from the fourth year. They admitted that the concept of the model was kept in their minds since 2014 but got the capability to contribute only in 2016 season.

FINANCIAL SUSTAINABILITY

MEBP addressed that Malaysia needs to move from a system that is highly dependent on government resources to one that all stakeholders contribute (MEM, 2015). This sort of **financial sustainability** was approached at a small scale in IW paradigm. During the exhibition of IW 2016, Davincians contributed with handmade creative products for income generation to fund part of innovation activities. Even though the generated income was relatively small, it enforced the concept of entrepreneurship among students. Continuity of IW in future, could motivate the medical students to find creative, effective and sustainable solutions to raise the fund for their own club.

LIMITATIONS

Constraints of time was the main obstacle faced in implementation of IW paradigm. This event clashed with conventional time table, exams and the semester holidays. This might have affected the students' involvement in IW events. However, close collaboration with the faculty management could solve this problem in future.

CONCLUSION

The above evidence indicates that IW paradigm addressed the substantial component of 10 shifts towards global education standards. Also, it invested different bits of intelligence among students and flourished it. The sustainability of the event over years increased the awareness about creativity and discovered hidden talents among staff and students. Accordingly, IW paradigm is considered a learning process not only an event in FMHS. Meanwhile, the faculty is creating newer and better approaches to achieve all (MEBP: 2015-2025) goals.

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APPENDIX 1

Application Form for Seminar Competition 2016

Theme of Seminar:

Innovative Medical Technologies in Community Service

Please complete the form below to provide category of your presentation

- **Title**
- **Team members**
- **Phone (Team Leader)**
- **E-mail (Team Leader)**
- **Abstracts (Not more than 100 words)**

- Deadline for submission application is 25th February 2016
- This application can be sent to e-mail, Justina (justinajosephkhj@yahoo.com)
- Form can be submitted by hand to Justina or Tan Yeang Jiann
- Please kindly refers to the rule and regulation.

APPENDIX 2

Feed Back on Smart Model Competition 2016

1- Data of the Participant and Project:

A.	**Academic Year**	1	**2**	3	4
B.	**Program**	Medical Program	Diploma Nursing	▨	▨
C.	**Participation as**	Individual	Team	▨	▨
D.	**Did you Attend MedicArt workshop?**	Yes	No	▨	▨
E.	**Material(s) used in project**	Foam	plywood	Recycled materials	Paper clay
		Others(Specify):			
F	**Venue of constructing the project**	At home	At Da'Vinci Club	Other venue?	-------------
G	**Duration of accomplishing project**	Days	(---------)	Weeks	(---------)

Please circle the appropriate data and specify required info.

2- SMART MODEL competition:

Please rate the competition following this scale : **4 Excellent , 3 Good , 2 Satisfactory , 1 Poor**

	Motivation and Facilities	***Score***				***Comments***
		4	3	2	1	
1.	Did the competition inspire you to innovate this project?					
2.	Are the rules and regulations of competition clear?					
3.	Are materials in DaVinci club useful?					
4.	Are tools in DaVinci club useful?					
5.	Did you get any technical support during working in Da'Vinci club?					
6.	Overall , did you gain new skills by contributing in the competition?					
7.	How did you know about Smart Model?	4	During Innovation week seminar.			2- From a friend
		3	From Learn Med			1- Other: specify

3- COMMENTS

- **What did you like most about this competition?**
- **What recommendations do you have to improve this SMART MODEL competition?**

ARE KAZAKHSTANI SCHOOLS READY FOR TRILINGUAL EDUCATION?

Madina ASHİRİMBETOVA

Suleyman Demirel University
Almaty oblast, Kaskelen, Kazakhstan
madina.ashirimbetova@gmail.com

ABSTRACT

It is known that the growing amount of international relations worldwide require mastery of two and often more languages of the in-service and future specialists. Kazakhstan as the country willing to enter the list of the top 50 developed countries of the world has to comply with these requirements and sustain the competition (Official site of the President of RK, 2006). In this respect, the status and functions of Kazakh language as the language of the state language, Russian as the language of international communication, and English as the language of global integration were defined by the government of the Republic of Kazakhstan (Law on the language, 2015). Furthermore, trilingual policy is introduced into the system of education (KazTAG, 2015). The pilot schools were chosen where the non-language courses would be taught in English. The present article dwells upon self-perceptions of the pupils of one of the pilot schools concerning their readiness for trilingual education and presents the results of their actual test achievements. The results of the study show mismatch of the pupils' opinions and their actual knowledge. The results of the study were aimed at providing an insight into debates concerning the possible benefits and potential challenges of the newly introduced trilingual system of education in Kazakhstan.

INTRODUCTION

In his Address to the people of Kazakhstan 'Kazakhstan's way – 2050' Nursultan Nazarbayev (2014) stated: 'a common goal, common interests, common future denote the need for active measures to study in three languages in schools. Our path to the future is connected to the creation of new opportunities for the potential disclosure of Kazakhstan ... School graduates should know Kazakh, Russian and English'.

In accordance with the objectives set by the President in the State programs 'Education Development in the Republic of Kazakhstan for 2011-2020' (2011), 'Functioning and development of languages for 2011-2020' (2011), and the cultural program 'Trinity of languages' (2012) by 2020 all Kazakhstanis must master Kazakh, 95% should know Russian, and 25% - English. Nursultan Nazarbayev (2012) also outlined the specific challenges of Kazakhstani education. It must become more competitive and high-quality, so that graduates of Kazakhstani schools become able to continue their studies in foreign universities.

THE STUDY

The issue of multilingual education program implementation is a step forward towards the development of education of the Republic of Kazakhstan. And the author of the paper takes the concepts of multilingualism and trilingualism as synonymous and these two are interchangeable in the context of the article. Learning three languages will be simultaneous and parallel, thus the issue is of special interest of the foreign language teachers, learners and their parents. The present paper aims at shedding certain light upon the arguments concerning the implementation of the trilingualism policy in Kazakhstani schools.

The breadth and level of multilingualism significantly affect the diversity of human life force, providing opportunities for professional and social self-determination, adaptation, enhancing creativity (Bulankina, 2002). Understanding this and a number of other issues connected to multilingual and multicultural specifics of the country, the government of Kazakhstan recently launched the Program of development of education and science of the Republic of Kazakhstan for 2016 – 2019. The program aims at the following:

- improve of competitiveness of education and science, development of human capital for sustainable economic growth;
- ensure equal access to quality pre-school education and training;
- ensure equal access to quality secondary education, the formation of an intellectually, physically, spiritually mature and successful citizen.

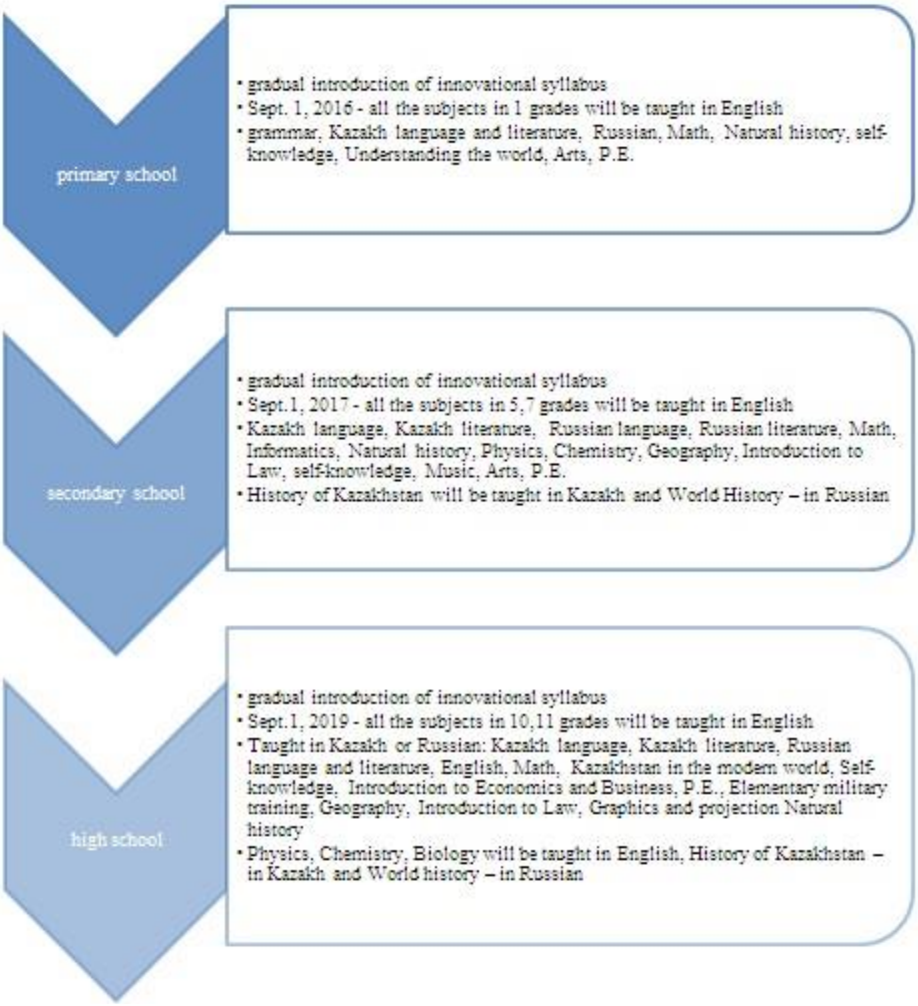
In order to achieve these aims the following objectives were set:

- improve teaching staff quality in preschool institutions and raising the prestige of the profession;
- update the content of pre-school education and training, focused on high-quality preparation of children for school;
- ensure infrastructural development of secondary education;

- update the content of secondary education;
- provide quality training of competitive specialists.

As it can be seen, the aims and objectives of the state program are global and ambitious. And schematic representation of the program implementation can be seen as the following:

Figure 1 – Trilingualism implementation scheme (Kuchma, 2016)



primary school

- gradual introduction of innovational syllabus
- Sept. 1, 2016 - all the subjects in 1 grades will be taught in English
- grammar, Kazakh language and literature, Russian, Math, Natural history, self-knowledge, Understanding the world, Arts, P.E.

secondary school

- gradual introduction of innovational syllabus
- Sept.1, 2017 - all the subjects in 5,7 grades will be taught in English
- Kazakh language, Kazakh literature, Russian language, Russian literature, Math, Informatics, Natural history, Physics, Chemistry, Geography, Introduction to Law, self-knowledge, Music, Arts, P.E.
- History of Kazakhstan will be taught in Kazakh and World History – in Russian

high school

- gradual introduction of innovational syllabus
- Sept.1, 2019 - all the subjects in 10,11 grades will be taught in English
- Taught in Kazakh or Russian: Kazakh language, Kazakh literature, Russian language and literature, English, Math, Kazakhstan in the modern world, Self-knowledge, Introduction to Economics and Business, P.E., Elementary military training, Geography, Introduction to Law, Graphics and projection Natural history
- Physics, Chemistry, Biology will be taught in English, History of Kazakhstan – in Kazakh and World history – in Russian

The main focus is on multilingual education that is viewed as an active way of preparing a young generation for the future of collaboration, network and mutual influence (Oskolkova, 2015). It is considered that multilingual language learners have experience in learning new languages and apply that prior knowledge to new language learning experiences. For example, they recognize that languages have structures and patterns that must be mastered, which may have similarities to languages already in their repertoire (Henn-Reinke, 2012). And trilingual education is understood as education that embraces the use of three languages as medium of instruction (Cenoz, Hufeisen & Jessner, 2001). The implementation of the program is planned to be gradual, and in all the three stages – in primary, secondary, and high schools there are extracurricular activities planned to be conducted in the three languages. And this is considered to be one of the key components for the development of all the three languages simultaneously (Sagadiyev, 2016). At the very beginning of the program implementation process the local society was divided into two camps – those who supported the idea of trilingualism and those who rejected that. The people whose opinions belonged to the first camp of trilingualism supporters claimed that in order to sustain competition globally the youth has to master the three languages. However, the people who rejected trilingualism object saying that as a result of this program the school graduates will master neither English nor the subject matter.

According to the opinion poll conducted by the information analytics center and "Obshchestvennoye Mneniye" Research Institute (Kuchma, 2016) where 1000 parents and 1055 pupils of 9 and 11 grades from all over the country took part, majority of the parents (66%) supported the idea of trilingualism in secondary schools, where

81% mentioned that they wanted their children to know English. 25% of the parents rejected the idea of implementing trilingual education to the school. The most frequently encountered argument against was the fact that not all the teachers were ready to teach their subjects in English – or, in other words, the lack of qualified and trained teaching staff. And Sagadiyev (2016) said that this problem will be solved with the help of summer courses for the first 80 teachers and the rest of the school teachers will be reached via internet. With this aim 2500 schools will be provided with high-speed internet connection.

While majority of the teachers supported the idea of trilingualism in general, majority of the pupils (68%) were not willing to study Informatics, Physics, Chemistry, and Biology in English. The main argument was that they would not be able to study neither English nor the subject, due to their insufficient knowledge of English (Kuchma, 2016). The issue of the mastery of English is closely connected to the usage of the language on the lesson. And the first stage of the study was aimed at finding out the pupils' opinions concerning the usage of the target language.

FINDINGS

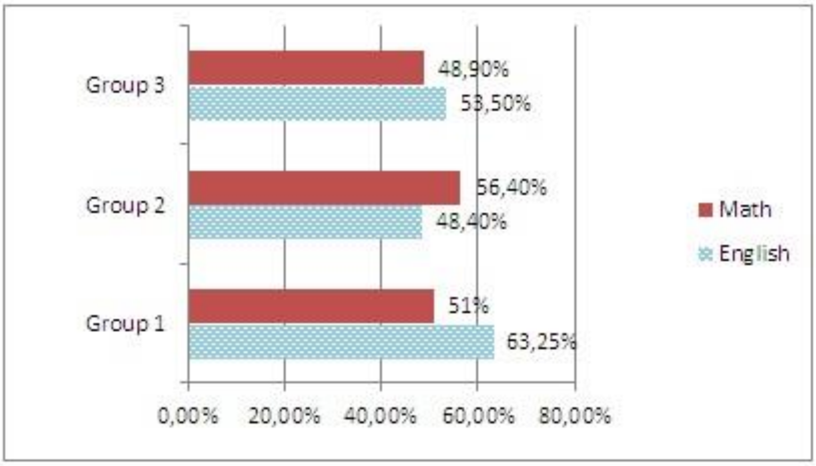
The present article presents the results of one of the stages of a larger project. The author of the article in cooperation with her colleagues conducted a study with the two schools of Almaty where trilingualism was already piloted. Teachers, pupils and school administration took part in this study. The pupils took part in opinion surveys and participated in tests. The teachers and school administration were interviewed. The analysis of the interviews showed that the administration was fully ready for further development of trilingualism and was already practicing application of a foreign language in teaching science classes. However, the teachers mentioned the issue of staff preparation. They were convinced that elderly teachers were not ready for this reform. Furthermore, they mentioned the lack of adapted quality literature for the lessons.

Along with English language lessons, Biology was already taught in English in these schools. And the aim of the current stage of the project was to find out the opinions and actual readiness of the pupils for studying Math in English.

Prior to the survey, the teachers were interviewed concerning their teaching methods. The issue of mother tongue application was one of the mostly discussed and the survey for pupils was aimed at finding out the attitudes towards the mother tongue in the lessons. Majority of the students pointed out that the teachers do not use English when explaining grammar. 21% of the responded said that teachers did not use English when giving tasks. As the further findings show, majority of the pupils used their mother tongue along with English (73%), 18% responded that they used another language different from English and their mother tongue, and 9% used only English. On the issue of usage of English – 76% of the respondents answered that that the teacher encouraged the usage of English only on the lessons. Furthermore, the pupils were asked if the usage of their mother tongue assisted acquisition of another language, and 94% of the respondents agreed on the fact that clarifying of the new lexis in their mother tongue helped really much. 91% of the respondents mentioned that the teachers asked to repeat the phrases in English if they initially said it in their mother tongue. And finally, the pupils were asked to assess their mastery of English and they considered their level as higher than average. Also the results of the opinion surveys showed that all of the students (100%) were ready for studying an additional subject in English.

After the opinion surveys the pupils were given tests in English and Math tests. The obtained results are presented in the Figure 2.

Figure 2 – The results of the Math and English tests of the 8th-grade pupils of the 2 pilot schools.



As it can be seen from the Figure 2, the results of the tests are slightly higher than the average which means that the pupils' self-perceptions were close to the actual situation.

CONCLUSION

The results of the first stages of the research presented in the current article show that pupils' opinions coincide their actual levels of achievement. Also the results revealed positive attitude of the teachers, administration and pupils to the introduction of trilingualism.

The usage of the mother tongue in the lessons by the school teachers is supported by Butzkamm and Caldwell (2009), Cook (2001), Cummins (2009), Henn-Reinke (2012), Herrlitz and Ongst (2007) and a number of other researchers who are convinced that the mother tongue is a good tool in the foreign language lessons assisting acquisition.

The government of the Republic of Kazakhstan is taking considerable steps in implementing trilingualism in the system of primary, secondary, and higher education and the short-term goal is that a number of subjects like Chemistry, Physics, Informatics, Biology in 10th and 11th grades will be taught in English in secondary schools from September 2016. There is also a program of professional development for the school teachers launched by the Ministry of education and science of the Republic of Kazakhstan. Furthermore, the amount of trilingual school is expected to reach 700 by 2020 (Iyldyz, 2015).

Summing up the issues connected to integration of the program of trilingualism, and the results of the initial stages of the study, it can be said that in general the system of secondary education of Kazakhstan is ready for application of a foreign language in teaching science but there is still a number of issues to be tackled and a long way to go.

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Assessing Presence Of Institutions Of Vocational Education As Factor Contributing To Economic Activity In Small Municipalities

Viktorija ŠIPILOVA
The Institute of Humanities and Social Sciences
Daugavpils University
Latvia
sipilova.viktorija@inbox.lv

Elita JERMOLAJEVA
Latvian Academy of Agricultural and Forestry Sciences
Latvia
elita.jermolajeva@gmail.com

Inta OSTROVSKA
The Institute of Humanities and Social Sciences
Daugavpils University
Latvia
inta.ostrovska@du.lv

Ludmila ALEKSEJEVA
The Department of Economics and Sociology
Daugavpils University
Latvia
ludmila.aleksejeva@du.lv

Dmitrijs OĻEHNOVIČS
The Department of History
Daugavpils University
Latvia
dmitrijs.olehnovics@du.lv

ABSTRACT

The article addresses an issue on contribution of presence of institutions of vocational education to economic activity, using the example of small municipalities in Latvia. Timeliness of the research finds roots in ongoing reforms towards consolidation of number of educational institutions in municipalities with small population. Additionally, scientific contributions on effect from vocational education and training on economy are scarce. Authors pay attention to entrepreneurial activities and financial flows in municipalities divided according to data on presence of institutions of vocational education and number of students. Application of paired T-test technique allows authors to search for statistically significant difference between municipalities with institutions of vocational education and without them. The research results discover statistically significant difference between municipalities with and without institutions of vocational education and training in terms of entrepreneurial activities and financial flows. However, adding of number of students in the analysis has changed results and difference between analysed municipalities' groups remains statistically significant only for financial flows. Research findings allowed authors to conclude that presence of institutions of vocational education and training is important for economic activity in small municipalities. The research results can be used for development strategies of small municipalities.

INTRODUCTION

Recent research findings indicate on domination of place-based development and one would like brighter expressed role of people-based development in small municipalities in Latvia as well (e.g. see Šipilova, Aleksejeva, Ostrovska, (2015, 2016) for the case of Latgale region (Southeast of Latvia)). People-based development firstly requires accent on education. Strategic priorities put in the "Latvian growth model: the man in the first place" ("Latvijas izaugsmes modelis: cilvēks pirmajā vietā") highlight that education is resource for economic growth (Izglītības un zinātnes ministrija, 2013). Moreover, widely appreciated concept of smart development, puts knowledge and skills at the center of development processes. This raises necessity in people-based activities that would be expressed brighter. Additionally, one can find that regional inequality mostly depends on wage-inequality driven by skills and education (Pereira, Galego, 2015). Thus, regions could foster prosperity by employing well-educated and creative people (Sleuwaegen, Boiardi, 2014). Vocational education could be the one of the most important tools in this context in small municipalities, where capabilities of tertiary education are limited.

OECD (2015) indicates that vocational education in Latvia "do not yet fully provide the skills students and employers need" (OECD, 2015, p.2) and improvements in accordance with the requirements of a catching up economy are needed (OECD, 2015). However, fundamental improvements towards meeting requirements of modern labour market are continuing and many of unclaimed professions have been excluded from vocational programs (OECD, 2016). Extension of work-based learning is the next step (OECD, 2015, 2016). However, the process of improvements is accompanied with several negative tendencies.

Given the data of Central Statistical Bureau of Latvia (CSB), ongoing trends in vocational education and training during the last 15 years in Latvia indicate on reductions in amount of institutions, students and graduates. For example, the comparison of years 2000/2001 and 2015/2016 discovers that amount of institutions of vocational education decreased more than in 2 times (from 120 to 54), total number of students decreased almost in 2 times (from 48625 to 27938), number of graduates at the end of the year decreased about 35% (from 12827 to 8201) (CSB, 2016b). Only the preferences of students in programs of vocational education and training remained stable during the last 15 years. Nowadays students still mostly prefer "Engineering, manufacturing and construction" and "Services" as 15 years ago (CSB, 2016a).

Small municipalities try to overcome negative consequences in vocational education and training and in education in general. Negative consequences that lead to reductions in amount of educational institutions and students mostly relate to demographic issues and changes at labour market. Nowadays, urgency to attract missing amount of students and to save institutions stimulates even some small rural general education schools to offer programs of professional education (Dienas ziņas, 2016). In times, when issues on financing education and training by governments continue to be linked with issues on productivity (Middleton, Ziderman, Van Adams, 1993) such activities can improve possibilities of small schools to continue functioning. Additional pressure to the small rural educational institutions worldwide practice adds. As research findings indicate, teaching activities in rural and urban areas differ by financial costs and benefits in favour to urban areas (e.g. Laurence, Coombs, Bell, Black, 2014).

Dynamic labour market is the next issue that challenges vocational education and training in general and, particularly, in small municipalities. Modern labour market requires being in line with topical changes in the economy. Recent evaluation of how students react on changes in economic structure and labour market structure discovers a little effect and no serious changes in educational preferences (Šipilova, 2013). In lesser or bigger extent, absence of adequate and timeliness reaction on ongoing changes in economy and labour market stimulates necessity to manage interaction between labour market and education. Thus, public sector can meet the challenge to manage this process through development policies. This recently takes place in Latvia, where Ministry of Education and Science offers the optimization of network of educational institutions and evaluation of developments in national and regional development context, what is one of the priorities, focused on the labor market requirements achievement (Izglītības un zinātnes ministrija, 2013).

As far as vocational education and training is a part of successful regional development (e.g. Cedefop, 2011), correct evaluation of contribution of vocational education and training to regional development is the most important issue for reaching positive and comprehensive effect from optimization policy. Authors' intuition and availability of statistical data for small municipalities allow to suppose that such variables as dynamic of entrepreneurial units, income taxes and investments in municipalities could be useful indicators that discovers, whether presence of institutions of vocational education and training is beneficial for small municipalities in an economic perspective, i.e. for stimulating activity of economy. Such a knowledge will provide additional information for discussions on contribution of vocational education and training to economy.

The paper is organized in four sections. The second section provides overview of scientific findings on regional experience about peculiarities that affect an effect from education on economy. The third section presents empirical research findings for understanding those characteristics of contribution of vocational education in small municipalities in Latvia, which are studied rarely. The fourth section offers conclusions.

THE STUDY

Regional development requires high entrepreneurial activity and creativity what inevitably meets with the necessity in human capital. Usually attention is paid to the tertiary education and necessity to be in line with requirements of modern paradigm of smart regional development. For example, Sleuwaegen and Boiardi (2014), Sánchez-Domínguez and Ruiz-Martos (2014) got results that highlight the role of individuals with high education in regional performance. Moreover, case of small municipalities is developed rarely in scientific literature. Scientists usually pay attention to effective service delivery (Arcelus et al., 2015) and to high dependency on financial support in a form of income transfers (Partridge et al., 2015) in small municipalities. However, one can find that policy-making can seriously contribute to development of small municipalities (Olfert et al., 2011).

Such a policy should call for the increase of attractiveness of the territory for entrepreneurship and financial flows as well. Research findings in terms of education confirm, "entrepreneurship is a local event" (Koster, Verhorst, 2014, p.436). Thus, one can find that education could provide bigger effect on regional development in case, when the issue on optimization of educational institutions and regional economic activity are corresponded. In terms of education, it is important to understand factors, which mostly affect behaviour of students and graduates, and which seriously contribute to regional development. Authors of the article suppose that one of the most important factors of attractiveness in small municipalities is attributable to presence of institutions of vocational education and training. Scientific findings indicate that, although, the distance is not the single factor, but it seriously affects students, graduates and thus business activities as well.

For example, Koster and Venhorst (2014) indicate that individuals choose to have a business near the place of residence. Additionally, often graduates make a choice in favour to those regions, which correspond with their expectations regarding career opportunities and at the same time to "balance their commuting distances and distances to their previous place of study" (Carree, Kronenberg, 2014, p.420). Scientific findings hold supposition that the distance seriously affects students' choice and a case of tertiary education in Finland discovers this for the choice of the field of studies (Suhonen, 2014). However, despite of significance of the distance, a case of Italian regions shows that migration at the national level positively contributes to the graduates' possibilities to find job and to avoid over-education (Iammarino, Marinelli, 2015). Testing such variables as employment level, vacancies and average wage for the case of Latvia and high-tech manufacturing, Šipilova (2015) concluded that average wage has high importance for choosing the field of education both in tertiary and in vocational education.

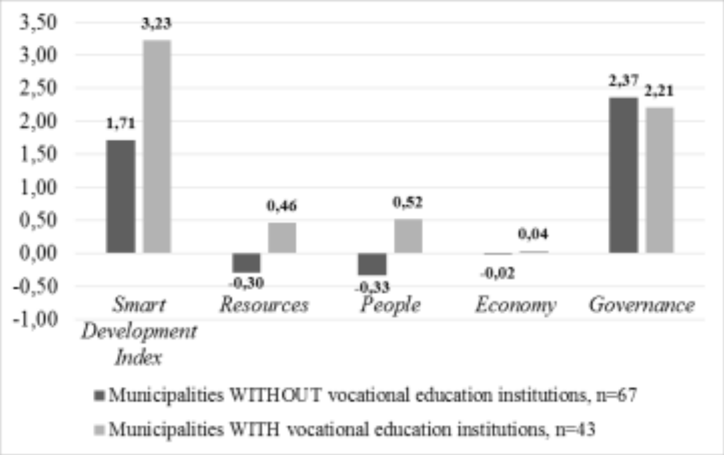
Short overview of recent scientific findings allows authors to indicate the distance, career opportunities and average wage as significant factors that affect students' behaviour and graduates' behaviour. In case of vocational education in Latvia, one can find that presence of institutions of vocational education in about 40% of small municipalities contributes to solution of issue on distance, but the average wage usually is higher in urban areas, what reduces attractiveness of small municipalities for students and graduates. The issue that challenges educational system in general relates to the fact that employees understand education as a tool for achieving well-being in a short period, in turn, country in a long period (Šipilova, 2014). The educational perspective in a long period requires activities towards innovativeness and technological complexity in economic structure.

Usually, as mentioned previously, scientific literature provides evidence on bright role of tertiary education for regional catching-up. For example, Hussler and Ronde (2005), using the case of French regions, found that universities and their efficiency is significant contributor to the hosting of technologically complex industries. Manca (2012) found significant impact of tertiary education for the case of Spanish regions. However, Manca (2012) also indicate that regional convergence can benefit from complementarity between tertiary education and vocational training, taking into account the level of regional development. Mostly, regions are welcomed to develop educational policies for reaching innovative development in regions (e.g. Hussler, Ronde, 2005). Austria, Germany and Switzerland offer one of the possible solutions, when hybrid work-based academic education combine vocational training and tertiary education (Graf, 2016).

System of vocational education and training is a platform for ensuring effective transition from learning to labour market and collecting competences for life-long learning activities (e.g. International Labour Office, 2010). Additionally, vocational education and training could be useful to prevent school dropout in regions, using adequate transition policy (e.g. see Cabus, 2015 for the case of Netherlands). However, there are currently ongoing debates on how one can view on vocational education and training (e.g. McGrath, 2012). For example, as McGrath (2012) argues vocational education and training needs modern approach and changes of the focus in studies from institutions, systems and their effectiveness to individuals are more welcomed. Research findings that mostly offer contrasting approach to the vocational education and training combine issues on systemic effectiveness and individuals for reaching "cohesive societies" (e.g. see International Labour Office, 2010; OECD, 2016).

Positive effect from vocational education and training on economy is widely explained by the European Centre for the Development of Vocational Training (Cedefop) (2011). As research findings indicate (e.g. Cedefop, 2011), vocational education and training positively affect wages, stimulates reduction of unemployment, increases

Figure 1: Level of smart development in municipalities with and without institutions of vocational education and training in Latvia, in 2009-2014, N=110.



Source: elaborated by the authors using data of the ongoing National Research Program 5.2. "Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development – a New Approach to the Creation of a Sustainable Learning Community EKOSOC-LV".

Smart Development Index provides complex and comparable understanding of peculiarities of regional development in small municipalities. The Figure 1 presents data on Smart Development Index and its components in two municipalities' groups. The data indicates obvious better performance of municipalities with institutions of vocational education. The group of municipalities that have institutions of vocational education and training has almost 1.5 times higher value of Smart Development Index as we can see from the data presented on the Figure 1. Moreover, the group "municipalities with" significantly surpasses the group "municipalities without" in all dimensions ("Resources", "People", "Economy"), except dimension "Governance", where results mostly are similar.

The dimension "Economy" requires special attention. Despite domination of the group "municipalities with" over the group "municipalities without" in two times by dimension "Economy", both groups have weak performance. This mostly stimulated an interest to test the hypothesis on difference between two municipalities groups divided according to presence of institutions of vocational education and training in terms of economic activity. Authors test hypothesis using Paired T-test technique.

Table 1: Paired T-test results for two municipalities' groups for financial flows and entrepreneurial activities.

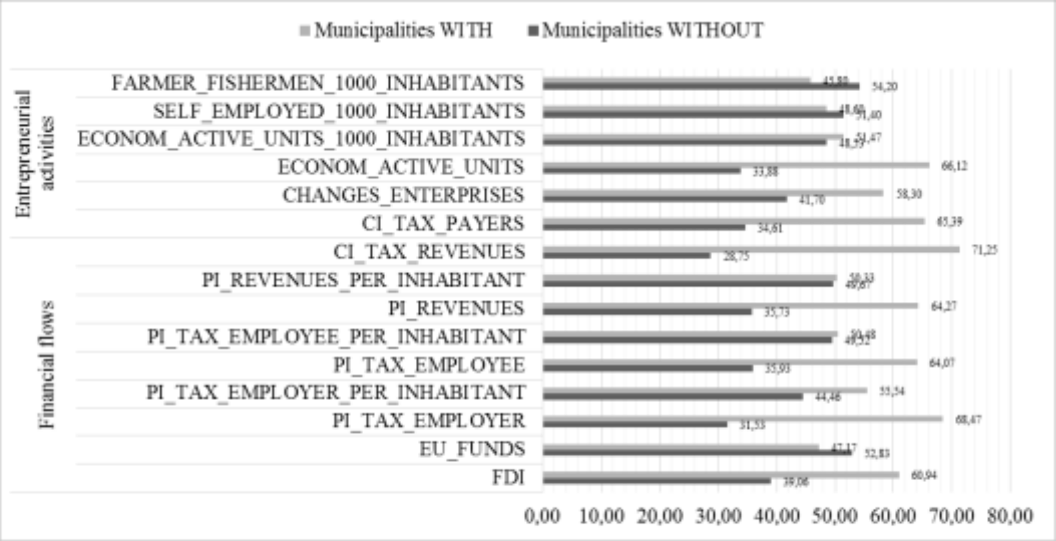
Paired Samples	Variables	*N*	*Correlation*	*Sig.*	*95% Confidence Interval of the Difference*	
					Lower	*Upper*
ln(Municipalities WITHOUT) – ln(Municipalities WITH)	Financial flows	9	.998	.000	6.0993	11.9207
	Entrepreneurial activities	6	.997	.000	1.4838	4.1282

Note: see Appendix A for description of tested variables "financial flows" and "entrepreneurial activities"; abbreviation "Municipalities without" means municipalities without institutions of vocational education and training, abbreviation "Municipalities with" means municipalities with institutions of vocational education and training.
Source: elaborated by the authors using data from RDIM, 2016.

Application of Paired T-test technique allowed authors to search for statistically significant difference in terms of economic activity between municipalities' groups with and without institutions of vocational education and training. Data presented in the Table 1 show that financial flows and entrepreneurial activities between two municipalities' groups differ, and that this difference is statistically significant.

Detailed visualization of the differences allows authors to highlight that the group of municipalities with institutions of vocational education and training demonstrates high amount of enterprises, corporate taxpayers and corporate tax revenues as well as foreign direct investments (FDI). In turn, farmers, fishermen and self-employed are especially active in the group of municipalities without institutions of vocational education and training. Additionally, this group of municipalities has attracted more EU funding. The data on tax revenues per inhabitant in bigger or lesser extent are similar between two groups. In general, it can be difficult to explain the data obtained during the analysis. Detailed account on financial flows and entrepreneurial activities help to shed a light on paired T-test results, see [Figure 2].

Figure 2: Detailed account of entrepreneurial activities and financial flows in municipalities with and without institutions of vocational education and training, in 2013, 2014, %.



Note: see Appendix A for description of tested variables “financial flows” and “entrepreneurial activities”; abbreviation “Municipalities without” means municipalities without institutions of vocational education and training, abbreviation “Municipalities with” means municipalities with institutions of vocational education and training.
Source: authors’ calculations based on data from RDIM, 2016.

One of the suppositions can explain these peculiarities in terms of effect of presence of well-educated workforce at places. Entrepreneurs see potential of the places, where workforce can be educated and trained at workplace at the same time. One can find that possibilities of training places in firms are necessary for labour market and interest and abilities of entrepreneurs to provide such training are crucial nowadays (e.g. Koudahl, 2010). Continuing availability of educated and trained workforce could explain higher economic activity and higher FDI in municipalities’ group with institutions of vocational education and training. Thus, municipalities without institutions of vocational education and training could receive less attention from entrepreneurs. In turn, these municipalities can compensate such lack of attention by using opportunities of EU funding. This to some extent could explain domination of farming, fishing, self-employing etc. in development of municipalities’ group without institutions of vocational education and training.

General evaluation of two municipalities’ groups provides evidence for the hypothesis offered in the article about statistically significant difference between municipalities with and without institutions of vocational education and training in terms of entrepreneurial activities and financial flows. However, situation changes, after adding variable “number of students” in the analysis. Number of students is significant factor for understanding the difference between two municipalities’ groups. The following table, see [Table 2], displays results for Paired T-test for municipalities without institutions of vocational education and for municipalities with institutions of vocational education divided into four groups depending on number of students.

The data indicate that there is not statistically significant difference between the group of municipalities without institutions of vocational education and the four groups of municipalities with institutions of vocational education in terms of economic activities. This allows authors to suppose that not the “size” of the institutions of vocational education is decisive force for business choice. However, this article does not pay attention to the specialization of educational institutions what can be the next step in authors’ further studies.

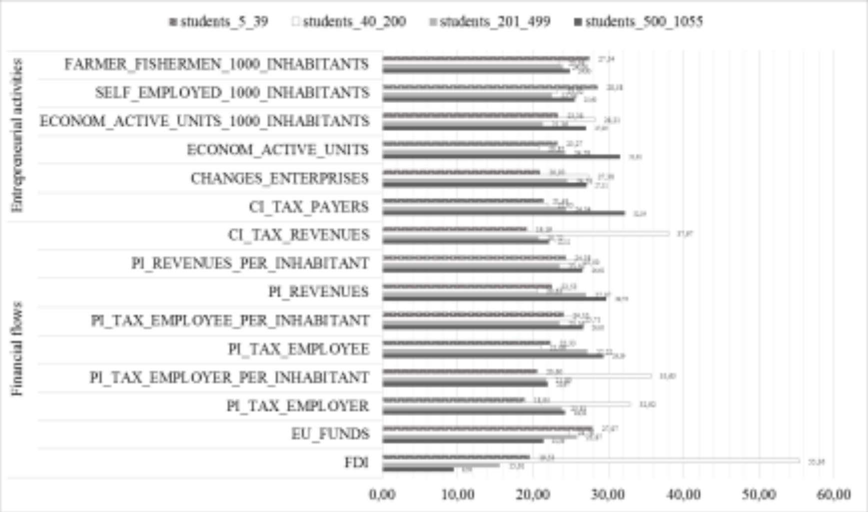
Another issue discovered during the analysis, which is difficult for explanation, relates to financial flows. There is statistically significant difference between the group of municipalities without institutions of vocational education and the four groups of municipalities with institutions of vocational education, except the case of the group with maximal amount of students (500-1055). Detailed visualization can help to understand peculiarities of results of Paired T-test analysis, see [Figure 3].

Table 2: Paired T-test results for financial flows and entrepreneurial activities in municipalities' groups taking into account number of students

Paired Samples		*N*	*Correlation*	*Sig.*	*95% Confidence Interval of the Difference*	
					Lower	*Upper*
ln(Municipalities WITHOUT – ln(Municipalities WITH *number of students 500-1055) N=7*	Financial flows	9	.994	.000	-.6903	.0992
	Entrepreneurial activities	6	.993	.001	-1.0355	.0675
ln(Municipalities WITHOUT – ln(Municipalities WITH *number of students 201-499) N=10*	Financial flows	9	.997	.000	-.6201	-.0110
	Entrepreneurial activities	6	.992	.001	-.7768	.2128
ln(Municipalities WITHOUT – ln(Municipalities WITH *number of students 40-200) N=9*	Financial flows	9	.994	.000	-.9988	-.1412
	Entrepreneurial activities	6	.989	.001	-.6792	.0432
ln(Municipalities WITHOUT – ln(Municipalities WITH *number of students 5-39) N=17*	Financial flows	9	.999	.000	-.4913	-.0532
	Entrepreneurial activities	6	.999	.000	-.6274	.0634

Note: see Appendix A for description of tested variables "financial flows" and "entrepreneurial activities"; abbreviation "Municipalities without" means municipalities without institutions of vocational education and training, abbreviation "Municipalities with" means municipalities with institutions of vocational education and training. Municipalities group with institutions of vocational education and training is divided into four groups depending on number of students.
Paired samples: municipalities without institutions of vocational education and training and municipalities with institutions of vocational education and training divided depending on number of students.
Source: elaborated by the authors using data from RDIM, 2016.

Figure 3: Detailed account of entrepreneurial activities and financial flows in municipalities with institutions of vocational education and training divided depending on number of students, in 2013, 2014, %.



Note: see Appendix A for abbreviation of tested variables, Municipalities group with institutions of vocational education and training is divided into four groups depending on number of students.
Source: authors' calculations based on data from RDIM, 2016.

Data on Figure 3 demonstrate similarity between four municipalities' groups and the group "municipalities without institutions of vocational education and training" in most cases, especially for entrepreneurial activities. However, data on financial flows differ and authors can find statistically significant difference between the group "municipalities without institutions of vocational education and training" and municipalities' groups divided depending on number of students. More often municipalities' group with number of students 40-200 differs. Mostly such positions as FDI, corporate income tax revenues and personal income tax per inhabitant provide the difference. This allows authors to suppose that these municipalities have attractive economic environment. Besides economic peculiarities of each municipality, authors would like to suppose that this municipalities' group could be attractive for business due to sufficient availability of educated-workforce and possibilities of parallel training at workplaces. Additionally, municipalities' group with number of students 40-200 includes nine small municipalities and they equally distributed across all Latvian regions, what increases probability of attractiveness of each small municipality for business. Thus, dominating variables and distribution of small municipalities mentioned above allows authors one more time to highlight possible positive contribution from presence of institutions of vocational education in small municipalities.

CONCLUSIONS

Scientific literature contains many of studies that discover positive effects on economy from well-educated workforce in regions. Moreover, these researches indicate that distance is one of the most important factors, which affects individuals' behaviour during studies and transition to labour market as employee or employer. Additionally, rare studies have specific focus on contribution of vocational education and training to economy. These findings provided an interest to consider presence of institutions of vocational education in small municipalities as precondition for economic activity. Ongoing processes on optimization of amount of educational institutions in small municipalities in Latvia have added significance to the issue under research.

The present article aimed to test the hypothesis about possible existence of statistically significant difference between municipalities with and without institutions of vocational education in an economic perspective, using as example economic activities and financial flows for discovering possible contribution to economic activity. Example of 110 small municipalities in Latvia divided in accordance with data on presence of institutions of vocational education and amount of students have provided basis for analysis. Research results allow authors to indicate significance of presence of institutions of vocational education for economic activities and financial flows.

First, descriptive analysis of data on smart development level discovers obvious domination of municipalities with institutions of vocational education over municipalities without institutions of vocational education. The group of municipalities with institutions of vocational education dominates by Smart Development Index and by all its dimensions ("Resources", "People", and "Economy"), except dimension "Governance", where results are mostly similar. This allowed authors to suppose that presence of institutions of vocational education could be significant precondition for regional development and for economic activity.

Second, application of paired T-test technique provided data for conclusion that two municipalities' groups (with and without institutions of vocational education) differ in terms of entrepreneurial activities and financial flows, and that this difference is statistically significant. However, adding of variable "number of students" indicates on similarity between municipalities in terms of entrepreneurial activities. Statistically significant difference between municipalities with and without institutions of vocational education in terms of financial flows remains unchangeable and statistically significant after adding variable "number of students" in analysis. Municipalities' group with number of students 40-200 demonstrates the brightest difference. Such positions as foreign direct investments, corporate income tax revenues and personal income tax per inhabitant mostly differentiate this municipalities' group from others. Other important note concerning this municipalities' group relates to spatial distribution of nine municipalities, which enter in this group. Nine municipalities with number of student 40-200 are distributed equally between all Latvian regions, what increases probability of attractiveness of each small municipality for business.

The research findings allow authors to conclude that mostly presence of institutions of vocational education in small municipalities is beneficial for them in an economic perspective. However, research results require detailed analysis that includes specialization of institutions of vocational education and training as well. Research findings could be useful during developing strategies for optimization of educational institutions.

ACKNOWLEDGMENT

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APPENDIX A: Tested variables

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Variables' groups	Variables	Abbreviation used
Financial flows	Total sum of direct foreign investment (EUR, CR)	FDI
	Sum of the EU fund (EAGF, EAFRD, EFF) project public financing per 1000 residents (EUR, RDIM calc.)	EU_FUNDS
	Amount of personal income tax (after payment site) (EUR, SRS)	PI_TAX_EMPLOYER
	Amount of the withheld personal income tax (according to the legal address of the employer) per total number of population (EUR, SRS)	PI_TAX_EMPLOYER_ PER_INHABITANT
	Amount of personal income tax (by place of residence) (EUR, SRS)	PI_TAX_EMPLOYEE
	Amount of the withheld personal income tax according to the registered address of the employee (EUR, SRS)	PI_TAX_EMPLOYEE_ PER_INHABITANT
	Municipality personal income tax revenues (EUR, ST)	PI_REVENUES
	Municipality personal income tax revenues entered in the municipality budgets per one inhabitant (EUR, RDIM calculation)	PI_REVENUES_ PER_INHABITANT
	Amount of corporate income tax revenues (EUR, SRS)	CI_TAX_REVENUES
Economic activities	Number of corporate income tax payers (number, SRS)	CI_TAX_PAYERS
	Changes in the number of enterprises (number, RDIM calculation)	CHANGES_ENTERPRISES
	Economically active statistical units of the market sector (number, CSB)	ECONOM_ACTIVE_UNITS
	Economically active statistical units of the market sector per 1000 inhabitants (number, RDIM calculation)	ECONOM_ACTIVE_ UNITS_1000_INHABITANTS
	Economically active statistical units of the market sector: self-employed persons per 1000 inhabitants (number, RDIM calculation)	SELF_EMPLOYED_ 1000_INHABITANTS

Source: elaborated by authors using data from RDIM, 2016.

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Attitudes Of Candidate Teachers In The Modern Education System Towards The Computer Technology Lesson

Emete GERÇEL
Near East University (www.neu.edu.tr) Atatürk Faculty of Education, Mersin 10 Turkey
emetey@hotmail.com

Mehmet ÇAĞLAR
Near East University (www.neu.edu.tr) Atatürk Faculty of Education, Mersin 10 Turkey
chaglarm@yahoo.co.uk

Azmiye YINAL
Near East University (www.neu.edu.tr) Atatürk Faculty of Education, Mersin 10 Turkey
azmiye.dns13@gmail.com

ABSTRACT

The teachers, who will raise the manpower needed by the society, should be raised in accordance with the modern teacher standards. The change in the social needs depending o the science and technology have obliged the teachers to keep up with this change. The objective of modern education system is to raise individuals who search the ways to access the information, know where and how to used the knowledge and have critical thinking. This is possible with the qualified teachers that continuously improve themselves pursuant to the science and technology. This study is developed in order to measure the attitudes of candidate teachers in taking Computer Technology course. This study has a screening model and is performed with the total number of 298 candidate teachers. Quantitative research is used for this study and it is a descriptive study with "Relational Screening" model among the general screening models. Quantitative research methods were used for the study with 2-dimensional scale. First dimension is positive attitude and second is negative attitudes. The positive attitudes under the first dimension have two sub-categories. The sub-dimensions given under the positive attitude of first dimension cover the eagerness to learn and interest to the lesson. In accordance with the answers given by the candidate teachers to the scale, the attitudes of candidate teachers towards the Computer Technologies lesson within the two dimensions of scale were analysed in terms of gender, age, department and class and the outcome was found as there is no significant difference.

KEY WORDS: Candidate Teachers, Computer Technology, Learning and Attitude

INTRODUCTION

The 21st century that we live in has been developing in the field of technology and considered as the information era. A new technology development stands out every day. The technology use has become inevitable for people. Therefore, the fast developments of technology in the world have reflections on the education system and affect the learning and teaching activities.

The efficient use of information technologies like cell phone, internet, computer and phones by the individuals from every age group particularly by the adolescents and young people as a socialisation tool has been a findings of various studies. Especially in our country that has a dense young population, the use of internet is widely observed in the daily lives (Gerçel, 2016).

Technology, computers and new developments and improvements in the communication cause change in the teaching perceptions and brings the use of new techniques and methods. New concepts and technologies in the "Information Era" such as computers, multimedia, audio, video, animation and developing internet technologies have become a part of education and training (Bodie, 1998).

Today, with the existing problems in the education, the provision of quality education to wide masses is possible with the education technologies. Hence, the facilities of technology should be excessively used. The development and changes in technology affect the functions of education. The technological developments that can be considered as an outcome of education process changes the structure of education process and introduce a different perspective into education. Therefore, the place of technology within the education and training practices has become increasingly permanent and more significant.

The technological developments changing in every aspect of society have an impact on the every side of life, and with such change, the needs to fulfil the expectations finds its way in more systematic education approaches. The exchange of information within the society is also affected by the fast change in the technology as well as the educational institutions. The education and technology are two main elements that have a vital role in making the life of an individual more efficient. Both elements have been two main tools reached by the people in the efforts to e dominant in natural and social environment (Alkan, 1998). Technology is a field covering all social and economic activities and organisations foreseeing the realization of technical knowledge.

In order to make learning and teaching environments within the education more effective, the individuals should participate the lessons with technology. The use of computers in the all activities related with the learning teaching at schools can be defined as “computer technology assisted education” (Demirel et.al, 2001: 116). The society and individuals should gain knowledge, attitudes and habits that would answer their own and social needs in order to follow the developing technology as an individual and society. Thus, a systematic education appraising the in-class instruments that comprise individual power and references that are out-of the power among individuals, together with the teachers that are the main element of education during the learning and teaching process of education.

The computers have positively affected the education systems that have traditional structures. The computers have led social changes in the society, education and culture (İşman, 2001). The computer-assisted education has various aims. The aims consist of maximize the motivation of students to the lesson, improving the scientific thinking ability of students, contributing on self-learning of students, leading the students to generate hypotheses and facilitating the students to solve the problems in a logical way.

One of the principles taken as a basis in teaching is to reach as many senses of students in the transmission of knowledge, skill and behaviours such as attitudes. The rationale behind is that the more sense is introduced into the teaching environment, the more the teacher will be more permanent and effective. The teaching materials currently used in schools such as books, chalk, black board are old technology products. The teaching in the classrooms using these materials are teacher-oriented teaching, while the target is to have a student-oriented education. In order to accomplish this target, the teaching materials produced by the developing technology should be introduced into the student environment.

The computer technology in education means to systematically using the lesson related tools together with teacher, student, process and methods. The most important aspect in doing this is to remember that technology use in education is a part of “computer technology in education”. This definition clearly shows the position of computer technologies lesson within the education.

METHOD

Quantitative research is used for this study and it is a descriptive study with “Relational Screening” model among the general screening models. The observation and recording aspect of science, identification of relation between events and generalization on the basis of controlled unchanged relations are included in the screening model; hence the descriptive function of science is in the forefront (Yıldırım, 1966). The research aims to identify the attitudes of “Candidate Teachers in Learning the Computer Technologies Lesson and Their Negative Attitudes and Interest To the Lesson” and find out the views of candidate teachers. The questionnaire was prepared and developed in order to perform case study towards the identification of attitudes of candidate teachers for the Computer Technology lesson.

Quantitative research model is used in the study for the questionnaire and the analysis was performed whether the attitudes of candidate teachers change depending on the questions comprising four socio-demographical questions as gender, age group, class and department. Therefore, this study can also be called as Comparative Case Study. The questionnaire used in study and performed on the candidate teachers is a 5-point likert scale while the study uses quantitative research methods and the scale has two dimensions. The first dimension of questionnaire has two sub-categories as eagerness to learn and interest to the lesson in order to identify the attitudes; and the second dimension includes statements developed to measure the negative attitude levels towards the Computer Technology lesson.

POPULATION – SAMPLE

The population of this research is comprised of the candidate teachers who are at the I, II and III. Year of the Department of Psychological Counselling and Guidance, Classroom Teaching and Preschool Teaching in the Near East University, Turkish Republic of Northern Cyprus.

The research was conducted through accidental sampling. The sample is the small set selected from a specific population in accordance with certain rules and considered as sufficient to represent the population. The researches are mainly performed on the sample sets and the results are generalized to the relevant populations (Karasar, 2005). The sample is a part of a population and very significant in terms of research and statistics. The most important aspect of sample is that it is objective and representative (Kaptan, 1983).

298 students as candidate teachers are chosen for the sample of research among 500-people population via simple random sampling with 95% confidence level and 5% margin of error into the sample of research. ın the simple random sampling, each component of population has the equal chance to be a part of sample. Therefore, the weight to be given each component is same for the calculations (Arıkan, 2004).

DATA COLLECTION TOOL

The scale form developed by the researchers was used as the data collection tool for this research. The scale form is comprised of four demographical questions as gender, age group, class and department, and the literature screening was performed in order to identify the attitudes of Candidate Teachers towards the Computer Technology lesson through the review of statements including the attitudes and the attitude scale draft was prepared for the Computer Technology lesson (Öztürk, H., & Ballıoğlu, 2014; Özkal, Güngör & Çetingöz, 2004; Ozmenteş, 2006; Duatepe, & Çilesiz, 1999; Karaca, 2006; Orel, Zerey, & Töret, 2004; Temel, 2000; Şengören, & Kavcar, 2006; Demir, 2010).

Regarding the compliance of scale to its aim, clarity and statement appropriateness, a group of eight experts was consulted. Upon the recommendation that the candidate teachers would not answer the 13 items among 42 about the behaviours of candidate teachers, those were deleted and instead 3 articles were added. The scale was in the end developed with 32 items. Additionally, a pilot application was conducted on 40 people and the students were asked to state the items that they did not understand and as an outcome, the scale was considered as sufficient.

Table 1: Score Limits of Five Likert Scale

Weights	Limits	*Perception-View*
1	1.00-1.79	Strongly Disagree
2	1.80-2.59	Disagree
3	2.60- 3.39	Neither Agree Nor Disagree
4	3.40 -4.19	Agree
5	4.20- 5.00	Strongly Agree

As can be seen from the Table 1, the score averages of all students were calculated in the scale.

INTERNAL VALIDITY

For this research, the aim was to develop a credible and valid likert type attitude scale in order to identify the attitudes of candidate teachers towards the Computer Technology lesson. Therefore, upon the recommendation that the candidate teachers would not answer the 13 items among 42 about the behaviours of candidate teachers, those were deleted and instead 3 articles were added. The scale was in the end developed with 32 items. Additionally, a pilot application was conducted on 40 people and the students were asked to state the items that they did not understand and as an outcome, the scale was considered as sufficient. Afterwards, the preliminary trial form was applied to the working group following the preliminary practice. Then the structure validity activities were started. As a result of factor analysis conducted by main components analysis and varimax rotation, the statements of 1, 5, 9, 13, 15, 17, 18, 21 and 31 with the factor weights less than 0,4 were omitted so that the scale had 23 rather than 32 items. In accordance with the factor analysis results, there are 2 sub-dimensions in the scale of 23 items as positive attitude (eagerness to learn, interest to the lesson) and negative attitude. Moreover, the Cronbach Alpha internal validity coefficient of scale was found as 0,89. Hence, the scale can be considered as it has a good credibility coefficient.

The descriptive factor analysis is used for the structure validity of the Scale for the Attitudes of Candidate Teachers Towards the Computer Technology Lesson.

The Kaiser-Meyer-Olkin (KMO) sample measure value of scale was found as 0,86. Due to high KMO coefficient, the size of selected sample size is considered as appropriate for factor analysis. KMO test is a figure related with the compatibility of sample size. When KMO coefficient is close to 1, the data are considered as compatible for analysis and if the coefficient is 1, it means that there is a perfect match. This result can be acknowledged as sufficient on the basis of literature and expert views (Büyüköztürk, 2006). Moreover the result of Barlett Sphericity test is found as significant (p=0,00<0,05). Following such findings, the scale is observed as compatible for factor analysis.

In Line With These Results, The Sub-Dimensions Of Scale Are As Follows.

Table 2: Items related with the Attitude Scale Sub-Dimensions

Sub-Dimensions	Questions
Eagerness to Learn (6 statements)	Q29, Q 30, Q 22, Q 24, Q 23, Q 32
Negative Attitude (9 statements)	Q 26, Q 25, Q S27, Q 28, Q 3, Q 19, Q 6, Q 20, Q 2
Interest to the Lesson (8 statements)	Q 7, Q 14, Q 8, Q 12, Q 10, Q 16, Q 11, Q 4

Table 3: Attitude Scale

Statements	Eagerness to Learn	Negative Attitude	Interest to the Lesson
29. I fulfil all tasks during the Computer Technology lesson.			
30. I regularly attend the Computer Technology lesson.			
22. I like to talk about the events and activities happened during the Computer Technology lesson.			
23. Computer Technology lesson motivates me to read the books about computer technologies.			
24. Computer Technologies lesson positively change my perception to the technology.			
32.I believe that Computer Technologies lesson will be beneficial in the future.			
26. Computer Technologies lesson is a waste of time.			
25. I would love the school if there were no Computer Technologies lesson.			
27. I feel bored during the Computer Technologies lesson.			
28. I wish not to have any Computer Technologies lesson in the curriculum.			
3. I prefer any other lesson to the Computer Technologies lesson.			
19. I feel tired when I need to study for the Computer Technologies lesson.			
6.I would not attend to Computer Technologies lesson if there were no compulsory attendance.			
20. I am never successful in Computer Technologies lesson.			
2.I think that the time allocated for the Computer Technologies lesson should be less.			
7.I wish that all lessons like Computer Technologies lesson			
14. I look forward to Computer Technologies lesson.			
8. I wish to have longer Computer Technologies lesson.			
12. Learning new topics in Computer Technologies lesson make me excited.			
10.Teachers should get Computer Technologies lesson in order to graduate.			
16. I find the references recommended during the Computer Technologies lesson and read the recommended books.			
11. I have an interest in the subjects of Computer Technologies lesson.			
4. I like Computer Technologies lesson.			

CREDIBILITY

The internal validity test was performed for the credibility of scale. In accordance with the internal validity results obtained after the credibility analysis, the Cronbach Alpha coefficient of the 23-item scale was identified as 0,89. The Cronbach Alpha values for the sub-dimension of scale are 0,86 for the eagerness to learn, 0,81 for the negative attitude and 0,81 for the interest to the lesson.

DATA COLLECTION PROCESS

During the data collection process, the candidate teachers in the Near East University located in Nicosia, Turkish Republic of Northern Cyprus were interviewed. After obtaining the required permits for the questionnaires, the questionnaires were performed during the designated lessons. Before answering the data collection tools, the candidate teachers were informed regarding the aim of scale and how to answer it, and the confidentiality that the answers would only be read by the researchers were shared with the candidate teachers. The data of study was collected during the fall semester of 2015-2016 academic year.

DATA ANALYSIS

The data obtained through the questionnaire were transferred to the computer and editing process was performed for the errors. During the editing process, the errors occurred during the transfer of questionnaires to the computer were identified, the related questionnaire was found and the error was eliminated by re-entering the answers. After the editing, there was no wrong or missing value in any data set.

For the statistical analysis of data, Statistical Package for the Social Sciences (SPSS) 20.0 for Windows Evaluation version was used.
The frequency tables were used in order to identify the distribution of candidate teachers that are under the scope of research in terms of their gender, age group, class and departments.

Kolmogrov-Smirnov (K-S) test as one of the normality tests was applied for the determination of hypothesis tests to be used in the statistical analysis whether the data set shows normal distribution.
Upon the result of Kolmogrov-Sminov test, the total scores of scale was found to show normal distribution and the parametric hypothesis tests were used in the analysis. In case the independent variables are two then the Student t-test, one of the parametric hypothesis tests, was used for the comparison of independent and dependent variables, and when they are more than two, then Variance Analysis (Anova) was used.

The quantitative research methods were used and the scale has two dimensions. The first dimension is positive attitudes while the second is negative attitudes. The positive attitude under the first dimension has two sub-categories as eagerness to learn and interest to the lesson.

FINDINGS AND INTERPRETATION

This part aims to present the data generated through the data collection tools, findings from the analysis and views of participants.

Table 4 below gives the distribution of *candidate teachers under the scope of this study in accordance with the descriptive socio-demographical characteristics as gender, age group, class and departments,* and the views of participants were evaluated.

Table 4: Distribution of Candidate Teachers Based on Their Socio-Demographic Characteristics

	Number	Percentage
Gender		
Female	148	49,66
Male	150	50,34
Age Group		
Between 17-22	107	35,91
Between 23-28	163	54,70
Between 29-34	28	9,40
Class		
I.	40	13,42
II.	142	47,65
III.	116	38,93
Department		
PCG	141	47,32
Classroom Teaching	86	28,86
Pre-School Teaching	71	22,15

The candidate teacher participants of research are 49,66% female and 50,34% male. 35,91% are between 17-22, 54,70% 23-28 and 9,40% 29-34. In terms of the class years of candidate teachers; 13,42% of them are at I. year, 47,65% II. year and 38,93% III.year.47,32% are from the Department of Psychological Counselling and Guidance, 28,86% Classroom Teaching and 22,15% Pre-School Teaching.

FINDINGS AND INTERPRETATION REGARDING THE FIRST SUB PROBLEM

The first sub-problem of the research was determined as "*what are the eagerness of candidate teachers to learn the computer technologies lesson and their views regarding the positive and negative attitudes towards the lesson?"* Table 5 assesses the views of students, who answered the questionnaire.

Table 5 is comprised of the average score out of the total score of candidate teachers from the general and sub-dimensions of attitude scale regarding the computer technologies lesson, standard deviation, statistics as minimum and maximum.

Table 5: Descriptive Statistics of Scores by the Candidate Teachers from the Attitude Scale Towards the Computer Technologies Lesson

Sub-Dimensions	**N**	$\overline{X}$	**s**	**Min**	**Max**
Eagerness to Learn (6 statements)	298	23,65	5,61	6	30
Negative Attitude (9 statements)	298	34,46	7,53	12	45
Interest to the Lesson (8 statements)	298	28,73	7,02	8	40
Scale Total (23 statements)	298	86,84	16,23	40	115

Pursuant to Table 5, the average of total scores from the sub-dimension of eagerness to learn under the scale for the attitudes of candidate teachers towards the computer technologies is 23,65±5,61'dir. The candidate teachers got minimum 6 points and maximum 30 points from this sub-dimension. The item average of candidate teachers for the sub-dimension of eagerness to learn is 3,94±0,93. The teachers were generally answers the statements given under this sub-dimension as agree, and gave positive view accordingly.

The average of total score for the candidate teachers from the sub-dimension of negative attitude is 34,46±7,53 and minimum 9 and maximum 45 points. The item average of negative attitude scale is 3,83±84. Generally the candidate teachers replied the statements under this sub-dimension as disagree. In other words, the candidate teachers do not agree with the negative statements given under this sub-dimension and in a way gave positive view related with the computer technologies lesson.

The average score of the sub-dimension of interest to the computer technologies lesson is 28,73±7,02. The candidate teachers got minimum and maximum 40 points from this sub-dimension. The item average of interest to the lesson sub-dimension is 3,59±0,88, and the candidate teachers gave positive view to the statements given under this sub-dimension.

The total score average out of the general scale for the attitudes of candidate teachers towards the computer technologies lesson is 86,84±16,23 and the minimum total score is 23 and maximum is 115. The item average to the 23 statements given under the scale is 3,78±0,70. In the general sense, the students answered the positive statements as agree and negative statements as disagree.

FINDINGS AND INTERPRETATION REGARDING SECOND SUB-PROBLEM

The second sub-problem of the research is identified as "*Is there any significant difference among the candidate teachers between the eagerness to learn the computer technologies lesson in terms of their gender and positive and negative attitudes towards the lesson?"* Table 6 below evaluates the views of students.

The comparison of total scores for the candidate teachers in terms of the sub-dimensions that their eagerness to learn, negative attitude and interest to the lesson under the scale of attitudes towards the computer technologies on the basis of gender is given below.

Table 6: Score Comparison of Candidate Teachers Obtained from the Attitude Scale Towards the Computer Technologies Lesson

Sub-Dimensions	Gender	n	$\overline{X}$	s	t	p
Eagerness to Learn	Female	148	23,65	5,98	0,00	1,00
	Male	150	23,64	5,23		
Negative Attitude	Female	148	34,14	7,80	-0,73	0,47
	Male	150	34,78	7,26		
Interest to the Lesson	Female	148	28,48	7,14	-0,61	0,54
	Male	150	28,98	6,91		
Scale Total	Female	148	86,27	16,36	-0,60	0,55
	Male	150	87,41	16,14		

Pursuant to the t-test results given in Table 6, the female candidate teachers under the scope of this research obtained an average of 23,65±5,98 points from the eagerness to learn sub-dimension whereas male candidate teachers obtained 23,64±5,23 points. There is no statistically significant difference between the total scores obtained by male and female candidate teachers from the eagerness to learn sub-dimension (p=1,00 >0,05). The gender factor has no influence on the statements given under the sub-dimension of eagerness to learn given under the scale of attitude towards the computer technologies lesson.

In accordance with the total scores obtained from the sub-dimension of negative attitudes of female and male candidate teachers, the average for the female teachers is 34,14±7,80 while male candidate teachers got an average of 34,78±7,26. There is no statistically significant difference between the total scores obtained by male and female candidate teachers from the negative attitudes sub-dimension (p=0,47 >0,05). The views of female and male candidate teachers regarding the statements under this sub-dimension are similar.

The female candidate teachers obtained and average of 28,48±7,14 points from the sub-dimension of interest to the computer technologies lesson, whereas male candidate teachers got 28,98±6,91 points. There is no statistically significant difference between the total scores obtained by male and female candidate teachers from the interest to the lesson sub-dimension (p=0,54>0,05).

The difference between the total scores obtained from the attitude scale in general towards the computer technologies lesson on the basis of gender is not statistically significant; and both female ($\bar{x} = 86{,}27$) and male ($\bar{x} = 87{,}41$) candidate teachers were found to have similar views regarding the scale in general.

FINDINGS AND INTERPRETATION REGARDING THIRD SUB-PROBLEM

The third sub-problem of the research was given, as "*is there ant significant difference between the positive and negative attitudes of candidate teachers towards their eagerness to learn the computer technologies lesson and their interest to the lesson on the basis of their age*". Table 7 below evaluates the views of students.

The ANOVA results concerning the comparison of total scores for the candidate teachers in terms of the sub-dimensions that their eagerness to learn, negative attitude and interest to the lesson under the scale of attitudes towards the computer technologies on the basis of age group, and the scale in general are given below.

Table 7: Score Comparison of Candidate Teachers Obtained from the Attitude Scale Towards the Computer Technologies Lesson On the Basis of Their Age Groups

Sub-Dimensions	Gender	n	$\overline{X}$	s	F	p
Eagerness to Learn	Between 17-22	107	24,13	5,06	1,28	0,28
	Between 23-28	163	23,57	5,86		
	Between 29-34	28	22,25	6,06		
Negative Attitude	Between 17-22	107	34,57	7,35	2,21	0,11
	Between 23-28	163	34,88	7,32		
	Between 29-34	28	31,61	8,96		
Interest to the Lesson	Between 17-22	107	28,90	6,78	0,14	0,87
	Between 23-28	163	28,72	6,97		
	Between 29-34	28	28,18	8,35		
Scale Total	Between 17-22	107	87,60	14,89	1,33	0,27
	Between 23-28	158	86,97	16,59		
	Between 29-34	28	82,04	19,63		

In accordance with the ANOVA results from the comparison of eagerness to learn sub-dimension among the candidate teachers on the basis of age group, there is no statistically significant difference between the total scores obtained by male and female candidate teachers accordingly (p=0,28>0,05). The average scores of candidate teachers for the eagerness to learn sub-dimension between the age group of 17-22 24,13±5,06 points, 23,7±5,86 between 23-28 and 22,25±6,06 between 29-34. Although the scores for the eagerness to learn scores of young candidate teachers are high, they are not statistically significant.

The candidate teachers under the scope of this research with the age group of 17-22 have obtained an average of 24,57±7,35 from the sub-dimension of negative attitude, the age group of 23-28 an average of 34,88±7,32 and the age group of 29-34, 31,61±8,96. The difference between the average scores taken from the sub-dimension of negative attitude on the basis of age group of the candidate teachers is not statistically significant (p=0,11>0,05). Although the total scores of candidate teachers from the age group of 29-34 are low compared with the candidate teachers from the other age groups, the difference is not statistically significant.

There is no statistically significant difference between the total scores of the candidate teachers of age groups 17-22 ($\bar{x} = 28{,}90$), 23-28 ($\bar{x} = 28{,}72$) and 29-34 ($\bar{x} = 28{,}18$) from the sub-dimension of eagerness to learn towards the computer technologies lesson (p=0,87>0,05).

In accordance with ANOVA results given in Table 7, there is not any statistically significant difference between the total scores of candidate teachers towards the computer technologies lesson obtained from the attitude scale on the basis of their age groups (p=0,27>0,05). Regardless the age groups, the students participated to the research got similar scores and answered to the positive statements as agree and disagree to the negative statements.

FINDINGS AND INTERPRETATION REGARDING FOURTH SUB-PROBLEM

The fourth sub-problem of the research was given, as "*is there ant significant difference between the positive and negative attitudes of candidate teachers towards their eagerness to learn the computer technologies lesson and their interest to the lesson on the basis of their class*". Table 8 below evaluates the views of students.

Table 8: Score Comparison of Candidate Teachers Obtained from the Attitude Scale Towards the Computer Technologies Lesson On the Basis of Their Class

Sub-Dimensions	Class	n	$\overline{X}$	s	F	p
Eagerness to Learn	I	40	24,68	4,26	1,99	0,14
	II	142	23,00	6,04		
	III	116	24,09	5,40		
Negative Attitude	I	40	34,43	7,57	0,54	0,59
	II	142	34,91	7,42		
	III	116	33,93	7,67		
Interest to the Lesson	I	40	29,30	7,10	0,15	0,86
	II	142	28,65	6,70		
	III	116	28,63	7,42		
Scale Total	I	40	88,40	14,46	0,21	0,81
	II	142	86,56	16,92		
	III	116	86,65	16,04		

The ANOVA results regarding the comparison of total scores of candidate teachers obtained from the attitude scale in general and its sub-dimensions towards the computer technologies sub-dimensions on the basis of their class are given in Table 8.

The candidate teachers, who are on I. class got 24,68±4,26 from the sub-dimension of eagerness to learn, II. class 23,00±6,04 and III. class 24,09±5,40. The difference between the average scores taken from the sub-dimension of eagerness to learn on the basis of classes of the candidate teachers is not statistically significant (p=0,14>0,05).

The difference between the average scores taken from the sub-dimension of negative attitude on the basis of classes of the candidate teachers is not statistically significant (p=0,59>0,05). The candidate teachers from I. class got an average of 34,43±7,57 from the sub-dimension of negative attitude, II. class an average of 34,91±7,42 and III. Class 33,93±7,67. Regardless the classes of candidate teachers, they have given similar answers to the sub-dimension of negative attitude. In other words, the candidate teachers in general answered the statements under this sub-dimension as “disagree”.
The candidate teachers from I. class obtained an average of 29,30±7,10 from the sub-dimension of interest to the computer technologies lesson, II. Class 28,65±6,70 and III. Class 28,63±7,42. There is not any statistically significant difference between the total scores from the sub-dimension of interest to the lesson among the candidate teachers (p=0,86>0,05). The candidate teachers from first, second and third class answered the statements to the sub-dimension of interest to the computer technologies lesson as agree so there is a high interest towards the lesson.

There is not any statistically significant difference between the total scores obtained from the attitude scale based on the class years among the candidate teachers. Although the total score of I. year candidate teachers ($\bar{x} = 88{,}40$) is higher than II. ($\bar{x} = 86{,}56$) And III. Class candidate teachers ($\bar{x} = 86{,}65$), this difference is not significant.

FINDINGS AND INTERPRETATION REGARDING FIFTH SUB-PROBLEM

The fifth sub-problem of research was given as “*is there ant significant difference between the eagerness to learn the computer technologies lesson and positive and negative attitudes of candidate teachers towards the lesson on the basis of their departments?*” Table 9 below evaluates the views of students.

Table 9 shows the ANOVA results concerning the comparison of scores obtained by the candidate teachers in the departments of Psychological Counselling and Guidance, Classroom Teaching and Preschool Teaching from the sub-dimensions of attitude scale on computer technologies as the eagerness to learn, negative attitude and interest to the lesson, and the total scores throughout the scale.

Table 9: Score Comparison of Candidate Teachers Obtained from the Attitude Scale Towards the Computer Technologies Lesson On the Basis of Their Department

Sub-Dimension	Department	n	$\overline{X}$	S	F	p
Eagerness to Learn	PCG	141	23,82	5,35	0,84	0,43
	Classroom Teaching	86	23,94	5,05		
	Pre-School Teaching	71	22,85	6,91		
Negative Attitude	PCG	141	34,76	7,44	0,53	0,59
	Classroom Teaching	86	34,53	7,92		
	Pre-School Teaching	71	33,61	7,46		
Interest to the Lesson	PCG	141	28,91	6,51	1,13	0,32
	Classroom Teaching	86	29,12	6,40		
	Pre-School Teaching	71	27,53	8,60		
Scale Total	PCG	141	87,48	15,52	1,20	0,30
	Classroom Teaching	86	87,59	15,17		
	Pre-School Teaching	71	83,98	19,18		

In accordance with the ANOVA results on the comparison of learning sub-dimension scores on the basis of departments of candidate teachers as given in Table 9, there is no statistically significant difference between the total scores obtained by the candidate teachers from the sub-dimension of eagerness to learn under the attitude scale towards the computer technologies lesson on the basis of their departments (p=0,43>0,05). Although the score for the eagerness to learn among the candidate teachers studying in Pre-School Teaching is higher than the candidate teachers from the PCG and Classroom Teaching Departments, the difference is not statistically significant.

The candidate teachers from the Department of PCG obtained an average of 34,76±7,44 score from the sub-dimension of negative attitude, while the candidate teachers from the Department of Classroom Teaching obtained an average of 34,53±7,92 and the candidate teachers from the Department of Pre-School as an average of 33,61±7,46. The difference for the average scores obtained by the candidate teachers under the sub-dimension of negative attitude on the basis of their departments is not significant (p=0,59>0,05).

The difference for the total scores obtained by the candidate teachers from the sub-dimension of interest to the lesson under the attitude scale towards the computer technologies lesson on the basis of their departments is not statistically significant (p=0,32>0,05). For this sub-dimension, the candidate teachers from the Department of PCG obtained an average of 28,91±6,51, candidate teachers from the Department of Classroom Teaching as 29,12 and candidate teachers from the Department of Pre-School Teaching obtained 27,53±8,60. The candidate teachers from the Department of Classroom Teaching obtained higher scores than the candidate teachers from the other departments, however this difference is not statistically significant.

The difference for the total scores obtained by the candidate teachers from the attitude scale towards the computer technologies lesson in general on the basis of their departments is not statistically significant (p=0,30>0,05). Although the candidate teachers from the Department of Pre-School Teaching obtained lower scores ($\bar{x} = 83{,}98$) than the candidate teachers from the other departments, this difference is not statistically significant.

CONCLUSION AND RECOMMENDATIONS

This part indicates the findings generated during the research process and presents the interpreted conclusions and associated recommendations.

In consideration with the attitudes of candidate teachers, who are within the scope of this research, towards the eagerness to learn *computer technologies* lesson, their negative attitudes for the lesson and their interest to the lesson, the candidate teachers replied the statements under *the sub-dimension of their eagerness to learn* as agree in general and provided positive comments. In other words, the candidate teachers do not agree with the negative statements given under this sub-dimension and in a way gave positive view related with the computer technologies lesson. The candidate teachers gave positive comments for the statements under *the sub-dimension* *of interest to the lesson.* Overall, the candidate teachers replied the positive statements in the scale as agree and negative statements as disagree. Additionally, in accordance with the studies, a significant difference was noted in the favour of students taking the computer lesson than the students taking no computer lesson (Namlu 1998; Sexton et.al. 1999). This study indicates that there is not any significant difference on the attitudes whether the candidate teachers take any course about computer.

The difference between the total scores obtained from the attitude scale in general regarding the computer technologies lesson on the basis of gender is not statistically significant. The candidate teachers observed as having similar views concerning the scale in general, and the views of female and male candidate teachers for the statements under this sub-dimension are similar. Considering the body of literature, the study of Çakır and Şenler (2007) on the attitudes of students towards the science lesson showed no significant difference on the basis of gender. Another study conducted by Özkal, Güngör and Çetingöz on the attitudes towards the Social Studies lesson indicated that due to the success of female students on the basis of their gender is high, they presented positive attitude. Our study conducted regarding the attitude towards the computer technologies lesson showed no significant difference among the gender of students.

There is no statistically significant difference between the total scores of candidate teachers obtained from the attitude scale towards the computer technologies lesson on the basis of their age groups. Regardless the age groups, the students participated to the research got similar scores and answered to the positive statements as agree and disagree to the negative statements.

It was concluded that the attitudes of candidate teachers towards the computer technologies lesson on the basis of their gender, age group, their classes and departments are similar. Moreover, this study indicates that the attitudes of candidate teachers towards the computer technologies lesson are similar on the basis of their class and department. Considering the gender, age, class, academic success, use of computer in family, type of graduated high-school, whether taking any computer courses, use of computers by teachers during the class, access to computer, frequency of using a computer, use of computer and experiences of candidate teachers, there is no significant difference in their attitudes. This causes to consider that the analysed variables have no impact on the attitude of candidate teachers towards the computer (Gerçek, 2006).

The difference of total scores obtained by the candidate teachers from the overall attitude scale towards the computer technologies lesson on the basis of their class years is not statistically significant.

The difference of total scores obtained by the candidate teachers from the sub-dimension of interest to the lesson under the attitude scale towards the computer technologies lesson on the basis of their departments is not statistically significant.the candidate teachers from the Departments of PCG, Classroom Teaching and Pre-School Teaching obtained higher scores than the other departments but this difference is not significant.

When analysed on the basis of a number of variables, the attitudes of candidate teachers towards the computer technologies lesson on the basis of gender, age group, class and departments are similar. Additionally, this study indicated that the attitudes of candidate teachers towards the computer technologies lesson are similar on the basis of their age groups, class and departments.

The introduction of computer lesson into the curricula of primary and secondary education in 1992 (Kuraler, & Güven, 2008) has started to establish the computer background of students until the university education. Since the teachers of all lessons in the primary and secondary education have improved in computer assisted teaching, the attitudes of students as candidate teachers towards the Computer Technologies have affected; and similarly for the primary and secondary education they have easy access to the researches that they look for their homework, studies and projects with the help of Computer Technologies as well as they obtain the skills to effectively present their works in writing through the Computer Technologies. Therefore, when they improve themselves with these opportunities, they would gain the qualifications, which will motivate their students as they become teachers themselves. This have a positive influence on their attitudes towards the Computer Technologies lesson. These views are also supported with the other researches. Today teachers, hence candidate teachers, must have knowledge about two more important domain in addition to subject area and pedagogical formation; one of which is the computer technologies as the inevitable result of technology teaching and the other one is information literacy. The information literacy skills is the corner stone of lifelong learning which arised by force of 21st century. The skill to use computer technologies is not only an elements supporting the teaching but also a preliminary condition of information literacy skills (Kurbanoğlu and Akkoyunlu, 2002a; 2002b).

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Attitudes Of Preservice Instructional Designers Towards Online Collaborative Learning

Oğuzhan ÖZDEMİR
Faculty of Education, Firat University
TÜRKİYE
oguzhan@firat.edu.tr

Pınar ERTEN
Faculty of Education, Firat University
TÜRKİYE
perten80@gmail.com

İbrahim Yaşar KAZU
Faculty of Education, Firat University
TÜRKİYE
iykazu@firat.edu.tr

ABSTRACT

Flexibility and usability in efficient instruction design model depend on the usage of information and communication technologies which will provide sufficient performance to students in the process. In instruction design process, necessity of individual study and collaborative group events occurred, drifting apart from traditional instruction (Morrison, Ross, Kalman and Kelp, 2011). For this reason, defining attitudes of preservice teachers towards online collaborative learning (OCL) has importance.

Attitudes of preservice instruction designers towards OCL are tried to be defined with this study. Population of study prepared according to descriptive survey model is formed of preservice teachers who are instructional designers and study in Computer and Instructional Technologies departments. Sample of the study is formed of students who study in Computer and Instructional Technologies departments of a university.
Online collaborative instruction attitude scale of Korkmaz (2012) was used to define attitudes that are positive or negative interaction levels of students (Edwards, 1983) towards online collaborative instruction environment in the study. In this way, attitudes are assessed with inferences made out of reactions towards their real feelings behaviors and psychological reaction to a series of sentences or a list of adjectives of individuals (Anderson, 1991).

That the students are affected in a positive way in online collaborative instruction environment is defined. The students within the scope of study stated that their interest in lesson has increased and the lessons that they find difficult are more interesting and will be learnt better. It is supported that online collaborative instruction environments have positive effects on individuals as a result of many studies (Daradoumis, Martínez-Monés ve Xhafa, 2006; Brindley, Walti and Blaschke, 2009; Janssen, Erkens, Kirschner and Kanselaar, 2009; Blake and Scanlon, 2013). It is ensured that the lessons should be prepared in conformity with online collaborative environments. Besides, application of instruction in various stages should be supported. Especially in education stages that train teachers, this kind of education methods and their privileges should be introduced to students and students should be trained in quality to apply these in their working life by including them in the programs.

Keywords: Online Collaborative Learning, Preservice Instructional Designers, Attitudes

INTRODUCTION

Together with the rapid increase in the usage of internet technologies and computers, computers, technology, web-assisted and online learning settings have been started to be used in education. The awareness of the importance of human interaction throughout the learning process also increased (Graham and Misanchuk, 2004). Learning styles, in which interaction is carried out through more than one type of media, have been introduced. The internet and multimedia technologies created new learning options (Lane, 2000). The quality of learning changed after the groups started to conduct collaborative works in these settings.

Whether face-to-face or online, learning in active learning settings are student oriented. Knowledge is created with students in active learning. Instead of listening to the courses and watching the videos, students take part cooperatively in projects by questioning and creating simulations. Technologies which support the objectives of collaborative learning are determined and used (DePaul, 2014). Courses are carried out project-based according to an online program with groups of three or four people (Graham and Misanchuk, 2004).

Collaborative learning is supported by information and communication technologies so as to focus on developing and changing student skills and to enable their learning in the rapidly changing world (Treleaven, 2004). The internet is a tool which promoted the best interaction. Because internet devices enable sending-receiving e-mails, creating discussion groups, making video conferences etc., they promote collaboration (Aktaş, 2014). The nature of formal education has changed permanently by enabling students to access internet and online resources. Using computers and the internet in the field of education has brought benefits for collaborative learning techniques: Such as the increase in student-student interaction and working asynchronously with the students in groups (Roberts, 2004).

Providing flexibility and applicability in the effective instructional design model is based on using information and communication technologies that will offer sufficient performance to students during the process. In the instructional design process, there is a need for allowing for individual work and collaborative group activities rather than the traditional education (Morrison, Ross, Kalman and Kemp, 2011). Implementations, promoting the use of collaborative technologies, should be made. Preservice teachers, in the faculty of education department of Computer and Instructional Technologies Education (CITE), being competent in the technology assisted collaborative working culture will be able to create such settings in their professional life and also direct these settings (Korucu and Çakır, 2014). For this reason, it is crucial to determine the attitudes of preservice teachers towards OCL.

Purpose of The Study

The purpose of this study was to determine the attitudes of preservice instructional designers towards OCL.

METHOD

The study was designed through the screening model by aiming at determining the attitudes of students. In this model, the variables of the event, item, individual, group, institution and subject are identified separately (Karasar, 2003: 79). Because student opinions were aimed at being determined in this study, the document review method was conducted to by describing the qualitative data. For this reason, the written materials related to the event or facts being studied are analyzed (Yıldırım and Şimşek, 2011: 187).

Population and Sample

The population of the study consists of preservice instructional designers studying in the department of Computer and Instructional Design Education (CITE). The study sample consists of 326 students studying in the department in a university in Turkey. Year I. and II. students didn’t receive OCL practices but year III. and IV. students were subject to this practice. It was also conducted on students who were subject to online collaborative practices and who graduated.

Table 1: *The personal details of students within the study group*

Gender	**f**	**%**
Male	171	52,5
Female	155	47,5
Class		
I. Class	25	7,7
II. Class	28	8,6
III. Class	97	29,8
IV. Class	76	23,3
Graduate students	100	30,7
Total	**326**	**100,0**

52,5% of the students who participated in the study were male and 47,5% were female. Because evening education was not offered to year II. CITE students, the number of students in the classes was different. For this reason, the number of year I. (7,7%) and year II. (8,6%) students were less than the number of year III. (29,8%), year IV. (23,3%) and graduate (30,7%) students.

Data Collection Instruments

In order to identify student attitudes, which are the negative or positive ways they are affected (Edwards, 1983), towards OCL settings, the Online Collaborative Learning Attitudes Scale, developed by Korkmaz (2012), was used in the study. This way, attitudes are assessed by making inferences from the reactions, behaviors and physiological responses that individuals give to a set of sentences or a list of adjectives (Anderson, 1991). Because the individuals' attitudes affect their behaviors (Sharma and Sharma, 1997: 184; Arul, 2014), it is crucial to identify the changes that occur during the implementation.

Each item of the five point Likert type scale was titled as "Never (1), Rarely (2), Sometimes (3), Frequently (4) and Always (5)". The scale consists of 17 items and two factors, "positive attitude" and "negative attitude". It was observed that the KMO value is 0,936, the Barttlet test value is 4161,700 ($p<0,001$) and the Cronbach's Alpha reliability coefficient is 0,904.

The students were asked to express their opinions on OCL separately. Thus, the opinions of 19 students receiving OCL were gathered.

Data Collection and Analysis

The reliable and valid scale was conducted on the preservice teachers. The students were asked to state their opinions apart from the scale items. Percentage, frequency, arithmetic mean, standard deviation, independent groups t-test, one way variance analysis and Scheffe tests were used in data analysis and Kruskal Wallis H (KWH) and Mann Whitney U (MWU) tests were conducted when there was no normal distributions. This significance level was identified as 0,05 (Korkmaz, 2012).

The method suggested and conducted by Korkmaz (2013) was used in standardizing the raw scores of the scale. The raw scores were converted to scores between minimum 20 and maximum 100. The following formula was used to do this (Korkmaz, 2012):

X Standartrate=(Xrawsscore/The number of scale items)*20
The points corresponding to the obtained attitude levels were evaluated as follows:
20-35: Very low attitudes level
36-51: Low attitudes level
52-67: Average attitude level
68-83: High attitude level
84-100: Very high attitude level

The scale consists of two factors which include positive and negative questions. Negative questions were coded reversely and were subject to analysis processes. Thus, increase in the negative attitudes factor indicates a decrease in negative attitudes and an increase in the positive attitudes factor indicates that the attitude is more positive.

Qualitative data were also gathered from the students in the study and student opinions on online learning were detected by conducting the document review method on the data.

FINDINGS AND INTERPRETATION

The findings and interpretations on the study data are given in this section. Student attitudes were determined according to the analysis results and these are presented on Table 2.

Table 2. *Students' Attitudes towards OCL*

Attitude	n	$\overline{X}$	sd
Positive Attitude		73,73	15,76
Negative Attitude	326	75,09	17,84
Genel--- Overall Scale		74,21	14,85

According to Table 2, which displays students' attitudes towards OCL, there is a high level of attitude towards the overall scale and its sub-dimensions. It is evident that all the students have a highly positive attitude towards OCL.

Analyses were conducted to determine student attitudes towards OCL with regards to the gender variable and these results are given on Table 3.

Table 3. *t-test results of Students Attitudes towards OCL with Regards to Gender variable*

Sub-dimension	Gender	n	$\overline{X}$	sd	Levene's Test F	Levene's Test p	t	p
Positive	Male	171	75,43	15,77	0,001	0,979	2,059*	0,040
	Female	155	71,85	15,57				
Negative	Male	171	77,15	17,61	0,704	0,402	2,205*	0,028
	Female	155	72,82	17,87				
Overall--Genel	Male	171	76,04	14,87	0,115	0,735	2,352*	0,019
	Female	155	72,19	14,61				

*p<0,05

It is evident on Table 3 that student attitudes towards OCL differ significantly for the overall scale and its sub-dimensions with regards to the gender variable. It was observed that male students display higher level of positive attitudes than female students. This finding indicates that male students are more active in OCL practices and that they have more positive opinions on these practices.

Results of the analysis, conducted to determine how the students' attitudes towards OCL differ with regards to the class they study in, are given on Table 4.

Table 4. *Variance Analysis Results of students Attitudes towards OCL with Regard to the Class*

Sub-dimension	Sınıf	n	$\overline{X}$	ss	Source of Variance	Sum of Squares	df	Mean Square	F	p	Scheffe
Positive Attitude	1. Class-1	25	81,53	13,74	Between Groups	8964,430	4	2241,108	10,033*	0,000	1-5 4-3,5
	2. Class-2	28	72,21	16,61	Within Groups	71705,701	321	223,382			
	3. Class-3	97	72,80	15,11	Total	80670,131	325				
	4. Class-4	76	80,74	13,41							
	5. Grad.	100	67,76	15,68							
	Levene: 1,133		p= 0,341								
Overall	1. Class-1	25	82,35	11,69	Between Groups	7763,374	4	1940,844	9,749*	0,000	1-5 4-2,3,5
	2. Class-2	28	70,42	16,00	Within Groups	63903,176	321	199,075			
	3. Class-3	97	72,94	13,71	Total	71666,551	325				
	4. Class-4	76	80,79	12,10							
	5. Grad.	100	69,46	15,80							
	Levene: 2,362		p= 0,053								

*p<0,05

A significant difference was detected in the positive attitude sub-scale and the overall scale with regards to the classes of the students. It was observed that with regards to the positive attitudes factor, there is a significant difference between year one students and graduate students and between year four students and year three and graduate students. Also, it was observed that with regards to the overall scale, there is a significant difference between year one students and graduate students and between year four students and year two, three and graduate students. The fact that year one students, who haven't received OCL practices, display more positive attitudes than graduate students, who have participated in the practice many times, can be due to their high level of readiness. The fact that year four students display more positive attitudes that year three students, who are introduced with OCL practices for the first time, and with graduate students, who have participated in these practices many times, can be due to their concern for academic achievement and to sustaining their readiness. The students' readiness is a crucial element for the success and development of online learning practices (Hukle, 2009). In addition, it can be said that year four students display higher level positive attitudes because they are aware of the advantage and disadvantages of the practice.

Because the distribution in the analysis conducted for the negative attitudes factor in OCL practices was not homogeneous, the KWH test was conducted and the results are given on Table 5.

Table 5: *KWH test results of students the negative attitudes factor with regards to the class*

Sub-dimension	Class	**Mean Rank**	**df**	**KWH**	**p**	**MWU**
Negative Attitude	1. Class-1	212,32	4	22,848*	0,000	1-2,3,5 4-2,3,5
	2. Class-2	125,41				
	3. Class-3	148,07				
	4. Class-4	193,78				
	5. Grad.	153,92				
		Levene: 3,791	p= 0,005			

*p<0,05

It is evident on Table 5 that there is a significant difference in the negative attitudes factor with regards to the classes. It was observed that the significant difference occurred between year one and year four students and between students studying in year two, three and graduate students. This result indicates that students studying in year one and year four have more positive attitudes.

Analyses were carried out to determine how attitudes towards OCL differ in students who were subject to OCL practices and who were not and the results are given on Table 6.

Table 6. *t-test results of Students Attitudes towards OCL with Regards to Participated OCL Practices variable*

Sub-dimension	**Uygulama Alma Durumu-** - Participated in OCL Practices	**n**	$\overline{X}$	**sd**	**Levene's Test**		**t**	**p**
					F	**p**		
Positive	No Participated	53	76,60	15,89	0,104	0,747	1,456	0,146
	Participated	273	73,17	15,70				
Negative	No Participated	53	75,03	19,14	1,048	0,307	-0,027	0,978
	Participated	273	75,10	17,61				
Overall	No Participated	53	76,05	15,24	0,799	0,372	0,986	0,325
	Participated	273	73,85	14,78				

p>0,05

There were no significant differences in student attitudes towards OCL with regards to having participated in OCL practices. It is evident in this result that having participated in OCL practices has no effect on student attitudes.

There are various factors which affect students' attitudes towards OCL. Opinions of various students were resorted to so as to determine these. The students were observed to express positive and negative opinions. The students stated one of these factors as individual differences. It was observed that taking individual differences into consideration during OCL practices will make the courses more effective. Various student opinions which support this opinion are given below:

S2: "OCL practices will be more effective when individual differences are considered."

S10: "Because every student's knowledge level is different in OCL, some members will put more effort while some member put less effort..."

S12: "When I work in OCL practices many different ideas are generated. We can express different opinions and come to an agreement. In addition, when we work with group members, problems like disagreements can emerge..."

Student opinions also state that individual differences enable courses on an OCL setting to be more effective and effects individual relationships within a group.

Group interaction and socialization were also stated in student opinions. OCL attitudes can be said to change based on these. There were also positive and negative opinions. These opinions are:

S16: "Working collaboratively in an online setting with my group friends enables me to learn new things with my friends, to benefit from their ideas, have an idea about the path we follow, enables me to socialize with my group friends and know them better and all these help us to detect out deficiencies. This is important for us."
S17: "Exchanging opinions collaboratively with my group friends in online settings supports our knowledge and helps us communicate better with people we don't know."
S6: "Group work improves social interaction and the sense of sharing with the people in the environment."
S7: "The work carried out in OCL is better when group success and the desire to do projects is high. Work done in groups are better rather than working individually."
S11: "It is crucial to work together with the group. People can improve their social skills..."
S8: "Group members must accept each other. It is important not to have conflicts."
S4: "I think we would more productively if we can choose our group members on our own."
S5: "I want that state that in the applied courses, unfairness is at its peak. Because when there are conflicts among group members, some people don't want to be included in the process..."
S15: "Work would be done better when the work is done with the groups that the instructor selects."
S12: "...I can't say that working in OCL practices has much positive effects on my social skills and on the increase in my work success."

It is evident in student opinions that while OCL settings improve the communication, interaction, sharing, socialization and development within the groups, it also causes reverse states due to the problems that groups encounter. Thus, there are students who display both negative and positive attitudes in OCL settings. However, the number of students expressing positive opinions are higher. Students also underlined knowing their group friends, exchanging opinions, socializing, the benefits of working in groups, the selection of group members and the disagreements among group members.

There were student opinions expressing that one reason which affected the attitudes towards OCL was that the setting being online. Student opinions emphasizing how the online setting affects their attitudes are given below:

S14: "Carrying out these practices collaboratively on the web with our mentors enables us to get experiences."
S9: "Working online may offer advantages but speaking face-to-face enables better ideas to be generated."
S10: "...I believe that face-to-face practices will be more effective."

The online setting can be said to positively affect student attitudes. However, the majority of the students can be said to display negative attitudes because they believed that face-to-face settings are more beneficial.

There were opinions expressing that OCL practices are effective on the students' academic achievements and their learning. The following student opinions indicate that these affect student attitudes towards OCL:

> *S11: "It promoted permanent learning for the individual and the group. Learning also becomes entertaining and distant from being boring. It furnished the individual with a sense of responsibility."*
>
> *S19: "I get exhausted of dwelling with something as a group and have difficulty in learning the subject."*
>
> *S5: "...I don't find it right only to control the reports during the assessment of the works. I didn't find it right giving a low grade just because all that work was not stated in the report".*
>
> *S3: "I believe that more attention should be attached to OCL in the field of education."*
>
> *S13: "OCL is very useful in understanding some subjects."*
>
> *S18: "I think having groups in the C# course is not good."*
>
> *S1: "...I am aware that I will get one of the lowest grades although I am running two projects on education independent from the university and although that people who have achieved great titles on education are the mentors of the projects and I am the mentee; and this case prevents me from making more comments."*

While the majority of the students expressed that OCL practices have positive effects on learning, the number of students stating that it has negative effects on their academic achievement is higher. It can be said that students who think that this practice has positive effects on learning also believe that it doesn't have a positive effect on their academic achievement due to the problems they encounter. Permanent learning, individual responsibility, group work, creating a report, the increase in these practices, the convenience of the courses and expectations were emphasized in student opinions.

CONCLUSION AND DISCUSSION

In this study, it was observed that students have positive opinions towards the OCL setting. Korkmaz (2013) stated that attitudes towards OCL were positive and at high levels. Similarly, in their study, Lee and Bos (2011) stated that with respect to the activities carried out in OCL settings, the attitudes of the students changed positively following the program. Many study results support the fact that online (Daradoumis, Martínez-Monés and Xhafa, 2006; Brindley, Walti and Blaschke, 2009; Janssen, Erkens, Kirschner and Kanselaar, 2009; Blake and Scanlon, 2013), web-assisted (Lukosch, 2007), technology-assisted (Özdamlı and Uzunboylu, 2008) collaborative learning settings have positive effects on individuals. However, the study on OCL practices conducted by Erten (2015) emphasizes that there are no significant differences in the attitudes towards the OCL settings.

It was observed that OCL attitudes differed according to gender and that male students displayed more positive and higher level of attitudes. No significant differences were detected between students who receive OCL practices and students who don't. Korkmaz (2013) stated that gender has no effect on attitudes towards OCL and that OCL experiences positively affect the attitudes.

In the study, it was observed that year one and year four students display higher level and more positive attitudes than the other students. The students underlined that individual differences are crucial in OCL settings and that these affected the productivity of the course and also the relationships among the group and individuals.

Group interaction and socialization was also stated as the factors affecting OCL setting attitudes by the students. The students underlined issues such as group communication, sharing, development, becoming familiar with friends, socialization, exchanging opinions, group work, selection of group members and problems among the group members. Although there are negative and positive opinions, the majority of the students were observed to state that these factors enabled them to generate positive attitudes. According to Keskin, Çıralı, Akın and Erdem (2015), there is a high level positive relationship between the individual and interpersonal collaborative contributions made by the students and that they establish a well cooperation. Sarsar (2008) stated that students gain new positive behaviors due to becoming familiar with the new characteristics of their peers. In addition, increase in interaction and sharing also has positive contributions. According to the study, group communication, interaction and sharing enabled socialization and development. The support made among groups generate new view points and supports academic achievement (Şimşek, Aydoğdu and Doymuş, 2012). However, it was observed that reverse states also occur. Demirdağ and Kartal (2011) stated that some group members can be passive and can display negative attitudes due to this.

Because it is an online setting, it can affect the attitudes generated towards OCL. The majority of the students emphasized that face-to-face practices should be implemented. In a study on this topic, conducted by Sarsar (2008) it was stated that in these settings, students prefer to see each other face-to-face and that problems occurred when the students didn't see each other.

Academic achievement and learning has a major role on the attitudes towards OCL. OCL practices have positive effects on learning and especially on permanent learning. Permanent learning increases when students work in groups and the ability to enter in relationships is also attained (Şimşek, Aydoğdu and Doymuş, 2012). In addition, it was emphasized that it enables the sense of individual responsibility and that such practices should be carried out more frequently. However, the students were observed to display negative attitudes due to various problems (group work, creating reports, convenience of the courses and expectations) they encounter.

Students were observed to be positively affected by OCL settings. It was observed that OCL settings support collaborative work of individuals in groups, enable them to socially interact, increase their sharing and positively affect their learning experiences. It was emphasized that face-to-face practices should be increased because the settings are online. It was observed that sharing, communication, individual development, responsibility and creativity increases in such settings. According to this study, students display negative attitudes as a result of group work, convenience of the courses and the problems encountered in creating reports. These drawbacks affect course achievement as well as the students' learning.

SUGGESTIONS

Settings that integrate with each other should be designed by benefiting from face-to-face opportunities on virtual and online systems. Practices and activities that can prevent the lack of interaction, communication and socialization in online settings should be carried out. Courses should be prepared according to online learning settings. Students' level of readiness for online learning settings should be increased. It should be supported in being applied in various levels of education. These educational methods should be introduced to students, their benefits should be explained and they should be trained so as to conduct them in their future professional life by including the methods in the curriculums of educational dimensions which train teachers.

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Attitudes Towards Mathematics And Music Of Fourth Grade Students

Nihan SAHINKAYA
Educational Sciences Faculty
Istanbul Medeniyet University,Turkey
nihan.sahinkaya@medeniyet.edu.tr

Deniz TUNCER
Art, Design and Architecture Faculty
Istanbul Medeniyet University, Turkey
deniz.tuncer@medeniyet.edu.tr

ABSTRACT

This study is based on a survey of fourth grade students' attitudes towards mathematics and music, as well as the relationship between mathematics and music. The participants for this descriptive study included 160 students at fourth grade enrolled two different public primary schools in the spring semester of 2015-2016. The mathematics attitudes scale developed by Baykul (1990) and the music attitudes scale developed by Öztürk and Kalyoncu (2014) were used to determine attitudes. Cronbach's Alpha coefficients of these two instruments were calculated with SPSS 15.00 as .94 for mathematics and .95 for music in the current study. Students have positive attitude towards mathematics and music.

Key Words: attitude, mathematics, music, fourth grade student

INTRODUCTION

Attitude refers to one's liking or disliking to an event generally (Hannula, 2002). In another way, it is defined as individual's positive or negative response to an object (Turgut and Baykul, 2010). Once someone develops negative attitude towards this object, he/she stays uninterested in this subject, doesn't like and doesn't appreciate. Although positive attitudes make learning easier, negative attitudes block the learning as an obstacle (Turgut and Baykul, 2010). Attitude can be considered as a key to success (Goodykoontz, 2008). Attitude affects to success, which in turn affects the attitude (Aiken, 1970). Most of students develop negative attitudes toward mathematics as they think math is difficult. Also, they think that they are not smart enough to learn mathematics, which cause losing their interest (Baykul, 2006). Students' attitude toward mathematics is related with quality of teaching and classroom's social-psychological atmosphere (Hannula, 2002).

There are several factors affecting student's attitude towards mathematics. There are some studies illustrating that music has an effect on the attitudes of students towards mathematics. According to those studies, using music in teaching mathematics has positive impact on students mathematics attitudes (An, Kulm nd Ma, 2008), their motivation (Yağışan, Köksal and Karaca, 2014) and mathematical abilities (Yılmaz, Bolat and Dikici Sığırtmaç, 2006; An, Capraro & Tillman, 2013). It was also illustrated that there is significant positive correlation between the success of music course with the others (Arapgirlioğlu and Gürpınar, 2011). Although music is a special discipline, it is not completely different from the other disciplines as generally thought. Because of this fact, teachers may design interdisciplinary activities to teach music, science, and mathematics (Rogers, 2004). Gençel Ataman (2014) claims that music may eliminate mathematics being a troublesome due to calming, improving attention ability, and developing memory characteristics. Although there are some studies investigating the attitudes of students towards mathematics (Köğce, Yıldız, Aydın and Altındağ, 2009; Tezer and Karasel, 2010; Yücel and Koç, 2011) and music (Babacan, Babacan and Pirgon, 2011; Koca, 2013; Uluocak and Tufan, 2011; Nacakcı, 2006) separately, there is a gap in the literature on the relationship between student's attitudes towards mathematics and music.

An attitude change is easier in lower grades. Fourth grade is the last stage of the primary education and critical level to pass elementary stage, at which they express themselves and their ideas better. The aim of this study is to investigate the relationships between the attitudes of fourth grade primary school students towards mathematics and music. In this context, the answers of following questions were examined.

- What are the fourth grade students' attitudes towards mathematics/music according to gender?

- Is there any relationship between attitudes towards music and mathematics?
- Do music attitudes have an important effect on mathematics attitudes?

THE STUDY

In this study, a quantitative approach was used to investigate primary school students' attitudes towards mathematics and music. 160 fourth grade students (86 girls and 74 boys) enrolled in two different public primary school from Kadıköy, Istanbul in the spring semester of 2015-2016 instructional year. Data were collected in one lesson hour by researchers with two attitude scales. In order to determine fourth grade students’ attitude toward mathematics, mathematics attitude scale was used. The scale developed by Baykul (1990) consists of single factor with 5 points Likert type scale and it has 15 positive, 15 negative totally 30 items. The minimum and maximum scores were 30 and 150, respectively. For the current study, Cronbach alpha reliability coefficient was calculated as .94. In order to determine fourth grade students’ attitude toward music, a music scale developed by Öztürk and Kalyoncu (2014) was used. The scale consists of single factor with 5 points Likert Scale and it has 14 positive, 11 negative totally 25 items. The minimum and maximum scores were 25 and 125, respectively. Cronbach alpha reliability coefficient for the current study was calculated as .95. A high point refers to high and positive attitude. Data analyses were performed using the Statistical Package for the Social Sciences (SPSS) software 15.00 version. Independent t-test, Pearson correlation and regression analysis were used.

FINDINGS

Fourth grade students’ mathematics and music attitude scores were compared with independent t-test according to gender (Table 1).

Table 1. Attitude scores according to gender

Scale	Gender	N	Mean (X)	SD	df	t	p
Math Attitude	Male	74	120.97	25.16	158	2.083	.039
	Female	86	**128.02**	17.42			
Music Attitude	Male	74	97.79	22.03	158	5.578	.000
	Female	86	**113.69**	13.55			

Table 1 showed that there was a significant difference between male (X=120.97) and female (X=128.02) students’ mathematics attitude scores ($t_{(158)} = 2.083$, $p< .05$), which means that girls have higher positive attitudes toward mathematics than boys. However, considering the highest score (150) that can be taken from the scale, boys have positive attitudes, i.e. their score was 120.97. According to Table 1, there was a significant difference between male (X=97.79) and female (X=113.69) students’ music attitude ($t_{(158)} = 5.578$, $p< .05$). It shows that girls have higher positive attitudes toward music than boys. However, it can be said that boys’ music attitude scores is positive considering highest score (125) that can be taken from the scale. Therefore, it can be concluded that all the students have positive attitude toward mathematics and music, which is in agreement with the other studies (Tezer and Karayel, 2010; Tezer and Kıvanç, 2012; Babacan, Babacan and Pirgon, 2011; Koca, 2013; Yücel and Koç, 2011). In our study, the girls have higher attitudes than boys and our findings were supported by Uluocak and Tufan (2011), Nacakcı (2006). Although Koca (2013), Köğce, Yıldız, Aydın and Altındağ, 2009 and Yücel and Koç (2011) did not find any difference among the genders, Babacan, Babacan and Pirgon (2011) observed higher scores for boys.

To determine relationship between fourth grade students’ mathematics and music attitude scores, Pearson correlation was calculated and the results were given in Table 2.

Table 2. Fourth Grade students’ attitude scores and Pearson correlation

Scale	N	Mean (X)	SD	r	p
Mathematics Attitude	160	124.76	21.57	0.32	.000*
Music Attitude	160	106.34	19.60		

*Correlation is significant at the 0.01 level (2-tailed)

According to Table 2, there was a meaningful, medium and positive relationships between the attitude scores of students toward mathematics and music ($r=0.32$, $p< .01$). A correlation from $r= \pm .30$ to $r= \pm .49$ indicates a medium correlation (Cohen, 1988). Considering the mean of students’ scores of attitude toward mathematics and music, it can be said that they were above the average and have significant positive attitude towards both disciplines. In another study, Tezer and Kıvanç (2012), found that a weak positive relationship between the attitudes of the prospective teachers towards mathematics and music.

The third sub problem was “Do attitudes towards music have an important effect on mathematics attitudes?”. Simple regression analysis was used to investigate the effect of music attitude on mathematics attitude and the result was given at Table 3.

Table 3. Regression analysis predicting score of music attitudes on mathematics attitudes

	B	**Std. error**	**β**	**t**	**p**
Constant	87.521	8.971	.318	9.756	.000
Music Attitude	.350	.083		4.221	.000

Table 3 shows that students’ music attitudes was a significant predictor of students’ mathematics attitudes ($R=0.318$, $R^2=.10$, $F_{(1,158)}=17.814$, $p<.01$). It can be expressed that 10% of total variance related to mathematics attitude was explained by music attitude, which is in agreement with the study of Tezer and Kıvanç (2012).

CONCLUSIONS

In this study, results revealed that fourth grade students have positive attitude toward mathematics and music. Girls have higher positive attitudes toward mathematics and music than boys. However all students’ attitude were above the average. It was found that there was a significant, medium and positive relationship between the attitude scores of students toward mathematics and music. Students’ music attitudes were a significant predictor of students’ mathematics attitudes. 10% of total variance related to mathematics attitude was explained by music attitude. Determining student's attitude is critical because they affect their success, skills and their future career. If their teacher aware of the importance of their attitude, he/she may alter their negative attitude and it is much easier in early age. The effects of music and mathematics on the other subjects may also need to be determined. Expressing the scientific relationship between mathematics and music during the courses may positively alter the attitudes of students towards mathematics

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Being A Good Parent - Views Of Czech Parents Of Home Preparation Of Pupils At The Beginning Of School Attendance

Jana MAJERČÍKOVÁ
Faculty of humanities
Tomas Bata University, Zlín
majercikova@fhs.utb.cz

Barbora PETRŮ PUHROVÁ
Faculty of humanities
Tomas Bata University, Zlín
petru_puhrova@fhs.utb.cz

Romana DIVOŠOVÁ
Faculty of humanities
Tomas Bata University, Zlín
divosova@fhs.utb.cz

ABSTRACT

Being a good parent: Attitudes of Czech parents to assisting with children's homework at the beginning of compulsory education. The topic of this paper is the issue of parent involvement in home preparation at the beginning of compulsory education. The paper is the result of qualitative research conducted by interview with parents of pupils in their first and second years of primary school in the Czech Republic. The main aim was to describe and explain how Czech parents perceive and interpret their role in their child's home preparation as well how this role is reflected in their understanding of parenthood. The results show that parents realise their significant role in home preparation. Parents experience the obligations connected with home preparation for school as a pressure related to providing good-quality support for their child's school career.

INTRODUCTION

Not only teachers but also parents strongly reflect everything related to their child's home preparation for school, especially at the beginning of compulsory education. In line with Desforges, Abouchaar (2003), home preparation for school is considered as one of the most effective forms of parental involvement in education of their child and socialization events in the school the child attends.

Although the requirement for home preparation or homework is not explicitly formulated in the Czech educational legislation, this phenomenon of child support in scholastic career has its own tradition. The most intensive supervision of parents in fulfilling domestic responsibilities regarding school is expected especially at the onset of compulsory education, the most in the 1st and 2nd year of primary school. It has its logical justification. A new role of a child - a role of a schoolchild enters in family life requiring mastery of habits associated with homework, which both, a child and parents, have not been necessary to pay attention to so far.

In the introduction, we consider it important to clarify and operationalize the concepts with which we have worked on the text. It is essential to emphasize that we distinguish concepts- home preparation for school and homework that have their tradition in the Czech environment. Průcha, Walterová, Mareš (2009) define homework as an organisational form of teaching according to the characteristics of the learning environment, which includes mainly homework, tasks for independent work outside the classroom etc. Čapek (2015) describes homework as a particular job, which is well-defined by a teacher during classes. Homework is performed by specific exercises, calculations, worksheets, solving difficult assignments, processing of texts, literature or the realization of long-term projects. Homework is filled within the deadline in written or oral form. Homework fulfilling is a part of a wider framework - domestic preparation. Domestic preparation integrates continuous preparing of aids, textbooks, notebooks, pens and keeping adequate clothing, hygiene, and sleep. Cooper (1989) describes factors influencing the effectiveness of homework in connection with conditions of home environment, including, for example, place, light, peace and materials, including parents and siblings. Part of the dictionary, dealing with the issue of domestic work of a pupil on his or her school matters, is the concept of home learning. In our environment, the concept of home learning began to be used in connection with the verification of a model of six types of parent involvement in school affairs written by Epsteinová (2002). Home learning, in a way how it is explained by Epstienová (2002), in fact it copies the concept of home preparation, so we do not find substantial differences between the two concepts.

We have many reasons to believe that it is impossible for parents not to enter the process of home preparation. The question is, to what extent and in what dimensions of preparation, parents of a child should be involved in primary education. It is recommended to use proactive synergies between the three key players affected by this process, i.e., the interaction between teachers, parents and a pupil himself (Šulová, 2016). Therefore parents play an important role in home preparation, in which they open up the way for further study of their child and overall personal and professional development of the child (Štech 2009).

THE STUDY

At a certain stage of life cycle, an important part of parenting is the support of a child in the role of a pupil or student, also the cooperation of parents with their child's school. Parenthood is perceived as the relation of a parent (caregiver) and a child emerging on the biological and psychosocial basis. Parenting is a condition (parenthood), in which a man and woman get by the process of conception and birth of a child, while it is a set of activities (parenting) providing his care and upbringing. Parental attitudes, parental style and parental identity and autonomy are reflected in it.

Nowadays parenting is a free choice. No one does not have to be a parent, although it is automatically assumed that parenting is unconditional and natural part of his life career. We choose and voluntarily fulfil the role of mother or father. Most of those who may have children and want them, they also elect this social role voluntarily. It is obvious that it is the value of a child, that finally even in today's relatively individualized society prevails, and people decide for the child. These are psychological and emotional benefits that a parent after a decision to have a child obtains after its birth. By parenthood, mother and father become part of a new social network, as children significantly contribute to the formation of other social bonds of the family. They are often created through relationships in which a child enters school.

Nowadays, when men and women have children, most of them raise a difficult target. The first is the success of their children in school and in life, and later in employment. The other is the personal development of the child, self-realization, construction of its own identity, so that it could grow in the authentic, independent and autonomous individual who will live in harmony with oneself and with the world and will be able to make good use of its hidden resources (Dudová, Vohlídalová, 2005). Fulfilling both of these goals requires a certain synergy with the school and value symbiosis with education, provided by the school. Pomerantz et al. (2007) point to the involvement of parents in home preparation in several qualitative dimensions, including the importance of support, prioritization process before personal dedication and a positive belief in the potential of a child. Parents who care about their child's school success, highly appreciate the importance of education for their child. We know that they are often those who have attained higher levels of education. Their involvement in home preparation and their interest in supporting their own child is higher, more efficient and of higher quality. In conditions of Czech schools, it is proved by Katrňák (2004) in his findings that parents of the upper classes are more active in home preparation, care more about knowledge and skill development of the child than the parents of the lower classes.

We wondered, therefore, how Czech parents cope with this situation. We chose five parents of children at the beginning of schooling and through semistructured interview we realized the research.

Its aim was to:

- describe how parents perceive and interpret their position in the home preparation of their children at the beginning of compulsory school attendance

- reveal how this position is reflected in their conception of good parenting in the home preparation.

From the perspective of social stratification they were parents - representatives of the middle class. It is known that most middle-class families understand "language" of the school and well cooperate with it. Children of the middle class are more successful in school, have better results and their parents create a closer relationship with school (Šeďová, 2009). In this regard, the data represent the mainstream, none of the families have a negative opinion of the school, access to education or uncooperative attitudes toward teachers. Pupils of selected parents did not belong to the failing children in school.

Each parent interview took approximately 30 minutes and in all cases was held at a neutral location. Although our intention was to select at least two fathers, ultimately it was four mothers and one father. View of fathers, whose representation in the home preparation is not so frequent, appeared to be not only interesting, but also well illustrated the 'masculine' look and approach to the issue in question. After transcripts of recordings, data was free coded and grouped into categories. Gradually the data emerged quite clear contours, which enabled us to framework position of parents in home preparation for school. Seeking their concepts of good parenting with an emphasis on home preparation was more difficult. We will try to describe what character the help of parents has in home preparation as a part of the intricate architecture of their active parenting.

We consider it important to indicate with which outfit we as researchers entered into this research. We both are mothers of children who are pupils of the primary school. So we have actual personal experience from a position of parent and child in home preparation. This situation fits perfectly into one of the messages which entails a qualitative research, namely that "the main instrument is the researcher himself" (Hendl, 2005, p. 52). Our expertise and experience of similar situations allowed us to clearly understand the hidden communicated meanings that were communicated by researched parents.

FINDINGS

The contemporary family relations are based on the value of a child and also on interest in a child. During the child's school attendance this interest is strongly focused on their school success. As we mentioned, middle-class parents can realize that to succeed at school with their child can be achieved primarily through the support and assistance at home, in our case especially in home preparation of a pupil at the beginning of school attendance. The association between socio-economic status of the family, involvement in home preparation and success of pupils at school is evidenced by Desforges, Abouchaar (2003). As well as evaluating the strong desire not to fail in front of school and school teachers, we identify ambition to be a good parent in the eyes of the school. How is it possible to put together a picture of parents in home preparation from the data?

Direct support of one parent

Help with home preparation in each of the surveyed families is in the main responsibility of one of the parents, especially mothers it copies the recognized thesis of dominant mothers in cooperation with schools and initiatives in home preparation of the child (Pomerantz, 2007). Generally, matters relating to communication with school, own care and bringing up a child in a family is still mainly in the hands of mothers. The share of fathers is smaller and thematically focused more on scientific and technical disciplines, which seems to be adequate to the natural interest in the male population. In this research study, the participation of mothers was not just a matter of division of parental roles in ensuring the functioning of the family. There were also factors, such as family constellation, when one of fathers - the partners, worked all week outside the home. In the case of the father - research participant, it was a type of person who needed to have everything under control, which manifested itself in a preparation of his son for school He considered mother in the agenda of school of their children as less competent, therefore he assumed a responsibility in this area. The university-educated father, on the contrary, possessed perceived competence (Štech, 2004), which clearly determined his efforts to interpret the child's needs and problems. Štech (2004) speaks of parents - experts who are engaged in home preparation by active involvement and from their own personal skills they can effectively help a child with home learning.

The centre of home preparation

The main focus of home preparation for school is focused on homework fulfilling. A partial part is home learning as a set of specific activities associated with keeping acquired knowledge. Time for homework becomes a mean for the establishment and receiving a system and order by the child which is under the control of a parent. The key idea is that during homework the whole family adapts this scheme. A parent attaches importance to the fact that the child develops the ability for self-organization and self-discipline because the school is too far-reaching in developing these skills. It is represented by the statement of one of the parents:

"I led him to the fact that whenever he came home from school, so to have a regime that, as he comes home from school he will have a snack, something to relieve his energy, then the school and when it is done, he still can have space for himself. Like, so we tried to keep it that I taught him to prepare things to be in order to know what is and what is not done."

Homework as a burden

There is a consensus among parents that although activities of parents and evaluation of parent participation in home preparation do not have a strong negative connotation, finally it is generally a burden for them. Accepting the position of parents - teachers in home preparation is well expressed in the statement of one of them: "... *well like I feel it to be a burden, probably everyone that ... it's in 44 years I am learning it for the tenth time ... now that person gets on my nerves ... but I see I'm doing it for the kid and that's it ".* Parents seem to accept the school as an institution that has the potential to facilitate education and ensure success and application in the future, not primarily as a mean of immediate fulfilment of children's wishes and desires (Lipovetsky, 2004).

In primary education, the situation with the solution of homework, home learning and preparation for school appear that it is mainly a load of time. The survey results show that parents still quite understand the content of education, they are able to supervise all activities of the child and try to fulfil the requirements of education that the school puts on the family. They need time for it, which is not always enough. This is in line with what was confirmed in the research by Rabušicová and Pol (1996), and it means that the parents of primary school pupils understand the knowledge that a child receives at school, and they can help him with that. Home preparation is generally perceived as inevitable, none of the parents does not protest and tasks are evaluated as practising the curriculum of schools. Objections arise only in connection with its frequency („*... why every day? ... Children should not have tasks over the weekend"), which enhance this burden. Parents assess also possible problems caused by the school when the teacher, in the words of parents," doesn't manage ... then the parent must work with a child like crazy ".* A burden of parents in home preparation is seen in a way how under the pressure emotions are released. Affects, misbehaving, responding to obstacles in task solving are accepted by parents. Not always parents can control and suppress anger and loud speech when they do not agree with the child during cooperation and may even be a source of disruption of the relationship between parent and child (Kohn, 2007).

Another program of the family depends on homework, in parents’ words, it is „a priority of an afternoon "that is kept in parent’s mind. What parents certainly do is to show children the benefits of good time management. However, it seems that on the other hand, parents are completely abstract in the effort to turn the homework into an attractive activity for a child, enhance motivation towards completing tasks and awareness of the benefits gained by meeting the homework (Madjar et al., 2015). *"Well, probably a common parent does not wonder how the tasks could be done differently to entertain and motivate the child."*

It is a duty that must be fulfilled - "... *we just do this and it's over."*

Good parents in home preparation

Parents take increasing personal responsibility for the upbringing together with an increased pressures on involvement in the school education of their children, which is bound to "the image of good parents" (Štech 2009).

The concept of good parents in the interpretation of the surveyed parents is also focused directly on the child. Expression, which was most often used with regard to good parenting in home preparation, was clear - " success of a child." So a good parent is one who helps the child to succeed - in life, thus simultaneously at school. There were only different strategies of parents how to reach success.

We have identified three basic:

- Success as a result of clear guidance and control systems - based on avoiding the "mediocrity";

- Success as a result of complete satisfaction of a child, which requires fairly sophisticated even psychological practices in child support. This corresponds to a model called mindful parenting, in which parents ensure the education and keep an eye on parental attitudes towards the child (Duncan, 2009);

- Success as a result leading to independence and help, support - anytime and without conditions. The approach is based on the own experience of parents when they did not have similar support, even perceived as missing.

CONCLUSIONS

In summary, we can say that by the child's entry into compulsory education, families and parents find themselves in a new situation. Under it, they feel under pressure, especially in terms of the time required for operation of a family and parents' time management. On the other hand, this pressure is accepted as an integral part of their parenting, as inevitable and fulfilment that shows care for the harmonious development of a child.

Psychologization of relationships in a family is accompanied by their relationships with children. These relationships also influence the attitude of parents towards their child's school and are in relation to the issue of the role of parents in home preparation. Values such as individuality, self-fulfilment, creativity and autonomy become programmatic objectives pursued by the majority of parents (Štech 2004). Supporting the child in school is a part of these efforts, middle-class parents really have no choice due to their ambitions. These parents are aware of the added value that the child acquires its own attitude toward homework, the perception of personal competence and self-regulatory skills (Hoover-Dempsey, 2001). At the same time, the fact that homework must be supervised and coached is their investment in the education of their children. Researched parents fulfil a complementary approach to involvement in home preparation (Šeďová, 2009) within which they complement and reinforce the action of schools and teachers. They are convinced that the fulfilment of school requirements will help to ensure that their child will have more chances to be successful in school. Success is regarded as one of the important segments of a good parenting fulfilment.

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Benefits Of Supporting Students In Mathematics And Statistics: Evidence From The Czech Republic

Marketa MATULOVA
Masaryk University Brno, Czech Republic
marketamatulova@seznam.cz

ABSTRACT

Mathematics and Statistics Support Centre at Masaryk University in Brno started in the February 2016. It provides assistance in various topics of mathematics and statistics, primarily to the students of Faculty of Economics and Administration. In the paper we present reasons and pedagogical ideas for opening such centre, together with a brief report of the activities during the spring term 2016 and students' feedback. Furthermore, experience and challenges from the first period of running and organizing MSSC are discussed. The evaluation of the impact of the innovation on study outcomes shows an increase of the success rate in relevant courses.

KEYWORDS: Masaryk University, Mathematics, Statistics, Support Centre, Success Rate.

INTRODUCTION

Quantitative methods are becoming increasingly essential in various disciplines (economics, engineering, biology, etc.), so mathematics underpins many university subjects. On the other hand, mathematics and statistics courses are often perceived as too difficult and their success rate is low. This poses a barrier to successful study particularly for first year students that are not well-prepared from the secondary schools and not confident enough in mathematics. The social discussion on the topic is long-lasting in the Czech Republic, the introduction of obligatory school-leaving exam on mathematics is incessantly postponed, more in the study (Matulová, Širůčková, 2016). It seems to be a serious issue not only in the Czech Republic, but also in other countries. Thus lots of higher educational institutions all over the world have established some kind of Mathematics Support Centre (MSC) in order to ease the above mentioned difficulties. In most of the institutions the support is represented mainly by the existence of drop-in centre. Such a centre has been opened recently at Masaryk University in Brno and our early experienceis presented in this contribution.

The rest of the paper is organized as follows: First section contains some facts and numbers ilustrating the „Mathematics problem“ and its extent at our faculty. In the next section is provided survey of the MSC literature with emphasis on the definition, purpose and functioning of MSCs. The main section is concerning the Brno support centre, the description of its everyday operation and evaluation of first term running (centre statistics, students‘ feedback and improvement of study results). Concluding section contains some final remarks and prospectives for the future.

MOTIVATION

Mathematics Problem

Recently many developed countries report that their school system is suffering from some sort of „Mathematics Problem“. In the UK during the period 1990 – 2010 educational institutions publicly acknowledged that they had recruited many students onto mathematically demanding courses for which the students were not well-prepared. Advisory Committee on Mathematics Education in UK states: „Garants of many university courses are placed in an impossible position. They cannot require an appropriate level of mathematics of their applicants and hope to fill their places, and in many cases they are unable to design courses with the level of quantitative demand that would be appropriate for their disciplines" (ACME, 2011). According to (O'Donoghue, 2004), "Irish students display lack of fluency in basic arithmetic and algebraic skills, gaps (or in some cases absence of) in basic prerequisite knowledge in important areas of the school syllabus (e.g. trigonometry, complex numbers, differential calculus) and inability to use or apply mathematics except in the simplest or most practised way". Also US reports suggest that math requirements may be the primary obstacle to graduation for many students, namely "a larger percentage of students enroll in remedial math courses than in remedial English course" (CCA Report 2012).

Mathematics Problem in the Czech Republic

Similar issues are present at Czech universities. Let us demonstrate it on the case of Faculty of Economics and Administration, Masaryk University. Table 1 comprises data showing the decreasing level of mathematics performance of students entering FEA MU for years 2009-2015 (the entrance test has been introduced in the year 2009). The entrance test consists of 10 tasks (i.e. solving algebraic equations, drawing graphs of elementary functions, etc.), the same database of the tasks has been used for all seven years.

Year	Number of students	Mean score	Median	Lower quartile	Upper quartile	STD
2009	515	4.87	5	2	7.5	2.95
2010	491	5.48	5.5	3	8	2.91
2011	399	4.28	4	2	7	2.75
2012	401	4.59	4.5	2	7	2.92
2013	348	3.84	3.25	1	7	3.12
2014	544	4.43	4.5	2	7	2.83
2015	367	3.46	3	0	6	2.9

Table 1: Scores of the entrance test (maximum 10 points)

As can be seen in the Figure 1, the results are worsening rapidly. Growing proportion of very weak students is even more alarming than the decrease in the mean of scores (more than 25% of students gained no points at all last year, see lower quartiles in Table 1).

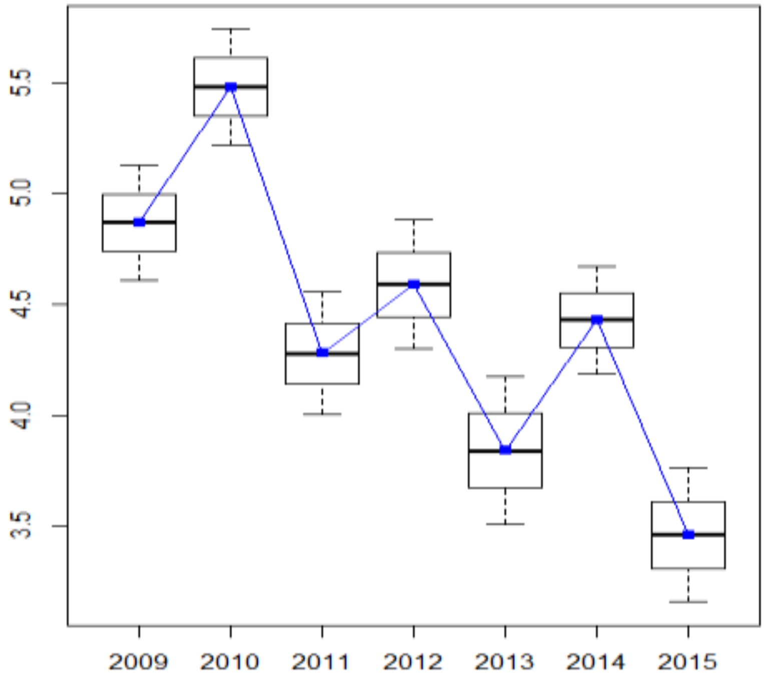

Figure 1: Boxplots (means and standard errors) of entrance test scores 2009-2016

THE STUDY

State of the Art in Providing Mathematics Support

As mentioned earlier, establishing a Mathematics Support Centre is becoming a widely used way how to mitigate the discrepancy between the current state of students' understanding mathematical concepts and techniques on one side and growing requirements in many courses on the other side. Lawson et al. (2003) define MSC as a facility offered to students (not necessarily of mathematics) in addition to their regular programme of teaching through lectures, tutorials, seminars, problems classes, personal tutorials, etc. Other definitions that can be found in (Matthews et al. 2013), but they are very similar to Lawson's formulation. As stated in (Taylor, 1999), "The specific aims of mathematics learning support differ between universities but the essence is the same." We may cite more statements formulating the purpose of MSC:

- Provision and fostering of an environment of partnership and openness in mathematical learning – within and between all student cohorts and staff (Cuthbert & MacGillivray, 2007)
- To provide non-judgmental support for students outside their teaching departments

- To ease the transition of all students to HE courses with a significant numerate component
- To provide a GP surgery for any type of difficulty in mathematics or statistics
- To provide one to one support for any member of the university with mathematics difficulties no matter how small.
- To offer extra help (i.e. outside formal classes) for any student taking any maths module.' (Lawson et al, 2003)

Perking et al. (2013) show that the number of universities in United Kingdom offering this additional support grows rapidly (46 in 2001, 66 in 2004 and 88 in 2012). Mathematics support is on the rise in Australia too. A review of accessible university websites conducted by Taylor (1999) showed that 46% of Australian universities offered math drop-in, whereas 9 years later MacGillivray (2008) identified that this number almost doubled to 85% (33 out of 39 universities). Matthews et al. (2013) provide review of scientific papers demonstrating MSC usage and activity or showing the impact of MSCs on students, staff and the institution. Mac an Bhaird et al. (2009) report that MSC has a positive effect on the grades of the students who attend the centre. Pell and Croft (2008) also give evidence that giving support has improved the pass rate of their students.

Support Centre at Masaryk University

Math and Stats Support Centre in Brno (MSSC) was launched 22.2.2016 as the first institution of this kind in the Czech Republic. The start of the centre was facilitated by cooperation with MATRIC (The Centre for Research, Innovation and Coordination of Mathematics Teaching, University of Agder) and was supported by Norway grants. Another source of inspiration was provided by Mathematics Education Centre, Loughborough University, http://www.lboro.ac.uk/departments/mec/ and UK Centre of Excellence in Teaching and Learning, http://www.sigma-network.ac.uk/. MSSC in Brno is open every working day and is operated by experienced staff tutors and volunteering senior students. Location of the room is strategic: it is located next to the school canteen at Faculty of Economics and Administration. Opening hours and contact information are published on the website mathstat.econ.muni.cz. The website is continuously supplied with complementary online study materials (short texts, demonstrations, videos, etc.). In addition to the daily drop-in operation of MSSC there are held various events such as launching celebration, quizzes, popularizing talks and similar events contributing to community building. MSSC offers assistance also to students of other universities. We hope that the open access will help to spread the idea of its benefits.

RESULTS OF MSSC EVALUATION

Usage Statistics

Most MSCs are interested in knowing who uses their facilities and how often. Quantitative usage data collected over a period of time will show trends and indicate a measure of demand. For the sake of collecting and recording data we have purchased automatic system incorporating scanning technology. Nearly 300 visits were registered during the spring term (the number of individual visitors is smaller, because some students attended repeatedly), most of the questions were concerning obligatory courses currently running at FEA - Mathematics and Statistics 2, see Table 2. Considerable number of students has been interested in consulting data analyses needed for their final theses (mostly master theses).

Faculties of MU		**Topics**	
Faculty of Economics	255	Course Statistics1	5
Faculty of Arts	8	Course Statistics2	143
Faculty of Science	3	Course Mathematics	70
Faculty of Education	1	Doctoral thesis	10
Faculty of Social Studies	20	Master thesis	37
Faculty of Informatics	1	Bachelor thesis	22
Faculty of Sports	5	Other	11
Faculty of Medicine	5	**Total**	**298**

Table 2: MSSC statistics: number of visits according to topics and MU faculties, spring term 2016

Impact on Study Results

As can be seen in the Table 2, most MSSC visits in the spring term 2016 were concerning the course Statistics 2. We can compare the study results in this course before and after introducing the MSSC. The syllabus, teachers, study requirements and the exam remained unchanged, the only one difference between 2015 and 2016 is that this year students were assigned two more homework exercises. In case of having difficulties to solve the tasks, students were offered assistance by tutors of MSSC. Students worked harder throughout the school year and they were better prepared for the lessons and instructions. Let us explore the improvement in more detail. We performed two sample t-test on the final test scores in order to show whether the results are significantly better this year. (Normality of the samples was checked by Kolmogorov-Smirnov test and the equality of dispersions by F-test). From the statistics in the Table 3 we can conclude, that the scores of the final test increased substantially in comparison to 2015. Maximum gain of the test was 100 points and it was divided into theoretical (40 points) and practical part (60 points). The average score grew by 3 points in the theoretical part and by 7 points in the practical part. Greater improvement in the practical part may indicate that this year students are better in applying the methods and perhaps their level of understanding is higher.

	2015			2016			t-test	
	N	**Mean**	STD	N	**Mean**	STD	t	p – value
Theory (max. 40 points)	281	**21.46**	6.60	259	**24.33**	6.75	-4.99	0.000001
Practice (max. 60 points)	281	**23.60**	14.40	259	**30.62**	14.80	-5.58	0.000000
Overall (max. 100 points)	281	**45.07**	19.20	259	**54.95**	19.63	-5.91	0.000000

Table 3: Final test scores comparison before and after the introduction of MSSC (resit not included)

The scores in the Table 3 were taken before the end of examination period, but we can see significant progress in the final grades too, see Figure 2. Overall success rate increased from 79.4% to 91.4%, only 24 students out of 278 haven't pass this year.

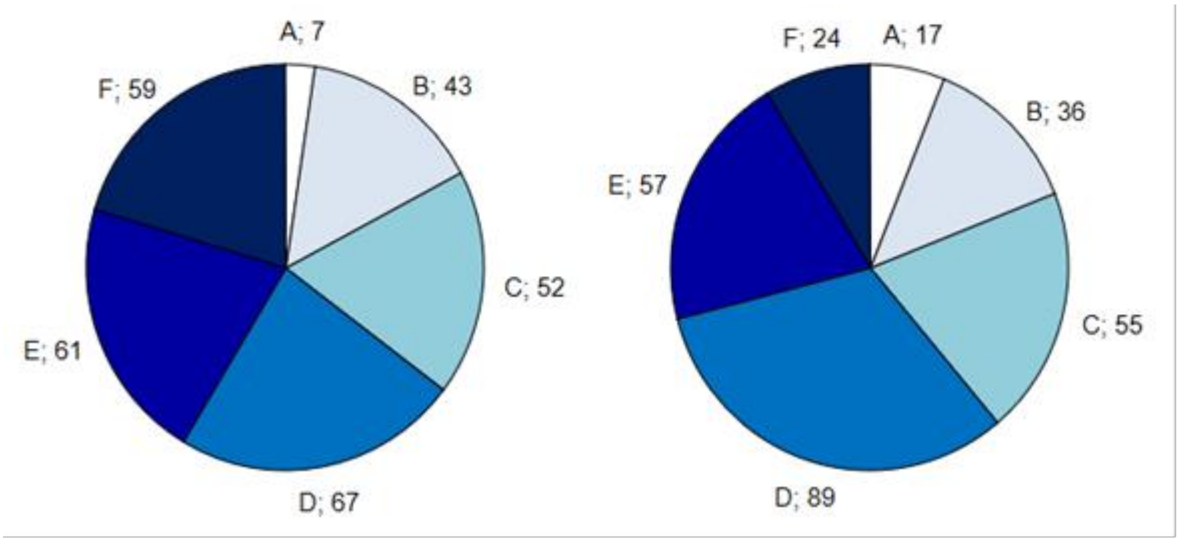

Figure 2: Frequencies of final grades in the course Statistics 2 before and after introducing the MSSC (2015 results on the left, 2016 results on the right)

Students' Feedback

After the spring term ended, students were asked to fill in a satisfaction questionnaire on the MSSC website. The collection of responses is not finished yet (107 respondents filled the form), but even now we can conclude that clients of the centre were in general satisfied with the level of service they'd received. For illustration we present some individual comments:

- "MSSC is of great importance for students and it needs to be further promoted, not restricted or even abolished."
- "I am very glad that you have created this centre, though you certainly needed a lot of effort for it. Anyway, I think it really helps those pupils who have problems with mathematics and struggle to overcome them."
- "Although I have not used its services yet, I recommended it to some friends, who were mostly students of other faculties and needed help with statistics in some of their academic work. Those who have used the centre's services praised it much. I plan to use the center's services myself if I'll need help with something in the future."
- "Support Centre is a great project , I am very glad that you managed to open it! Thanks to doctor Kralova

and all tutors!"

For the overall summary of satisfaction level see Figure 3.

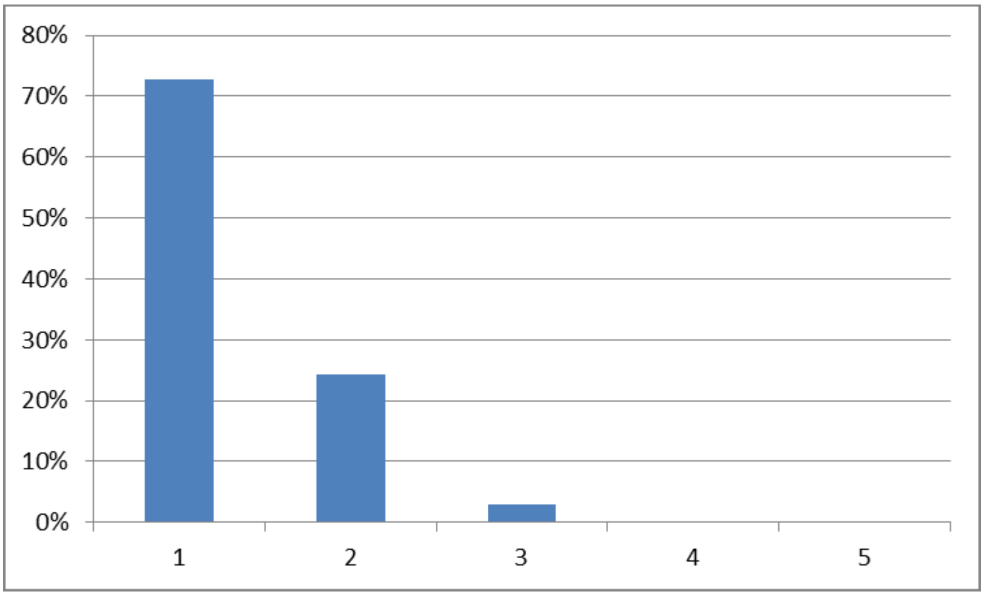

Figure 3: Distribution of responses to the question "How would you grade the MSSC?" (1=excellent … 5=unsatisfactory)

More than 72% of students declared that there is nothing they would suggest to improve in the centre. They appreciated mostly the approach of the tutors, other options are given in the Table 4.

Option	Number of students marking the option
I received answers to all my questions	24
A simple way of explaining complex things	22
Helpful and sympathetic tutors	34
Interesting talks going beyond the scope of the courses	3
Pleasant environment	4
Provision of study materials, additional resources and links on the web	6

Table 4: Options for the multiple choice question "What did you like about MSSC in particular?" and the number of students choosing the option

In addition, data are collected also from non-users of centre to gain further insights into student's mathematical difficulties and reasons for non-use.

CONCLUSIONS

The results of MSSC evaluation confirm that establishing the facility was very benefitial for students of Masaryk University. It is hard to capture all the benefits (i.e. to measure the quality of data analysis in the final theses, etc.), but significant improvement of success rate in obligatory courses is convincing enough. More arguments on usefulness of the centre are given by students' responses from university opinion poll and MSSC questionnaire. Hopefully the leaders of the university will appreciate the activities of the MSSC, because additional financial resources will be needed for its running in the future. It is desirable to spread the idea to other higher educational and governmental institutions in the Czech Republic. Hopefully the number of math support centres will grow and it will be easier to gain funds for their running. Good news is that two new support centres are starting in September 2016 at Technical University of Ostrava and Tomas Bata University in Zlin.

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Beyond The Horizon: Learning Arising From The Use Of Twitter By Schools In New Zealand

Hazel BEADLE
Institute of Education
University of Chichester
United Kingdom
h.beadle@chi.ac.uk

ABSTRACT

Identifying learning to arise from use of the Twitter platform, this paper provides detail relating to an examination of the use of that platform by 1000 schools located in New Zealand. Physically located almost 12,000 miles from the researcher's United Kingdom work base, the examination serves to both emphasise the contribution which social media makes to the removal of geographical boundaries and to highlight the associated risks and impact arising.

Two points of learning are outlined; that relating to the generation and maintenance of the school's e-profile and the impact of that institution having a Twitter use strategy. Specifically, the study identifies that despite there being many schools based in New Zealand which have engaged with the Twitter platform, that platform has not been the subject of consistent focus and schools are at risk of a negative online profile being generated. Numerous factors are seen to have influenced the presence of a Twitter platform use strategy and significant amongst these is enforced engagement as a consequence of the efforts the Twitter community has chosen to make with regard to school Twitter platform-related inaction. An overarching factor is the acknowledgement that perceptions of appropriate use and behaviour are heavily influenced by what is deemed acceptable in contemporary operational practice and, with that judgement being time specific, an ongoing challenge is presented which can prove to be a distraction from other elements of the school leadership and management role.

INTRODUCTION

The use of social media, internet applications which 'allow the creation and exchange of user generated content' (Kaplan and Haenlein, 2010), has become commonplace. This use has resulted in an increasing pool of the population being constantly connected (Stevenson and Peck, 2011; Evans, 2014). Twitter is one example of a social media platform. Launched in 2006, by 2012 it had become the 9th most visited website in the world (Wilkinson and Thelwall, 2012), on its 7th birthday was reported to be hosting 400 million tweets per day (Tsukayama, 2013) and in 2014 was cited to have 15 million users (Power, 2014).

The pace at which different sectors have availed themselves of the advantages of the Twitter platform has varied. The approach taken is generally regarded to be linked to sector attitudes, expectations of the role being undertaken and personal preferences. This is as reflective of the schools sector as any other.

Fairly recent education-related literature (e.g. Manchir, 2012; Stuchbery, 2013) has identified use of Twitter within the classroom to be innovative. Beyond the classroom the platform is gaining a reputation for having a significant practical impact. It is seen, for example, as having the potential to respond to a CPD need (Lu, 2011; Foote, 2014). Here the platform provides an opportunity to culture both the learning environment and a personal learning network, of this being supported by the impact of a levelling effect, and of postings being underpinned by subject matter passion (Beadle, 2014). In part this is the consequence of the platform having the potential, whether users consciously recognise this or not, to bridge the gap between the professional role and other aspects of the Tweeter's daily life (Messner, 2009; Lowe and Laffey, 2011; Alfonzo, 2014). This bridging effect can also be seen in the connection which the Twitter platform facilitates between the postings made by the account holding school and those who choose to engage with the material tweeted, termed 'followers'. No longer is the influence of school communications geographically bounded.

This paper identifies learning arising from an examination of the use of Twitter platform by 1000 randomly selected schools located in New Zealand. These schools are physically located almost 12,000 miles from the researcher's United Kingdom work base, serving to emphasise the removal of the geographical boundary and that, as Fang et al (2014, p.802) highlight, the 'audience participating in online interactions is not defined by the physical setting in which the conversation originates'.

THEORETICAL UNDERPINNING

The theoretical context of this paper is considered under three headings: the online profile and the determination of authenticity; the impact of the blurring of professional and private lives; and the influence of the technological pace of change.

Online profile and the determination of authenticity

In recent years significant attention has been paid to the creation of the online profile. There are many sources which outline how to create a profile which creates a positive professional image (e.g. Devlin, 2009; Peregrin, 2012). Contributing to that profile are numerous elements, with the use of pictures a factor which has received popular attention (Kapidzic and Martins, 2015). A focus on self-presentation, in the context of this paper how the school portrays itself, is not a new concept (Cress et al, 2014). The intention is that that self-presentation will 'please the audience' (Baumeister, 1982), in that the audience will like what they see and wish to align themselves with that source. In the context of the Twitter platform, this is likely to result in the audience becoming a 'follower' of the postings made.

Contributing to the cultured perception is the ability to generate an image that supports the onlooker to bridge the gap between the online and physical life. This is potentially a less demanding task where a link has already been established in physical life as seen, for example, between schools and the parents of attending students. Nevertheless the bridging task, which includes an assessment of authenticity, requires co-presence, psychological involvement and behavioural engagement. Despite positive intentions, a compromising of the online image either as a result of ill thought through actions, or for malicious means, can occur (Brandt, 2004). The result is that more than half of social network users engage with mechanisms to conceal their profile attributes from other users of those networks (Chen et al, 2014).

Blurring of professional and private lives

Social media is acknowledged play a key role in blurring the distinction between the professional and the private life and, over a number of disciplines, there is a wealth of commentary which questions the desirability of this effect (e.g. Scott, 2013; Fang et al, 2014; Rogstad, 2014). Abril et al (2012, p.64) explain professionalism to be the 'language of the workplace', a language which embraces conduct, appropriate judgement, stature and competency. The emphasis on the creation of a positive impression is clear. Challenge arises from a shortfall in understanding how social media has the potential to contribute to the creation of an impression. This is, in part, the result of social media having the capacity to facilitate lives to become 'simultaneously embodied and informational' (Goodings and Tucker, 2014, p.38).

Also noted is the significance of duration. Whilst action, professional or otherwise, might historically have been perceived against the backdrop of previous activities, use of social media is not dependent upon that backdrop being established. It is possible, for example, to read a Tweet without knowing anything about the author or authoring body and, in scenarios such as this, the reader risks being drawn into filling any gap in understanding. A lack of clarity has led to social media being both insufficiently exploited (Power, 2014) and the site of a considered performance (Mazali, 2011). Whilst veering away from active engagement with an inadequately understood tool might generally be regarded to be an appropriately cautious action, in the domain of social media use, the presence of this gap in activity can be misinterpreted. Mazali (2011, p.290) highlights that 'people [are] made aware through and by the technologies they use'. Non-use and partial use of social media, for example, both contribute to the impression which is generated.

The technological pace of change

The difficulties associated with keeping pace with the potential of technology and the rate at which that technology changes is regularly noted within the literature (Whalen, 2012; Niederhauser and Wessling, 2011; Baker, 2012). At worst the effect is acknowledged as having the potential to have a paralysing effect (Fry and Rigler, 2014), what Sutton and Desantis (2016) discuss using the 'change blindness' terminology. Argument is presented that it is the first steps to adopting technology which present the greatest difficulties, with subsequent use tending to be the consequence of a 'technological one-way route' (Beadle, 2015c). At the least, emerging technologies serve to provide a distraction. Some reluctance to engage with technologies is the consequence of change fatigue; a factor reasoned to be as apparent within the education sector as elsewhere (Sutton and Desantis, 2016).

Perceptions of appropriate use and behaviour are determined by what has been deemed acceptable in operational practice, the effect of a popularist approach and an inevitable merger of perspectives. As Baker (2012, p.267) acknowledges, 'both determinism and utopianism are commonly found in technology writing'. Furthermore the effect, as Kennedy (2012) notes, echoing a sentiment expressed by Pirie (2012) at a similar time of writing, is that the unrelenting advancement of technology in the education sector has put the 'power in the hands of individuals'. This focus on a contained determination of what is deemed acceptable is also considered in relation to legislation where Drechsler and Kostakis (2014, p.128) note, for instance, that even the 'law measures technology against what is desirable now'.

One influence on the popularist technological approach is the presence of supportive resources (Niederhauser and Wessling, 2011; Sutton and Desantis, 2016); if the educational institution lacks interest or expertise in the use, for example, of social media platforms, then it is inevitable that this will become apparent. A perceived return on the investment, that investment in the case of social media often amounting to time, is argued to be a necessary prerequisite for action to be taken (Sutton and Desantis, 2016).

METHOD

Using a random number generator, 1000 schools were selected from a list of schools provided on the New Zealand government website. 305 of the schools were identified to have a Twitter account, with 1 in 10 of those schools having more than one account. All of the identified accounts associated with each of the randomly selected schools were included in the study.
The school names were replaced by numbers in order to protect their anonymity. They were also given the precursor NZ and, where there were multiple accounts for a single school, the first account was assigned the differentiator 'a' at the end, the second 'b' etc, e.g. NZ10a.

The data gathered was included on an Excel spreadsheet which included the sample number, Twitter handle, date the account was created and, as at the date on which the detail was gathered, the number of accounts being followed, following, and the number of Tweets posted. Additionally, qualitative notes were assembled about the nature and composition of the postings made. Accounts were deemed to be active if there had been one or more postings made from that account within the 12 months preceding the date of examination, with all accounts being examined over an eight month period ending September 2015. The analysis benefited from the use of a mixed methods approach.

FINDINGS AND ANALYSIS

Engagement with the Twitter platform

Engagement with the Twitter platform by schools in New Zealand is erratic. There are many schools which do not appear to have a Twitter account, although few of those institutions (less than 0.01% of the sample) were identified to have entirely avoided being mentioned on the Twitter platform. A large proportion of the accessed Twitter accounts were created and first used over the 5 year period commencing 2009. However some schools were not identified to have ever used the platform and others were identified to have commenced using the platform and then to have discontinued their use; some on more than one occasion.

The least number of messages posted from an account regarded as being disused (on the basis of no postings having been made for the 12 month period commencing the date of examination) was one. Here NZ2 made a single posting announcing that they 'were now online'. Similarly NZ67, in a Twitter life that lasted 2 days, posted two tweets. The first announced that they were now 'in the twittersphere', and the second, posted the next day, announced that 'the twittersphere is rather quiet'. What they had expected to occur over that short time period was not made clear although the absence of further postings suggests that they had been deterred from further engagement.

The making of a limited number of postings does not mean that the accounts were not engaged with. Several schools were identified to have established Twitter accounts and then used them largely for the purpose of following the postings made by others. Here they were identified to be gaining access to those postings through a single location, for example for the purpose of professional updating. The 33 accounts followed by NZ39 and the 19 accounts followed by NZ163 included, for example, a significant number of school principals and educators, academics and politicians.

Amongst the grouping of schools which were identified to have discontinued their use, there is some evidence of an effort to re-establish a Twitter presence. Furthermore, some schools were identified to have both created, commenced using and terminated engagement with the Twitter platform on more than two occasions, with all of these accounts remaining visible. In other instances this re-engagement occurred with a single account. Instances of where the phraseology used might indicate a previous account existed, such as NZ89's use of 'Just set up our brand new Twitter account', were not always seen to result in the identification of any previous account. Instead, there was indication that the phraseology used in Twitter postings may have colloquial undertones.

A significant volume of the accounts examined exhibited intermittent use. NZ1, for example, posted on average once per month when considered over the 12 month period preceding the date of examination. This can be compared to NZ29 which, during term time, made postings several times each day. That running a twitter account requires stamina was identified, although this need did not consistently explain accounts demonstrating intermittent engagement. Intermittent use was identified to often serve as a precursor for use of the platform being terminated, particularly where the frequency of postings was also identified to have decreased.

Where a current Twitter presence was identified, the accounts were seen to have a tendency to incorporate the school name into the Twitter handle; usually in the format main name followed by, for example, 'high', 'college' or 'girls'. However there were instances (e.g. NZ43, NZ85 and NZ153) where the name comprised the school initials, what appeared to be a 'nickname' for the school title, and on occasion the school names reversed. In the latter instance this would appear to have been the result of there being other schools with the same name using the Twitter platform. Including the initials 'NZ' at the end of the Twitter handle was not unusual, particularly amongst accounts where the school name was also abbreviated to initials (e.g. NZ73 and NZ80).

Where schools have actively engaged with the Twitter platform they were often seen to have more than one account. NZ57 was seen, for example, to have established three twitter accounts over a period of 5 years and, based on postings which were made within the 12 months preceding the date of examination, each account remained active. Here use of multiple accounts provided a filtering mechanism with one account used for school to staff communication, the second account providing urgent messages to parents (such as those regarding weather based school closures) and the third containing generic publicity detail. Generally subsidiary accounts focused on short term events such as school residential trips, or emanated from individual departments of the school. Indeed, where multiple accounts were present, there were some examples of a hierarchical framework being present in which there was a central account which made reference to subsidiary accounts both in the postings made and Twitter handles adopted. The subsidiary account for NZ25b, for example, simply had the word 'technology' appended to the end of the main account (i.e. NZ25a) name.

A significant number of teaching staff, including those working at schools which were not seen to have used the Twitter platform, or which had terminated their use of that platform, were identified to have purposefully established a Twitter presence. Indeed, it was these individuals who were, in part, responsible for very few of the 1000 schools having entirely avoided being mentioned on the Twitter platform. It was not unusual to see teachers introducing themselves as being a 'Teacher of [X] at School [Y]'. Indeed, the majority of the teaching staff profiles accessed included specific mention of their school being based in New Zealand e.g. "I am an English teacher at [X], NZ', 'Deputy Principal at [X], NZ' and ' teacher and first XI coach at [X], NZ...'.

These personal accounts were not a subject of the examination beyond the role which they played in providing a presence on the Twitter platform for the respective schools. However it was noted that in some instances the postings made from those accounts could be perceived as failing to positively contribute towards a positive professional image. This is not specific to teachers in the New Zealand context, having been identified by the researcher in other studies (e.g. Beadle, 2015a, 2015b), but where specific links to those accounts were made from school based Twitter accounts, there was a risk of negativity being attributed to the school.

Not all the accounts which were seen to have initially been created and maintained by an individual educator contained questionable content. Indeed, there were four accounts, each at first sight appearing to be attributed to one individual, and which fulfilled for the purpose of this research the criteria deemed reflective of a school account. In each instance the account holder was the principal of the school and no other school Twitter account was in operation. Furthermore, in each instance those accounts provided in their Twitter profile the school name, location and details of the school website. In addition, in each instance the school name formed at least part of the Twitter handle.

Creating an impression

Some school accounts specifically set out how they intended to use the capabilities of the Twitter platform. For example NZ88 identified their intention to provide 'updates and announcements' and NZ266 highlighted that their postings were a repository of messages posted on large screens around the school. In each instance these details were presented within the account header. Also seen were examples of the school's intended approach being communicated as their first posting. NZ189, for example, highlighted they intended to post 'news of events at school, parenting tips, educational websites'.

Less frequently identified was a desire to attract 'followers'; other users of the Twitter platform. This is a focus which is often identified in use made by commercial organisations and celebrities. Two examples of this approach were identified, for example NZ241's "Please follow us and we will do the same to you". Not surprisingly, compared to accounts held by commercial organisations and celebrities, the number of Tweet followers which were attracted by the New Zealand schools was limited. The average number of followers per account was 48, however there was significant variation. Those accounts which tweeted more frequently tended to have more followers and those schools with more than one account tended not to have an equal number of followers across all their accounts. This latter point suggests that the school's followers were either selective in their approach or were unaware of the presence of additional accounts. There would, for example, be little reason to follow a subsidiary account established for a school residential trip if there was no connection to that activity.

Pseudo accounts were identified. Some of the example accounts highlighted were identified to be hosting questionable postings, for example relating to the competence of named members of the school teaching staff. Generally it was the nature of the postings made and the detail arising from the profiles of the accounts which were followed or were following that account which permitted a judgement to be made about the account's authenticity. Appearing to demonstrate an awareness of there being a risk of a digital presence being assumed, a small number of schools were identified to have created accounts but failed to use them. In a number of these examples the respective account simply reveals a platform notification that '[X] hasn't tweeted yet'. Furthermore, there were two examples (NZ91a-b and NZ263a-b) where the schools were identified to have taken a particularly robust approach in using more than one derivative of their school name.

Contributing to the appearance of legitimacy was the use of pictorial images. Specifically, inclusion of the school crest was identified to be a popular feature contributing to the creation of an impression that account postings emanated from that school. The risk of this assumed approach appeared to explain why some schools chose to identify that they were, as exampled by the header provided by NZ152, "The official Twitter account for ..." The contribution by a legitimate school account of a poor pictorial image, was also seen to result in a negative effect. NZ84 and NZ116, for example, were deemed to be legitimate accounts based on having provided links to material on the school website and inclusion of material publicising school events. However those accounts included exceptionally poor quality profile pictures suggesting that little thought had been given to the contribution that that image makes to the impression being cultured. This identified that pictorial representation, similarly to the words posted, is worthy of attention. Whether it is this risk which accounts for some of the studied schools having chosen not to personalise their Twitter home page, simply using the Twitter-provided 'logo', can be questioned.

Offering a similar capability to other social media platforms, Twitter permits account holders to prevent unauthorised readers from accessing their postings. This was a capability used by a little over 0.01% of the sample group. In each instance, and as part of the research exercise, the researcher made a request for access. Although in each instance that request was made from the researcher's Twitter account, an account which highlights in the profile detail that she is a researcher into e-technologies, none of her requests were granted. It was not possible to identify whether the requests were ignored or refused, since no contact was received from any of these schools.

Language used in Tweets was generally cautious, and in some cases repetitive. Whether this was the result of a lack of capability or understanding could not be determined. In some cases the caution identified resulted in compromises being made. NZ34, for example, provided regular encouragement to their followers using the word 'please', even though this meant compromising other phraseology. Twitter postings are limited to 140 characters. That limitation was also reflected in some use of 'text speak' within postings. NZ112, for example, regularly substituted '2mrw' for the word tomorrow, 'u' for you and 'b' for be, even when there was capacity amongst the 140 character limitation for each word to be spelled out in full. Some tweets were seen to alternate between being posted in the first person and taking a more corporate stance. Accounts written entirely in the first person, and particularly those using informal phraseology such as NZ50’s tendency towards starting each tweet with the words ‘hey guys’, suggest the school accounts had the potential to be regarded to be little more than an extension of a personal account.

A tendency to use repetitive phraseology, such as NZ14's use of the 'I posted a new photo to...' at the start of each of 30 consecutive postings was noted. Likewise, repeated use of hyperlinks was not unusual. NZ13 hyperlinked every tweet and was clearly attempting to entice engagement with those resources by avoiding providing full detail within the remainder of the tweet, for example "Year 8 & 9 option choices for 2016: Current Year 8 and 9 students have been given thei ...read more at [hyperlink]" (sic). NZ86 was seen, over the three month period preceding the date of examination, to have changed from attaching web links to text, to posting web links without any accompanying explanation. Some accounts merged these two approaches. For example NZ62, with the exception of their first tweet announcing their arrival on Twitter, posted the same tweet on 43 occasions - '[X] News & Events Update' - followed by a hyperlink to a web page. Here Twitter was seen to be little more than a means of notifying an update to a web page, despite that web page already offering its own 'subscription' facility.

Whilst the language used was generally cautious, humour was not entirely excluded. NZ145 started several postings with a humorous 'note to self' reminder whilst another of their postings raised the question 'Who needs a crystal ball when...?'. Likewise, NZ77 followed up their 'First tweet' posting with another which simply read 'Second tweet'. However, more significant exceptions to the general perspective of caution (potentially reflecting a point of crisis in the employment relationship for the individual making the posting) were identified. Two accounts posted expletives in relation to their frustrations with the teaching role. In both instances use of those accounts was identified to immediately terminate, suggesting that the individuals making the postings had sole responsibility for the accounts and thus that the schools were either ignorant of, or were unable to subsequently delete or refine, the nature of the posting made.

DISCUSSION

This discussion is organised under two headings, reflective of this paper's learning focus. Generation and maintenance of the education institution's online profile is followed by consideration of the impact of the education institution having a Twitter use strategy.

The generation and maintenance of the education institution's online profile

Twitter is a free-to-access platform and this, together with user-friendly nature of the software, appears to support engagement. The exponential growth of the platform (Wilkinson and Thelwall, 2012) provides testament that the approach provided has generally been perceived to be attractive. However, there are also indications that the ramifications of establishing accounts and making postings, and in particular how use of the Twitter platform creates an impression, the online profile, has not always been the subject of consistent focus by the studied schools.

Social media is identified from the literature as providing a forum for performance (Mazali, 2011). Absence of participation does not exempt a school from that performance but, as identified from the study, results in shortfalls being filled and online personas being assumed. Each school's social media profile was identified to be influenced by numerous factors, and that this included pictures/illustrations, as well as words. The literature highlighted that self-presentation is not a new concept (Cress et al, 2014). The intention is that that self-presentation will 'please the audience' (Baumeister, 1982), in that the audience will like what they see and wish to align themselves with that source. But what if they do not like what they see? The effort which the typical reader will engage in the task of determining the authenticity of the account, particularly when factors are deployed to give the appearance of legitimacy, can be questioned. As a result of the number of individuals with which a school is broadly associated, the potential ramifications of those relationships, and the willingness of staff members to associate themselves (and the material they post) with the school, the likelihood of the school being on the receiving end of malicious intent or the prankster's focus appears to be significant. Any failure to recognise and respond to this risk is, therefore, of significant concern. Furthermore, any failure to respond to the wealth of advice which is identified to be available with regard to the use of social media platforms appears to indicate a lack of awareness surrounding the online profile broadly.

Some schools demonstrate caution in their postings by 'protecting' their Tweets. However, the extent to which those schools are aware of the limitations of their approach remains unknown and is certainly questioned in the light of the identified shortfalls in the understanding of platform capabilities. What is established is that there are some unrealistic expectations associated with Twitter use, as exampled by the desire to rapidly establish a Twitter following and illustrated by the disappointment expressed when this does not occur as rapidly as anticipated. Furthermore, that schools cannot expect others to perceive them to be distanced from the accounts with which they are connected. Despite the perceptions surrounding the growth in use of the Twitter platform, maintenance of a Twitter presence requires sustained effort and turnover of staff will inevitably have an impact.

The impact of the education institution having a Twitter use strategy

Where Twitter platform use was focused, this indicated the presence of a strategy. Indeed that focus was identified to influence practice both within and outside the school. In some instances the identified strategy appeared to be a simple desire to extract value from the platform, without any effort being made to offer significant contribution. This was seen, for example, where school accounts largely used the 'follow' facility. However, with regard to the more significant body of schools identified to make two-way use of the Twitter platform, the termination of accounts such as those associated with a school residential once that activity was completed, also serves to emphasise a purposeful, and potentially strategic, focus. A third factor contributing to identification of the presence of a strategic approach is the hierarchical organisation of accounts, albeit that that approach might have been established simply as a consequence of the success of using a single account.

A significant body of school accounts were established within eight years of the Twitter platform being created. For accounts established in the earliest years, the influence of novelty cannot be discounted. As was identified from the literature, perceptions of appropriate use and behaviour are heavily influenced by what is deemed acceptable in operational practice and it is inevitable that such a judgement is time specific. When Twitter was first established it is unlikely that schools, or indeed many of Twitter's current users, would have been able to determine how significant use of the platform would become. This is, in part, the consequence of the developmental nature of technology.

The lack of direction exhibited by some accounts, including accounts which at the point of examination had been established for some years, was evident within the study. The ability to adjust the strategic approach, indeed to adopt a strategy when previously there had been a lack of purposeful direction, was indicated to be problematic. Here the influence of account 'followers' was apparent. Even when use of the platform appeared to have been terminated, many of the accounts retained at least some of their following. This ready audience might well explain why some schools chose to reignite their use of those accounts as opposed to establishing a new one. The literature (e.g. Kennedy, 2012; Pirie, 2012) identifies technology as having put power into the hands of individuals, and this study provides clear indication that those individuals include account followers. What appears to be a simple process, the reigniting of an account, was identified to make it difficult to establish a Twitter use strategy, especially where such a strategy has not been previously used.

CONCLUSION

This study has identified that there are many schools based in New Zealand which have engaged with the Twitter platform. However, like other technological tools, competence in use varies and some engagement appears to be little more than the consequence of efforts to emulate practice identified elsewhere. As the period of time during which the Twitter platform has been used increases, a legacy of use and, in particular, the fall out of ill thought through approaches, appear to be becoming an additional feature of school management. Efforts made to engage with the platform are not always effectively embedded into school operating processes; as might be exampled through the presence of an institutional strategy for Twitter use. Whilst this absence of focus might well be for commendable reasons, such as a desire to focus resources on other elements of the school's life, the examined schools were being seen as being forced into engagement with the Twitter platform. This occurred both through action, and through the efforts the Twitter community has chosen to make with regard to school Twitter platform-related inaction.

Whilst the Twitter platform offers a number of advantages, the presence of the platform and the way it is engaged with, presents a significant risk. Generally the negative effect is revealed through a compromised online school profile. As an intangible factor, and in the presence of the competing demands with which a school is faced, there is a danger that the need to manage this online profile can be overlooked. Certainly management of the Twitter profile can detract attention from other elements of school life, with the platform serving as a potential outlet for arising frustrations. The effect is that the Twitter platform can be berated for providing an unwelcomed distraction. Some of the identified risks emanate from outside the school establishment, but there is much that arises from the actions of those with employment-related links to the organisation. This employment-related link adds an additional level of complexity and is flagged up as offering further research potential.

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Biomusic. Body, Sound And Learning.

Laura RIO
Department of Human, Philosophical and Educational Science, University of Salerno
riolaura87@gmail.com

Emilia SICA
Department of Human, Philosophical and Educational Science, University of Salerno
sica_emilia@libero.it;

Filippo GOMEZ PALOMA
Department of Human, Philosophical and Educational Science, University of Salerno
fgomezpaloma@gmail.com

ABSTRACT

The object of this research is the fundamental relationship between music learning and movement. According to some scholars (Gordon, 1990; Corradini, 2008), between music and movement there is a single protagonist at the center, which is the body of child that learns.

The Biomusic (Corradini, 2008), a new branch of Musictherapy, uses the knowledge of the influence of sound on people through breathing techniques, movement, relaxation and emission of sounds. It acts on the physical, emotional and energetic balance improving the quality of life of the individual. Besides Biomusic, then, there is the Music Learning Theory (Gordon, 1990), which has as its main objective the development of musical aptitude of each child according to his potential, methods and timing. This musical path is based on the concept of "audiation" (Gordon, 2002), ie the synergy between psychological and bodily elements. According to Gordon, in fact, it is impossible to fully live the world of music if there is no movement of the body.

All this assumptions are even based on the new neuroscientific researches about embodied cognition: cognition is embodied and it mainly depends by sensory elements, bodily characteristics and motor experiences (Caruana, Borghi, Gomez Paloma, 2013).

In conclusion, learning is generally determined by an active body that is fully absorbed in a stimulating environment (Paloma Gomez, 2013) and in the case of music, it is itself that becomes movement through the space (Gordon, 2002).

INTRODUCTION

The object of this research is the fundamental relationship between music learning and movement. According to some scholars (Gordon, 1990; Corradini, 2008), between music and movement there is a single protagonist at the center, which is the body of child that learns.

The concept of Musictherapy was developed in the eighteenth century thanks to Richard Brockiesby, a doctor and a London musician; it is considered an activity that is based on the care of human health and employs, as a primary tool, the relationship among patient, therapist and musical expression. This therapy is an activity that uses music and sound as a communication tool, mostly nonverbal, to intervene in educational, rehabilitative or therapeutic level, in a variety of pathological conditions and not, in order to create a contact for squeeze out the emotions.

In 1996, the World Federation of Musictherapy gave the following definition: "Musictherapy is the use of music and/or musical elements (sound, rhythm, melody and harmony) by a qualified person, to a person or a group of person, in a process that facilitates and promotes communication, relationship, learning, motor skills, expression, organization and other relevant therapeutic objectives in order to satisfy physical, emotional, mental, social and cognitive needs. It aims to develop the potential and/or residual functions of the individual so that he can better achieve intra and interpersonal integration and consequentially he can improve the quality of life thanks to a rehabilitative or therapeutic process." Rolando Omar Benenzon (Argentine music therapy teacher) defined, however, the Musictherapy from a scientific and therapeutic point of view: "From a scientific point of view, Musictherapy is a branch of science that deal with the study and research of the relationship between sound and individual to discover diagnostic elements and therapeutic methods”. In 1997, Benezon defined the Musictherapy as a “psychotherapy which uses sound, music and bodily tools to develop, process and analyze the relationship between music therapist and patient with the intended to improve his quality of life and rehabilitate and recover him for his social inclusion”.

According to these definitions, Musictherapy could be considered an efficacious methodology for a psychological intervention, because it allows the individual to communicate with the therapist's help, through a non-verbal code and starting from a Sonic Identity principle. The Sonic Identity is the integration of all sound experiences that the individual encompasses from birth onwards. Certain sounds could have a significant impact on the mental and physical welfare of an individual, that is why every individual embodies a musical history and an unrepeatable musical experience. The received sound messages meet the personal ability to receive and translate them becoming part of us and only then they will be relayed outside. From this exchange of sound information, new sound vibrations and new tones of each person are born. Musictherapy aims to act precisely on these harmonic forms and provide a safe and protective environment which helps the person to relieve thoughts and possible disturbances.

A decade ago (2008), Corradini designed the Biomusica as a new branch of Musictherapy that uses the knowledge of the influence of sound on people through breathing techniques, movement, relaxation and emission of sounds. It acts on the physical, emotional and energetic balance improving the quality of life of the individual. The sound is used as the achievement of therapeutic aims in preventive, educational and rehabilitation processes and in personal development. The focus of its intervention is to define the individual as a human being in a dynamic development. For this reason, the developmental character is not subordinated to the therapeutic one because an effective therapy must promote, at the same time, a developmental and a therapeutic process.

Besides Biomusic, there is the Music Learning Theory (Gordon, 1990), which has as its main objective the development of musical aptitude of each child according to his potential, methods and timing. It describes the various ways in which the child learns the music, from the neonatal age, with similar processes to those used to learn the language. Edwin E. Gordon argued that all children, at school, can learn about music in the same way that they learn other subjects or the mother tongue. In the first few years of life, in fact, the child communicates with a "language" and a series of behaviours close to the musical field. Just observe the child when he beats rhythmically toys each other, when he issues rhythmic and expressive sounds, when he runs, jumps and plays making sounds that make up little melodies.

THE STUDY

The Musictherapy sessions are organized according to the needs of the patient, but usually with weekly meetings. This therapy can be applied to a single person or a whole group of people with disabilities or without disabilities.

The intervention could be:

- Psychoanalytic: with the aim to develop social and interpersonal aspects;
- Psychosomatic: especially with children or elderly people with disabilities, in order to implement a therapeutic and rehabilitative treatment;
- Somatic: with a single patient, for a therapeutic treatment through a very detailed work between patient and therapist.

For the educational value of this discipline, three specific areas of application are developed:

- preventive;
- rehabilitation;
- therapeutic.

The preventive area concerns the use of Musictherapy in order to help the person to prevent various types of hardship. The rehabilitation area is addressed to patients suffering from various diseases, in order to maintain or improve the physical and mental health. In this case the rehabilitation of very young children is called habilitation, because they develop skills rather than recover them. Musictherapy for therapeutic purposes has as central point the relationship, with the aim of reaching internal changes related to the communications, the relationship and affection aspects.

Regarding Biomusic, the exercises are based on the ability of the sound of his own voice to be distributed within the body and not outside as people tend to think. The sound of voice travels within us through to the bones, fluids and tissues and helps the localization of blood and oxygen in specific areas, especially if we use the right phonemes as vowels and the right frequency addressed by the music we listen to.

The Biomusic exercises involve a fusion between the body and the music that you listen. The body is considered the central element of this activity and the musical instrument to "tune". Music has the effect to activate mental associations and to open the way to the emotions or even physical sensations that extend the knowledge of ourselves, in order to better integrate our emotionality. Some of the exercises are also based on rhythm, a fundamental element of music, in fact rhythm comes from the body, just think of the heart rate, respiratory rate or commonly to the walk.

Specifically, Biomusic, organized following precise rules, allows to:

- balance the biological system;

- balance the energy system;
- strengthen the immune system;
- improving self-esteem;
- improve the state of mind;
- enhance creativity;
- enhance the imagination;
- promote self-observation;
- develop the ability to resolve emotional conflicts;
- improve awareness of the inner world;
- stimulate the body and emotional expressiveness;
- improve verbal communication, non-verbal and social integration;
- reduce physical tiredness;
- reduce stress accumulated over time.

In this technique, there are some objective factors that occur in actual practice of each performed exercise, ie:

- the multicultural character: Biomusic can be implemented in every cultural context and in different ethnic groups, without creating internal disorders because the cultural values of each country are respected;
- the social nature, because Biomusic exercises create interpersonal relationships, both internal and external; in addition, the greatest benefits are collected when these activities take place in groups, when people interact with each other.
- the evolving nature is the ability to train people who practice this activity in their inner life.

From these three characteristics is possible to extrapolate the foundation for the "movement of Biomusic" (Corradini, 2008).

The educational material drawn up by the Gordon Theory consists of songs and rhythmic motifs, strictly without texts, based on three fundamental characteristics: variety, complexity and repetition. The musical path does not require the use of musical instruments, but only the use of voice and movement of the body and it is based on the concept of "audiation" (Gordon, 2002), ie the synergy between psychological and bodily elements. It is the set of cognitive processes that involve the mind and the body and allow the real understanding of the music and the possible acquisition of new musical skills; then, it is the ability to internally feel the music and understand sounds even if they are not materially and instantaneously present, for exampleduring the improvisation, listening, reading, writing or even when we recall a familiar music.

According to Gordon, there are eight types of audiation:

1) listening to familiar music or unfamiliar;
2) read familiar music or unfamiliar;
3) write familiar music or unfamiliar dictation;
4) recall and perform familiar music from memory;
5) recall and write familiar music from memory;
6) creating and improvising unfamiliar music;
7) creating and improvising unfamiliar music while reading (Music);
8) creating and improvising unfamiliar music while writing (Music).

The protagonist of this complex process is the body. The sensory experience of listening and movement are the basic ingredients for the initialization of the path of knowledge and keep it active in the body, where the music lives. According to Gordon, in fact, it is impossible to fully live the world of music if there is no movement of the body.

FINDINGS

All this assumptions are even based on the new neuroscientific researches about embodied cognition: cognition is embodied and it mainly depends by sensory elements, bodily characteristics and motor experiences (Caruana, Borghi, Gomez Paloma, 2013). Until a few years ago, the prevailing position in cognitive science was to consider the human body a brain accessory (Borghi & Iachini, 2004). During the last ten years this position was, however, overturned by a multitude of experiments and publications that have highlighted the importance played by the physical body in cognitive processes: it is claimed, in fact, that cognition is embodied (Embodied Cognition, Caruana & Borghi, 2013) and that it depends also by features of corporeal type. In fact today, gradually, it has come to the conviction that the mind is influenced by the brain, and especially by the body; at the same time, it has been creating a strong relationship between three fundamental processes that previously were constantly split off from each other, ie the perception, the action and the cognition. The student, using his body as the main tool for apprehension and communication, acquired knowledge and skills that, otherwise, would remain inaccessible; it allowed him to participate actively with the world around him, giving him the opportunity to learn through experience, exploration, the relationship with the others, using his body to express, interpret and to know: that's how it is really possible to realize the circular process of the body-action-cognition (Gomez Paloma, 2009). Consequently, in Biomusic, musical learning is determined by a full body immersed in a stimulating musical environment because music becomes movement through space. A correct coordination between the movement, breathing and muscle contraction allows to internally understand time and rhythm, not simply as a regular series of pulses, but as a time stream divided into well-organized time groupings. To be musical is necessary "to put the time in to space" (Gordon, 1990). To do this it must be able of embracing a relaxed movement in continuous flow. “Body knows before brain” (Gordon, L.E.E., 1990).

CONCLUSIONS

Playing music necessarily implies accurate and aware control of the movement. The child should realize as soon as possible the way used from those who play music employing the movements of the body: so parents, teachers, other adults or children should play for him songs accompanying rhythmic movement.

If a child does not learn well to move, he cannot do it with another person: “To coordinate its execution with that of the other, children will be able to recognize their possible lack of coordination” (Gordon, E.E., 1990).

In conclusion, learning is generally determined by an active body that is fully absorbed in a stimulating environment (Paloma Gomez, 2013) and in the case of music, it is itself that becomes movement through the space (Gordon, 2002).

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Blended Learning – How To Create An Effective Course

Keith BUCKLEY
Rollings College, USA
kbuckley@rollins.edu

ABSTRACT

The definition of blended learning is a formal education program in which a student learns: at least in part through online learning, with some element of student control over time, place, path, and/or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. For universities blended classes is cost cutting, and leverages time when physical expansion is out of the question. For faculty / educators - increasing frequency and variety of engagement; transition to fully online teaching. for students - address access / convenience issues (online 24/7 access) while still offering social & instructional interaction opportunities (classroom)

As learning and technology evolves one of the more popular teaching formats is a blended learning course where a percentage of the time is face to face and the rest of the time is online. These types of classes are proving quite popular with students who want flexibility but at the same time experience a classroom feel and a personal connection with the teacher and other students. This gives the teacher a two faced problem in designing a class that meets the learning objectives through both formats. It is crucial that the teacher has a very clear vision how the class is going to flow and how the learning objectives will be met in the class room and online to have an effective class. In higher education the teacher must examine five critical areas.

1.Vision - The objectives and Learning outcomes
2.Interaction - The face to face and online interaction. How? What? and when?
3.Content - The ability to create learning modules that expand critical thinking
4.Assesment - Formal and informal assessment – what is important in the grading process
5.evaluation - This should be self peer and student evaluation. Its also very important to get some of reflective evaluation some time after the completion of the class.

This paper will examine the process of executing an effective blended learning course. It is one that takes careful preparation, attention to detail, keeping instruction and direction as simple and easy to understand as possible whilst keeping the learning objectives central to the plan. Blended learning can accommodate students of all backgrounds, provide a creative learning environment and give students an extremely positive educational experience. In order to build an effective blended class, it is important to establish what type of class you want to have and how this will be enacted. It is very important that it does not become two courses that run independently of each other. Learning objectives, learning outcomes, content assessment and evaluation have to be in sync with the online and in class interaction.

An effective course is well structured, easy to comprehend and allows the student to learn in an independent manner Formal and informal assessments correspond to the student's ability to grasp the critical thinking aspects of the course. A blended learning format is one that encourages collaboration, discussion and debate. This paper will help educators plan, process and execute a productive course.

Keywords: Blended Learning, Education, Teaching

INTRODUCTION

In order to create an effective blended course, it is very important to understand that it is for the benefit of the student and all design implementation and evaluation should be done that is in the best interests of the student. Blended Learning is a mixture of learning methods that incorporate multiple teaching modals. It is a natural development to the growing accessibility of eLearning, online resources and the continued need for a human component in the learning experience. A blended learning approach ensures that the learner is engaged and driving his or her individual learning experience. This approach also helps cater to the individual needs of the learner, most students have unique learning styles and a blended approach is more likely to cater to those needs than a traditional classroom teaching experience.

Blended learning is important because it breaks down the traditional walls of teaching, ones that don't work for all students and now with access to present day technologies and resources we can tailor the learning experience for each student. Blended learning also offers flexible time frames that can be personalized to each person, offering them the ability to learn at their own pace.

For universities, blended courses can be part of a strategy to compensate for limited classroom space, as well as a way to think differently about encouraging faculty collaboration. For faculty blended courses can be a method to infuse new engagement opportunities into established courses or, for some, provide a transitional opportunity between fully face-to-face and fully online instruction. For students the conveniences of online learning combined, the social and instructional interactions that may not lend themselves to online delivery. All students no matter their age learn differently and teaching methods should reflect this, by designing teaching programs in a way that reaches visual, auditory and kinetic learners alike. With the heavy integration of technologies, we'll be able to improve teaching, information retention, engagement, responsibility and enjoyment. Students never outgrow their learning styles, meaning blended learning is more important than ever, no matter what the industry is, from schools to corporations, in all walks of life.

When setting the course there are five basic tenants of a complete course: Interactions, Design, Content, Assessment and Evaluation. Each one is extremely important and leads the student to have well defined, organized and pedagogically centered experience.

INTERACTIONS

This area clearly explains to the student all the necessary information about times, assignment's, expectations and protocols. In order to learn any academic subject students, need to interact and even struggle with the material being learned (called active learning). Pre classroom assignments are set and students are asked to explain concepts and ideas to their peers in class. The online component allow students to work at their own speed but it should force them to research, reflect and discuss complex issues within the course. The assigned work should tie in with the course goals and objectives.

An example of course objective

Students will develop an understanding and appreciation for global sport business as it relates to the commercial management of sport and sport organizations. By the conclusion of this course, the student will, through discussion, investigation, written examination and application:

- Understand the body of knowledge in international sport business
- Develop a knowledge base regarding international sport business research
- Become aware of the differences in regional, national and geographic sports culture
- Develop a knowledge base regarding international sporting events
- Appreciate the complexity of international governing bodies of sport
- Understand the historical development of international sport business and global sport expansion
- Describe U.S. global sport exportation and importation
- Discuss economic integration as it relates to global markets
- Learn concepts, principles, and terminology as it relates to international sport marketing
- Critically examine the promotion of international sports products
- Understand the complexity of licensing and merchandizing of sport in international markets
- Understand the historical development and importance of The Olympic Movement
- Identify major social, cultural, ethical, and business issues facing international sport

Schedule

A course schedule with topics and assignment distribution. The material should be divided equally and cover the entire course. The course schedule also helps students know from Day 1 the exam and due dates, as well as plan their reading to come prepared to class.

Syllabus

A student course guide with important information. The official syllabus of most schools are very long with details and policies as required by institutional policy. A way to help the students is to create a mini syllabus to provide quick access to the most important aspects of the course.

Protocols

This is a document detailing course expectations and norms. In class preparation, E mail correspondence and online discussions are all discussed. This is where all technical support such as log in procedure .and course requirements are stated such as student responsibilities in the classroom and online are stated. Also the consequences of late/missed assignments.

Module Interaction

This document allows the alignment of the unit learning objectives with assessment and interaction activities. The teacher has to carefully consider how to design each week of the course, combining different content resources with faculty-student and student-student interaction activities that foster a sense of community and critical thinking, with formal and informal formative assessments.

Technology

There are of course many different technological tools. It is vital that the teacher designs' the course around technology that he/she is comfortable with and will aid the student in their learning process and not hinder it. Tools such as Google Docs, Edpuzzle, Padlett and Kahoot. Kahoot is especially effective as you can students individually or in teams compete against each other in their comprehension of the class that day. Each of the tools listed has its own functionalities, but all are beneficial when it comes to one crucial aspect of modern schooling: they pave the way for re-examination of the current learning methodologies. These tools open up the space for dialogue on the potential that technological devices can bring to today's learning environments.

In the majority of classes, interaction across all forms is vital. This gives the student a sense of belonging and that the course is important. The more effective interaction the more motivated the student will most likely be. Positive interaction will enhance the learning environment in all kinds of courses. The benefits of a blended format allow students to work at their own speed and time in the online format and therefore in the classroom this can maximize in class discussion. This gives students the ability to understand other student's viewpoints and ideas. The teacher's responsibility is to facilitate this discussion and make it relevant to the modules of the course

DESIGN

It is obviously important to have an effective design that makes learning intuitive and stimulating. The quote "The focus should be first on the learning, and second on the technologies that will support that learning" is very profound Different schools have various ways of approaching online learning and the design of the course must fit the mission of the institution. The cours should focus on teaching and learning in a very collaborative and informative manner. Discussion and debate are very important parts of the curriculum. If an institution's blended learning strategy can be designed to address the needs and dynamics of all three constituencies (institution, faculty, and student) simultaneously, then blended learning can become a powerful force for institutional transformation. With the right design and strong learning objectives the students will embrace blended learning and it will be a major addition to the curriculum.

The design of the course is to make sure it is not two independent courses. The online component must synchronize with the classroom activities. Online assignments must connect to the classroom subject. Striking the right combination of learning, assignments and assessments in a blended or online learning course is an important, albeit tricky thing to do. One can be tempted to overload the student with readings and all sorts of assignments, thus overwhelming the student and expecting far more than in a traditional face-to-face course. It is also detrimental if the course is designed as a collection of readings, videos, quizzes and exams. Course design should consider the different learning styles of the students, their interests and a variety of learning activities.

ASSESSMENT

Students should experience various learning outcomes through direct in terms of presentations case studies and in class discussion. Online the students will research, interact with an online discussion and blog their thoughts. The assessment process is very important. Students in the traditional 18 -22 age especially the grade is very important to them. The bulk of work that the students will do will be accessed. Content could be provided in the form of articles, student researched articles, educational YouTube videos and in class presentations. The idea being that the learning outcomes are given to the students in various formats. Student's should receive assessments in a way that it is the course as a whole and not just one form. The issue is when the student prefers one form of instruction a puts their energy either in the online format or face to face class. The various forms of technology are a tough issue. Teachers should be on on the cutting edge but the class needs to be on task and it shouldn't get bogged down by technology issues. For right now Interactive online discussions, blogs and a podcast will be the limit of technology use.

It is crucial to provide clear instructions for all assignments, as well as exam objectives, to help students focus, have a clear understanding of expectations and how the assignments help fulfill course objectives. Written, clear instructions also help faculty minimize students' questions about what to do, when is the assignment due or how is it going to be marked. Part of the process is developing a scoring rubric. This can be a tedious, but it helps the teacher mark assignments consistently and students know how they're going to be evaluated and why they lost points.

Some student are inhibited to talk in a classroom format. There are instances where certain students do all the talking and almost bully the other students when their views aren't mainstream. This is when the teacher becomes an extremely important part of the process in how he/she involves all the class in honest and forthright discussion. It is obviously up to the individual teacher how they distribute their grades. Class size, length of course and technology will all factor into the different values and weights. Ideally students will be given questions that mean students have to think objectively and answer with thought and application.

Formal and informal formative and summative assessment are extremely important in the development of a course. Online assessments are quite personal and the student gets from it the level of work that they put in. In face to face classroom assessments the student's personalities are much more evident but sometimes one or two verbally strong students can dictate the class. The balance is for the students to write and research online and in the classroom listen to others student's opinions and evolve their thought basis. The formal assignments will come in the form of a research paper, class presentations and essay exams. Informally the student will be accessed in the classroom with their commitment to read before class and add to the classroom discussion. Therefore, the ideal is to have a combination of effective assessment in a classroom and online environment.

EVALUATION

How will the teacher know if the course met the learning goals and was effective? Many evaluations are done right at the end of the class/semester when students are more concerned with finals as opposed to serious reflection of the class. Like many things as long as we grow in our learning each class should be more productive than the last and by building on a foundation of good teaching practices this should occur. It is advisable to have a colleague evaluate the formatting and design of the course and make comments. It is not easy to share with your peers and the teacher has to be able to take constructive criticism but it is a very valuable tool. The class needs to intuitive to a student, many teachers just assume the students understand what the teacher is thinking.

To determine the quality of the course and its levels of success hard to define in a learning environment. Success maybe having a class that those students who struggle with a traditional format find more appealing and their motivation to complete the class is enhanced. Quality is having best teaching practices best learning practices and the ability to effectively communicate with the students. It is good practice to follow the Universal Design for Learning Guidelines (UDL) guidelines for effective teaching practices. The UDL Guidelines are organized according to the three main principles of UDL that address representation, expression, and engagement. Most institution's has standard form evaluations from student's peers and sometimes outside consultants. The University of Central Florida Blendkit review evaluation is a very good tool. Its highly recommended to use this tool or something very similar for producing a quality program.

The key for having a quality blended learning class that is well received by the students doing the research and applying simple design rules. The content, the application of the content and then analyzing the content is the way for any class to be successful. Peer review is a very easy yet significant way of making sure you are on task with your course. Student evaluations are a critical component but sometimes they do offer a short term reflection.

CONCLUSION

A blended course isn't simply throwing in some PowerPoint presentations, assigned textbook readings, weekly quizzes and exams. The content must be balanced, clear, engaging and diverse.

Given the nature of the course, communication is important. Students shouldn't be abandoned and an effort must be made to both give them the assistance they need and create a sense of community between the students. Assessment activities are more than quizzes and exams. Learning management systems provide a plethora of assessment activities, such as discussion forums, peer reviews, collaborative wikis and other group projects. Assessment needs to go beyond measuring cognitive learning and include other aspects such as the development of affective skills (i.e., working in group projects or integrating use if technology in the assignments). It is imperative that a blended or online learning course is organized and has an attractive, accessible design. This means that universal design for learning guidelines should be incorporated into the design. Though it can be tricky, accessibility must be ensured for all students, including those that may have some form of disability. Furthermore, students must be able to easily navigate course content and identify graded assignments to ensure the best learning environment. All legal and ethical aspects must be followed to the law. The only way these can be successfully accomplished is by the institution providing concrete support to the faculty and giving students the right to dispute these standards in a very tolerant atmosphere. When these tools are used effectively the student will be a very healthy learning environment that is intuitive and encourages growth.

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Brazilian Curricular Policy: Challenges For The Future

Adriana Almeida Sales de MELO
Universidade de Brasília – UnB, Brasil
adrianasalesdemelo@gmail.com

ABSTRACT

As the fifth most populous country in the world, political and educational challenges in Brazil involves a continuing concern on the local diversity of its schools, municipalities, Federal District and States. The research aimed to investigate the current process of national curriculum reform, initiated in 2015 by the Ministry of Education, and the progress of its implementation phases. From initial text made by 116 experts from different fields of knowledge, from all parts of the country, began a national public consultation, through an internet portal. The amplitude of the process and the mobilization conducted by the federal government generated 12.4 million contributions, mainly from schools and teachers. Such users have agreed, disagreed and made modification suggestions for all 14 years of basic education, and all areas of knowledge. The suggestions were analysed, organized and sent back to the initial charge, which worked in commissions for specific areas. As a first stage, the virtual portal worked not only as a receiver, but also as a catalyst for national mobilization, promoting an early dialogue to a curricular reform that can change our future school.

Keywords: National curriculum , virtual portal , building the Future

The discussion about building a national curriculum policy has been present in the Brazilian education history of the twentieth century, associated with the different curriculum theory sheds, sometimes latent, sometimes resulting in the construction of legal frameworks, sometimes simply historically following the political changes education for all levels and modalities of the Brazilian education.

Associated more recently to educational policies that promoted and performed in Brazil the three main strands of the Education for All program led by the World Bank and UNESCO in Latin America and the Caribbean (MELO, 2004), questions relating to whether or not the construction of a national curriculum followed policies that resulted in expansion of the educational universalization, the implementation of various aspects of democratic management by Brazilian federated entities as well as followed the discussions and actions related better training and development of teachers in our region.

We can cite as essential legal frameworks for contemporary conduct of national curriculum policy for basic education Article 210 of the Constitution of 1988 states that says: "will set minimum content for the elementary school, in order to ensure a common basic education and respect for cultural and artistic values, national and regional "; and our Law of Guidelines and Bases of National Education (LDB) n. 9.394/96, in several articles, especially in its ninth article - which states that the Union is responsible, in collaboration with the States, Federal District and Municipalities, the establishment of skills and guidelines for basic education that will serve to guide the curriculum and their minimum content - and in articles 26 and 26a, which deal with specific topics to be addressed in the national education.
Among the XX and XXI centuries, Brazil developed the National Curriculum Standards and the National Curriculum Guidelines, covering all levels and modalities of education. The discussion about the need for development of a national curriculum was also present at the National Conference of Education (which include not only the National Conference of Education - CONAE - but also the National Conference of Basic Education, Professional and Technological Education and various other national specific seminars) with its local, regional, state and district stages, as well as the discussions that resulted in the 2001 and 2014 Education National Plans, reflecting intense and fierce battles for different interests and sometimes contradictory of an increasingly wide variety collective political subjects acting in the educational field. Added to these processes are also the efforts of 26 states, the Federal District and also the 5.570 Brazilian municipalities towards building their own curriculum proposals for basic education.

Among these subjects we can still emphasize the strengthening of discussions and local processes, taking new historical course since the promulgation of LDB 1996, especially regarding the implementation of Articles 12 and 13, laying on relevant obligations, responsibilities and autonomy of educational institutions and also the teachers, bringing the center of discussion on the democratic management of cultural and organizational processes that take place in everyday school life.

The research whose results we present below, have as the main objective the analysis of the new proposal led by the Ministry of Education (MEC), in very close cooperation with the National Council of Education Secretaries (CONSED) and the Union of Municipal Education Officers (UNDIME), the preliminary document of the national curriculum Common Base (BNCC), which aims to rewrite and reset a national curriculum proposal for all levels of basic education.

We bring the discussion to the area of policy and management of basic education, because we believe that the development of national proposal is at the heart of the great political and educational changes in the area, generating consequences that will take place both in the various institutional levels as will constitute stage broad social and national academic discussions.

Waxed on March 15, 2016, the public consultation on the BNCC already points national and local challenges as far as their representativeness front of the complex framework of collective political subject area, with its contents as well as the planning of its implementation; even before its consolidation, as discussed in many instances the future of BNCC. We propose in this Communication, a brief discussion of the concept of curriculum in its relationship with the management of basic education, an analysis of the current discussion process BNCC and then some results that can point to current and future challenges.

National curriculum policy: principles for the discussion of the management of basic education. In theoretical fields involving discussions about curriculum, there are multiple interfaces with diverse areas of knowledge, each with their own genealogies, board designs and concepts of what is human, its historical ways of building knowledge, their own ways to produce science and technology, and their concerns about how such knowledge will be transmitted to new generations.

Going over the history curriculum in Brazil, especially with respect to a proposed new BNCC which is still in its principle, it means so much to recover the movements of its construction as take a future curriculum project covering the right notions of education for all, quality, democratic management of education, nation and development project, among other concepts that are becoming increasingly visible and expressed both in driving proposals of Brazilian educational policies, as in their own educational legislation.

In the specific case of BNCC, fulfilling both the cited legal provisions, the social pressures of the various institutional and ideological hues, the Ministry of Education, together with the CONSED and UNDIME, as well as in conjunction with its national and international advisors, constituted in 2015 a team of experts, gathering also names of academic researchers with expertise in various areas of knowledge and national scientific societies, which had the main task preparing the draft document for the national public consultation, opened also in September 2016, as we will show below. However, one of the main elements of the criticisms that already are structured in relation to BNCC, is that the document, having as main objective the objects of learning and knowledge, did not show a clear conceptual proposal of its meaning, or made clear the paths for its future management, for its implementation, through both by society and by the national agencies, state, district and municipal legally responsible until they become visible and collaborative with schools, teachers and educators in general.
As social playing field always in evidence in the conduct of national educational policies, the curriculum of basic education adds to the discussions concerning learning assessment policy and institutional assessment, on the need to build hegemonic and homogeneous directions that can be the basis of compliance with the constitutional provisions on the Union's responsibilities.

The preparation of BNCC, conducted with the role of the Department of Basic Education MEC, takes position in the discussions as an expression of a basic and common prescribed curriculum in order to ensure national uniformity, especially when it comes to basic learning rights. While complying with the flexibility determinations and is open to negotiations that will with the local authorities, the prospect is that in its next phase, shipping and discussion with the National Council of Education (CNE), are publicly placed the needs to clarify its theoretical and epistemological bases.

The curriculum discussions involved various hues and theoretical approaches over the centuries, from the first attempts of modern nations to set parameters for the education of its population to the most current discussions about the inextricable link between the prescribed curriculum, curriculum theory and its actual practice

(Goodson, 2013). These are issues involving the weight of theory and practice in the realization of the curriculum.

According to the researchers Marcia Ferreira and Lisete Jaehn (2012), this author, who has epistemological roots in the new sociology of education, has a curriculum vision that integrates many of the socio-historical problems built on the subject, from large surveys conducted in the years 1970s and early 1980s, to discussions on practical subjects in their school routine. Ivor Goodson also draws our attention to the history of the curriculum development process:

> "It is therefore not analyzing the development of the curriculum, the temptation will be to accept it as an assumption and seek variables within the classroom, or at least in each particular school environment. We would be accepting as "traditional" and "presupposed" curriculum versions that a further examination may be considered the climax of a long and continuous conflict. "(Goodson, 2013, p.24)

These are issues that are consistent with the ongoing investigation into the preparation of BNCC and its interfaces with the democratic management issues of education, also following the arguments of the historian Eric Hobsbawm about the historical process of creating, or even "invention of tradition" the object of some of its investigations (HOBSBAWN, 1997). By accentuating the issues relating to the social construction of curriculum, Goodson calls our attention to the need to consider the historical dynamics of curricula, placing them in their historical context, as far as comparing it with its effective practice in various educational institutions.

Curricular policies have a historical materiality that is associated with planning practices, management, financing and evaluation of education at various levels and modalities, however, when emerging as state policy, a national policy, may run the risk of unlink the direct connection it should have, since its drafting, its real historical practice in schools and other educational settings; also risks to unlink the action of the subjects that make the daily school.

The process of building the Common National Base Curriculum (BNCC)
One of the biggest challenges in the management of the Brazilian basic education is the need and legal obligation of the national construction of the basic education curriculum.

Having a population of 203 million people, including 50 million between 4 and 17 years old enrolled in compulsory basic education by 2015, Brazil entered in the process of condoning the construction of a national curriculum that both allow the development of administrative functions and social control, but also of learning outcomes, as respect the rights of learning and cultural and ethnic diversity of its population.

In addition to these challenges, as mentioned, this population lives in 26 states, a federal district and 5.570 municipalities that have their stories and dynamic management and own curriculum practices.

As a first step to start a new construction of the curriculum, the Ministry of Education, through the Department of Basic Education (SEB), negotiated with CONSED and UNDIME the composition of a committee of 116 experts who had as main task the joint in areas of knowledge and development of introductory texts for each area, and the development of learning objectives for each of the curriculum components. This team met for a few months and delivered to SEB the preliminary document which constituted the original proposal for the public consultation.

Next we will make a short description of the main structure of BNCC to then present some contradictions intrinsic to them.

The public consultation is configured in access to primary document, with its various types of text and each type has a specific entry for all users wishing to make their contributions. Users could register as individuals, organizations or schools, and their mandatory identification allows us to view today transparently each of contributions made, totaling, on March 15, 2016, 12.226.510 contributions that were all analyzed. The portal can also be accessed by basenacionalcomum.mec.gov.br address, even when the public consultation has already been closed.

Users could give their contributions agreeing, disagreeing and adding various types of suggestions for five types of texts: the original text entitled "give your contribution to BNCC", the introductory texts for each area, the areas of documents were also made available, learning goals and could also contribute to new learning objectives.
In total, as established in the Portal in the "query numbers," 305,207 users have registered and have made their contributions to the five proposed areas: early childhood education, languages, mathematics, humanities and

natural sciences, divided, in turn, in curriculum components, covering all basic education: early childhood education, primary and secondary education. The site also brings the number of contributions by area, curricular component, by Federative Units, as well as offers a variety of content assessment documents of experts and new consultants who were in the process of public consultation, feeding preliminary data to rethink the necessary changes, as well as reviewing the draft document texts themselves.
The final data are not yet published on the site, but I can explain the process in general, to be part of the multidisciplinary team at the University of Brasilia, which together with the research group of the Pontifical Catholic University of Rio de Janeiro, realized the project research with the MEC analysis of total data presented public consultation.

With more than 95% approval on the draft text, indicated by the quantification of consistent responses to the various types of text, the research did not aim justification or demonstration of support from society to the project but analyze each and every one of 12.2 million pointing contributions back to the team of experts, all that could be considered to change the texts.

With the generation of preliminary analysis, data analysis, although quantitative basis, sought to emphasize and respect all the contributions. Evaluated for clarity, relevance and pertinence, the texts of the learning objectives were also organized in several categories, according to the responses of the public consultation: all 1.714 learning objectives were evaluated, the quantification of responses for each ranged from 2500-16000 contributions, totaling approximately 3.7 million contribution (approximate because the final numbers are still coming in Portal BNCC itself), being different from the percentage for each area and each curricular component. Simplistically, we analyzed all the suggestions for modification of learning objectives, classified into general categories of: substantial alteration, change of year/stage comments (no exchanges), additions of few words, without editing the goal and not valid (or blank).

These data were synthesized in quantitative tables; however, all contributions are exposed, per user, at the BNCC´s Portal. In addition to the public consultation workshops across the country were being conducted in the states and municipalities, always in partnership with MEC, CONSED and UNDIME in order to better qualify the contributions that were being articulated at each of these sites; increasing the participation of federal entities and also of schools and teachers, to reflect from a broader spectrum, the needs and positions of public school systems in the country. Such seminars also contributed to stimulate the expression of the diversity of experiences and experiences throughout the national territory.
From the analysis and synthesis produced from the public consultation and the ongoing work of experts and consultants on their specific texts, will be following the consolidation of the text of BNCC the subsequent submission to the consideration of the National Education Council, which has this is, in turn, working in bicameral committee (House of Basic Education in the conjunction with the Board of Higher Education) to consider the methodology of the new phase of discussion.

However, the scale and scope of such public consultation, as well as the success of the reach of contributions made, does not mean that the document is a homogeneous national acceptance, whereas, in the above, the vast majority of the 12.2 million contribution to it originated in the public school systems.

The construction process of public consultation as one of the building foundations of BNCC, not only contributes to redesign the national curriculum, as renewed discussion of the national curriculum policy, bringing the need to investigate not only the process preliminarily described above, as revealing issues that deserve to be permanently discussed.
The national curriculum policy is not restricted to the curriculum, nor the curriculum is limited to BNCC, which is the first step in a broader and deeper curriculum reform, which will require more answers and more partnerships and a wider range of investments.

FINAL CONCERNS

In addition to the proposal of an official curriculum or formulation of goals and learning rights, in addition to the composition of scripts or lists of contents, the composition of a national curriculum also has a deep relationship with a project of society and education, or, more realistically, the composition of society and education projects often conflict.

If, on the one hand, the composition of BNCC had an intense social participation, led by the major partners mentioned, such participation was based on the mobilization of public networks, leaving other times and different social forums the participation of other collective political subjects also interested in participate in public decisions in planning and implementing the curriculum national policy.

All the companies represented in the Movement for the Base, a move that adds several private institutions based business consultancy, publishers, producers of educational material in general and specialized companies in the continuing education of workers in education, also accompanied the initial process of building BNCC, though otherwise, in direct contact with its traditional historical partners, CONSED and UNDIME.
In addition to the explicit interest in the conduct of curriculum policies as learning knowledge and new knowledge of what is politically consensus as the basis of school knowledge; these issues also relate to their own knowledge production, with the capacity of countries to produce new knowledge.

The way the BNCC is written with the intention of being one of the elements of the curriculum national policy - although its makers to recognize as a defining element; still brings great risks as far as the relationship between public and private education, as related to the dispute related to the use of public money for public education, the relationship with the national science policy, technology and innovation, as well as vocational education and technological, and other modalities of national education.

We also have the issues that involve the risk of the return of technical rationality and the new theory of human capital, as indicated by recent work of the Organization for Economic Cooperation and Development (MELO, 2015) and still all issues involving the implementation and realization the new BNCC.

In Brazil, we recognize education as a subjective public right, such private interests also try to permanently bring to the national curriculum policy, as well as for the initial and continuing teacher education policies, entrepreneurial and managerial values, in order to legitimize their own corporative interests and ethical-political values, trying to transform education into a commodity compatible with the management of their business. Among disputes, contradictory society projects, confrontation and resistance, we are leaning on a complex research field, which interfaces with diverse areas of knowledge and also involve specifically the composition of education systems, history of school subjects, internal relations and external changes in institutions focused on education (Goodson, 1995).
Looking to go beyond all discussions of the area that tell us all that the curriculum can not or should not be, I believe that the process that involves BNCC in addition to its own propositional forms also brings merit to provoke new discussions also propositional in several areas of research, especially with regard to educational policies for basic education in Brazil, Latin America and the world.

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Building Bridges: Enabling Intercultural Competences Within Double Degree Programs

Fabio CORNO
Department of Sociology
University of Milano-Bicocca, Milano
fabio.corno@unimib.it

Richa LAL
Department of Sociology
University of Milano-Bicocca, Milano
richa.lal@unimib.it

Silvia HASSOUNA
Department of Sociology
University of Milano-Bicocca, Milano
silvia.hassouna@gmail.com

ABSTRACT

In today's globalised world intercultural competences (IC) are central in increasing understanding and improving relations across cultures. Institutions of Higher Education (HE) face a great challenge in having to prepare students to live and work in the global arena and yet, little knowledge exists about which measures can foster intercultural competences. Literature suggests that studying abroad is not sufficient and that the development of students' intercultural sensitivity should be better supported and organized. Thus, we have focused our attention on double degree programs, with particular reference to two issues: (1) how do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC? Building on our previous research, this paper aims to assess the development of students along the intercultural sensitivity continuum of the Bennett's Developmental Model of intercultural sensitivity (DMIS) (Bennett 1986, 1993) at different stages of the educational path of the MAIB programme. MAIB (Master in International Business Development) is a joint double credential Master's program designed by University of Milano-Bicocca in partnership with Alliance University, India and Centennial College, Canada. The qualitative data have been collected through semi-structured interviews with open-ended questions and group discussions. We have expanded the scope of the previous study, including the experiences of the 2nd MAIB cohort students (academic year 2015-2016) who are currently completing the India-term.

INTRODUCTION

Globalization of the world's economic, political, technological, and environmental systems has resulted in the need for academic institutions to prepare graduates with the knowledge, skills, and abilities to work effectively in the global arena. We are facing rapid increases in students' international mobility. OECD (2014) has stressed the need for national tertiary education systems to approach internationalization as one of the key priorities and has identified "growing globalization" as one of the main trends that will affect financing to higher education. According to OECD (Education at a Glance, 2014), the number of international students at world level has increased from 0.8 million (1975) to 3 million (2005), to 4.3 million (2011). Such figure should exceed 5 million students within a few years. Within a few years, international mobility will interest 5 million individuals across the globe: a trend which brings universities to agree that the development of intercultural competences – or the "ability to communicate effectively and appropriately in intercultural situations" – is a critical skill. Furthermore, the economic crisis and budget restrictions are forcing international companies to be more demanding: companies are looking for qualified employees with international experience, at least bilinguals, and interculturally competent (Bhawuk & Brislin, 1992).

This changing landscape has called for the attention of universities to invest in study abroad programs to prepare students for their life in a globalized world. All around the world, a variety of student mobility programs have developed, which range from academic stay to language courses, internships and study trips to foreign higher education institutions, summer courses, research exchange, etc. At the EU level, various programs have been recently merged into the Erasmus Plus Project which is going to finance 14.7 billion € for the 2014-2020 period (+ 40% respect to previous budget), offering to 4 million Europeans (students, teachers, youngsters) the opportunity to study and gain professional and voluntary experience abroad (Blanco, Frascaroli & Pasolini, 2015). Beyond transferring study credits and acquiring language skills, study abroad programs provide the participants with opportunities to immerse in-depth into getting an international exposure.

Although the development of intercultural competence is continuously emphasized, it is questionable how these study-abroad programs actually contribute to the students' intercultural sensitivity; in Milton Bennett's words: "every program, no matter at what level, format, or focus continues to claim that educational cross-cultural contact contributes to intercultural competence and thus to global citizenship" (2009). In this paper we will argue that, although short-term intercultural trainings can be effective in building up cultural awareness and changing individual attitudes towards other cultures (Hammer & Martin, 1992; Pruegger & Rogers, 1994), intercultural education, intercultural competence and intercultural sensitivity development have to be conceived as a long-lasting and continuous learning process that should ideally be designed over a prolonged period (Graf, 2004).

This study originates from the idea that exposing an individual to cultural diversity is not sufficient to develop intercultural skills and is necessary to expose individuals to a continuous learning process, which elicits reflections about cultural diversity. How the development of intercultural sensitivity can be fostered and supported is an issue that needs to be further investigated. Thus, we looked at the role of double degree programs (DDP) in the development of intercultural competence with particular reference to two issues: (1) How do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC?

One of the longitudinal research studies, conducted by Vande Berg, Connor-Linton & Paige (2009) has provided significant evidence on the positive effects of teachers/trainers' pro-active interventions on intercultural learning. Taking these findings into account, it is consequently desirable to identify and apply specifically designed intervention techniques and strategies which facilitate the development of intercultural sensitivity (Anderson et al. 2006). This paper contributes to this aim by presenting MAIB - Master in International Business Development as a case in point to understand and demonstrate the holistic approach towards building intercultural sensitivity among the students. MAIB is a joint double credential Master Program between University of Milano-Bicocca, Italy, Alliance University, India and Centennial College, Canada, where students study and live in Milan, Bangalore and Toronto, across 3 different campuses in 3 global dynamic cities in the world.

DEVELOPING INTERCULTURAL SENSITIVITY WITHIN THE MAIB PROGRAM

Intercultural competence: a definition

The importance of effective intercultural relations in both global and domestic contexts is well recognized (Brislin, Cushner, Cherie & Yong, 1986; Hammer, 1989, 1999a; Kealey, 1989). As Bhawuk & Brislin (1992) suggested, "To be effective in another culture, people must be interested in other cultures, be sensitive enough to notice cultural differences, and then also be willing to modify their behaviour as an indication of respect for the people of other cultures". In this paper we use the term "intercultural sensitivity" to refer to the ability to discriminate and experience relevant cultural differences, and we use the term "intercultural competence" to mean the ability to think and act in interculturally appropriate ways. We argue that greater intercultural sensitivity is associated with greater potential for exercising intercultural competence.

An innovative approach

MAIB has been designed as a comprehensive Master's program to support the development of intercultural sensitivity among the students. The program includes: an intensive orientation course at the start of the Italy term; a 40 hour course on cross-cultural communication followed by a 10 hour pre-departure preparation before leaving for India. Moreover, there are 3 intensive coaching sessions with a personal coach during the first 3 months of the program, followed by two on-line coaching sessions in each of the two remaining terms. During the Course on cross-cultural competencies, communication is defined as the "mutual creation of meaning" and explored as both a tactical issue of improving understanding and as a strategic issue of creating value from cultural diversity. Some attention is also given to how intercultural competences can be sustained at an organizational level in global organizations.

The pre-departure program aims at sensitizing students to Indian and Asian culture and specific characteristics (e.g. as regards history, social, politics or economics). Lectures and seminars are organized held by experts on India. The faculty of the course on Cross-cultural skills once again focused on the need for cultural learning with the objective to raise among the students a general awareness and understanding of cultural diversity in typical intercultural interactions.

During the 2nd Term of the MAIB program, the students study and live at the campus of Alliance University, Bangalore, India, and experiencing *real-life* in the host country. At the start of such term, MAIB students go through a seminar on *Socio-cultural environment in India – Understanding & appreciating differences.* They are put in touch with their Indian buddies to explore campus life and connect with the Indian students. Visits are organized to Non-government/NGOs to understand the social reality. Bangalore site seeing trips and other useful historic and cultural events are also planned, in order to foster students' awareness and understanding of Indian social and cultural traditions.

As part of the courses the students take in India, direct interface with industry is planned, in order to help them understand the work environment and get an opportunity to participate in small projects, putting theory to practice. The students are encouraged to write personal reflections on the blog. Faculty has been selected based on its competence, as well as on its sensitivity, and ability to encourage and support students in their academic and social life at the campus.

As already mentioned, the students continue their interaction with their Coach through Skype meetings. The Course Director, Coordinator and the Cross-Cultural Skills Course faculty also maintain a constant interaction with the students. The India term closes with exams, results and feedback from the students and faculty. The students thereafter move to Canada for their 3rd Term at Centennial College in Toronto.

In Canada, the students study at the Centennial College campus in Toronto and follow courses offered within the IBM program. Here too an initial detailed Orientation Program is organized by the International Department of the Centennial College and seminars are organized to give an insight into the socio-economic, cultural and political environment in Canada, particularly focused on the Ontario State. Being immersed into the IBM class, the students get to interact with Centennial students (coming from a very international background) and the International department staff helps them to settle in. All along the 14 months period the students are constantly supported by the MAIB course director and the program's coordinator.

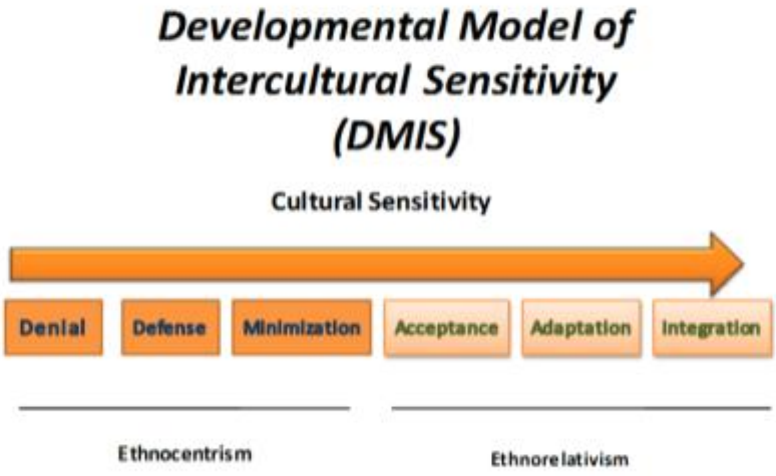
The development of intercultural competence and thereby intercultural sensitivity is a challenging aim that calls for innovative approaches of teaching and learning. Therefore, as shared above, an innovative, learner-centred pedagogical design based on Bennett's DMIS model that combines individual and co-operative learning and applies experiential and reflective learning methods has been developed and implemented in the MAIB program. These methods have been chosen based on an intensive engagement with relevant literature, among them for example Graf (2004), whose research findings suggest that an experiential orientation supports the development of intercultural competence. At the same time DMIS model of intercultural sensitivity (Bennet 1993) helps us in analysing and measuring the development of intercultural sensitivity along the continuum.

THEORETICAL FRAMEWORK

Research studies in such diverse areas as overseas effectiveness (e.g., Brislin, 1981; Cleveland, Mangone, & Adams, 1960; Kealey & Ruben, 1983; Landis & Brislin, 1983a-c; Landis & Bhaget, 1996), international management (e.g., Adler, 1991; Black, 1990; Black, Gregersen, & Mendenhall, 1992; Black & Mendenhall, 1990), international study abroad (e.g., Klineberg & Hull, 1979), and international transfer of technology and information (e.g., Hawes & Kealey, 1979, 1981; Kealey, 1996) have identified intercultural competence as central in increasing understanding and improving relations across cultures (Bennett, 1993a, b; Hammer, 1999b). Additional research on domestic intercultural relations (contact across forms of ethnicity, gender, age, sexual orientation, etc.) has found a similar key role for intercultural competence (e.g., Gardenswartz & Rowe, 1993).

While cross-cultural research has posited the importance of intercultural competence in both global and domestic contexts, work by Bennett (1986, 1993b) has additionally suggested the Developmental Model of Intercultural Sensitivity (DMIS), an underlying theoretical framework, useful for conceptualizing intercultural sensitivity and competence. The DMIS model (Bennett 1986, 1993) of intercultural sensitivity proposes that individuals can be positioned along a continuum, characterized by different stages or orientations, ranging from ethnocentric perspectives towards more ethnorelative perspectives.

Fig. 1



As figure 1 indicates, the DMIS includes six stages, ranging from an ethnocentric orientation – that views the world through one's own cultural experience – towards an ethnorelative orientation, which takes into account multiple perspectives, adding to one's own views of the world also others' cultural perspectives. Three stages are identified for both orientations: for Ethnocentrism: Denial, Defense, and Minimization. Individuals in the Denial stage are unable to discriminate between various cultural differences and often miss cultural cues that suggest an underlying cultural relevance to different behaviours and communication patterns. The three stages within ethnorelativism are Acceptance, Adaptation, and Integration of difference.

We chose DMIS as theoretical framework for several reasons. First, it is a theoretically based measure sought to assess the impact of the study abroad experience on the intercultural sensitivity of students. Second, it has undergone extensive psychometric testing and is a reliable and valid measure (Hammer, Bennett, and Wiseman, 2003). Third, an established research literature base has developed over time, illustrating its use (Paige, 2003). On the basis of its grounding in theory, its empirical reliability and validity, and the fit with our program goals, DMIS deemed a good choice for measuring students' intercultural sensitivity.

This theoretical framework has provided us the conceptual guidance in program planning for the **MAIB Master Course** in order to explore the cultural journey of our students living and studying in Milan (Italy, Europe), Bangalore (India, Asia), and Toronto (Canada, North America). Our objective is to assess the development of our students along the intercultural sensitivity continuum.

METHODS

This study investigates the role of double degree programs (DDP) in the development of intercultural competence with particular reference to two issues: (1) how do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC? In order to answer these questions, we base our analysis on data that was collected at the end of the India term during the first two editions of the Master: academic years 2014-2015 and 2015-2016. The respondents from the MAIB second edition (2015-2016) are six: 4 females and 2 male from different nationalities (India, Italy, Jamaica, Russia, Romania, Mexico). The new data have been integrated with data which was collected in a previous research and presented at the annual international interdisciplinary conference (AIIC 2015) in Portugal. In the previous study we discussed how the 1st MAIB cohort had approached intercultural learning during the Italy and India terms.

What emerged was that the MAIB program had a positive impact on the development of the students' intercultural competence. The data were collected through qualitative interviews with nine students (3 to 6 person and on Skype) and focus groups. The interviewees were students from Italy, Mexico, Brazil, China and the United States at the end of their period in India in April 2015. In the first study, preliminary and follow-up interviews were conducted at the beginning and the end of the period in India. Particular attention was given to the subjective experiences and re-elaborations of the students.

In order to gain a better understanding of the perspectives and perceptions of individuals exposed to cultural diversity we chose a mainly qualitative approach. The aim of the current study is to understand the main factors contributing (or hindering) the development of inter-cultural sensitivity among students and expand the scope of our previous research using a comparative approach. Data were collected through semi-structured qualitative interviews and open-ended questionnaires conducted in person or on Skype. Such an approach seemed more flexible as it allowed respondents to use their own words and concepts. The interview guidelines developed to identify and measure:

1. The student's development of intercultural competence and sensitivity;
2. The creation of value from cultural diversity in new and challenging contexts;
3. How the students approach culture-related difficulties.

The interviews were recorded and later transcribed, coded and interpreted. Although the sample used is not statistically relevant, it significantly contributes to the understanding of how individuals are affected by external circumstances and adjust their behaviour before they reach a greater awareness and enjoyment of cultural diversity. Thus, this study assesses the development of intercultural sensitivity during different phases of the course, based on the development model of intercultural sensitivity (DMIS) theorized by Bennett (1986, 1993).

FINDINGS

During the interviews, students from batch 1 expressed strong emotions and vivid memories when talking about their experiences abroad; this can be attributed to the fact that the interviews were conducted shortly after the end of the period in India when the memory of experiences was still very recent. In addition, Whalen (2009) noted that the experiences abroad have a particularly strong impact on student's emotional state. When describing their arrival in India, (non-Indian) students reported a sense of confusion, remembering the traffic, the chaos, new smells and the vivid colours. It is pertinent to that students from batch 1 had started the India term with an enthusiastic and optimistic attitude, but later had experienced difficulties in adjusting. They struggled with adapting to the new environment; for example, lower levels of cleanliness in the campus' accommodation, the quality of the food served in the cafeteria on campus was defined poor in comparison to the Italian students' standards. Thus, at the beginning of the period in India, most of the non-Indian students were in a state of denial and showed a strongly ethnocentric orientation where "one's own culture is central to reality" (Bennett, 1993).

After various interventions from the coach, the program director and coordinator they slowly began to perceive and understand cultural differences in more observable areas of human behaviour (e.g. clothing, food, music, art, dance), and then to move to more subtle arenas (e.g. nonverbal behaviour, customs, dos and taboos). By the 2nd month of their stay in India, the students had moved toward the Minimization stage. Minimization is not monocultural in its capability, yet it is also not fully intercultural in its recognition of deeper patterns of cultural difference and the ability to appropriately respond to these differences (Bennett, 2004; Hammer, 2009).

In comparison with the Italian students, Mexican and Brazilian students had a relatively positive experience in "breaking the ice" with the new context; they started from the point of Minimization and experienced a certain degree of success in relating with peers in India and navigating their way through unfamiliar cultural practices. These students were able to identify commonalities, which helped to align better with the host country. At the same time they were very conscious of cultural differences. With support and inputs from the coach and the staff they were better able to appreciate diversity and were drawn upon to bridge different cultural practices.

Towards the end of the 3rd month, most students reflected a more acceptance-oriented mindset; they made local friends and showed a strong curiosity about different culture. However, they reported having encountered some difficulties in adopting an appropriate behaviour when confronted with cultural differences with their peers and the teaching staff. To sum up, all the students from batch 1 reduced their ethnocentric tendencies.

In comparison with the first cohort, the initial experience in India was perceived as less difficult by the students of the 2nd cohort. They reported that they struggled initially to adjust to the new environment because of their needs and habits (e.g. it was difficult to initially adjust to the food) but coped easily to the situation. All students considered the host country (both in the case of Italy and India) generally very hospitable and did not particularly encountered problems in living abroad, except for the initial feeling of estrangement. The difference between the 1st batch and 2nd batch students can be explained by considering that the students from the first edition had had little interaction with other cultural groups before starting the Master and were therefore more inclined to use stereotypes and generalizations toward the *other*. Although students from the second edition faced some challenges in dealing with culturally sensitive issues with teachers and other groups, they generally achieved a greater awareness of their difficulties after concluding the India term:

> *When dealing with businessmen and the professors, I think I should have phrased sentences in a less direct way and paid more attention to cultural aspects such as talking about religion in a sensitive way or criticizing how they work* (Student, private conversation, May 2016).

Interviewees reported that some unexpected positive events contributed to change some of their biases and prejudices - related to an initial more ethnocentric attitude. A respondent shared that she completely changed her negative opinion about the hygienic conditions and quality of Indian hospitals the morning she was forced to go to the hospital in the city of Bangalore due to a sudden eye pain. Although the idea was "frightening" the student was positively surprised:

> *I was really surprised to find out that hospitals are almost better than here. It was a good experience, they kept me only a couple of hours* (Student, private conversation, May 2016).

This shows how small episodes can permanently shape one's perceptions and ideas about a relatively unknown context, culture or person.

Students were asked to define the concept of culture and intercultural competence: all of them were able to provide articulated definitions. As previously said, during the period in Italy students followed a course of intercultural communication for business. In the course, culture was described as "the mutual creation of meaning" and was addressed as a strategic element to create added value from cultural diversity.

Nonetheless the interviews conducted with the students from batch 2 highlighted a gap between theory and practice: respondents said they encountered significant difficulties during the teamwork and attributed these difficulties to cultural issues. Students from batch 2 had more difficulties in the interpersonal area compared to students from batch 1. Some of the respondents even spoke about "cultural incompatibility" referring exclusively at the professional level: "working together was really mentally draining". For example, different ideas of what working together means lead to many misunderstandings and tensions in the class.

> *I think that in a multi-cultural class is very difficult to understand each other, you have a lot of pressure on you because you have to make people understand your point of view without offending them* (Student, private conversation, May 2016).

In light of the said difficulties, which were mostly related to group-work assignments that constitutes a fundamental feature of the program, we asked students what they thought the problem was and what were the possible solutions. Two of the students reported that the intercultural communications course had not trained them to solve culture related interpersonal issues. However, the course laid the foundation for more sophisticated and nuanced reflections on cultural issues, proving the idea that experience is effective only when supported by intercultural education. The differences in language, food, customs and practices that elicited an initial feeling of discomfort and inadequacy, later became positive markers of a new experience. A student highlighted how important is to be aware of the processes involved in the development of intercultural communication because this awareness allows one to recognize some mechanisms and patterns that help dealing with disfunctional environment.

The Italy and India terms, although perceived as challenging (mainly because of group dynamics), were both described in positive terms by the respondents. After about a month, the students from batch 2 had shifted from acceptance to adaptation: such stage entails the ability to identify how culture affects a wide range of human experience and the use of a framework for organizing observations of cultural difference. In other word, they acquired the ability to adopt different behavioural patterns. 80% of the respondents reported constructive reflections about their cross-cultural interactions, describing diversity as a factor that can increase mutual interests and add value to an international group. In this view, differences become interesting and stimulating. Two respondents noticed that Indian society seems to be characterized by a more collective dimension in comparison to the individualistic dimension of the Western model.

Overall, there are more positive occurrences in the interviews than negative ones: the experiences described focusing more on the hospitality of the host country and the locals rather than on the challenges encountered when working together as a group. This indicates a positive inclination and the willingness to highlight the constructive aspects of the experience. Consequently, communication emerged as a key tool: you have to make yourself understood, and this can be done effectively only by really taking into account the other person's values system.

> *Trying to shape them and compete fiercely within the group is just pointless and stressful. Instead, we must think forward and show the best of what we are, this impressions will be for life not just for a project* (Student, private conversation, May 2016).

We believe it is important to highlight that an intercultural group studying together becomes an interconnected system and that communication and openness are the key features binding the group together. Our analysis reveals that the MAIB students had acquired the awareness of being part of an interconnected system.

> *I believe it's essential for everyone to understand that we are connected, we are interdependent on one another, not just at a personal level. If we want to understand globalization we must know what is behind it, and there are a number of countries, people, and cultures with different attributes, all of them valuable for our lives in an indirect way* (Student, private conversation, May 2016).

CONCLUSIONS

In light of the global environment of the twenty-first century, Universities increasingly foster opportunities promote intercultural competence among students, irrespective of whether these students travel outside their home city, region, or country (Levin, 2002; Otten, 2003; Raby, 1996). Of particular note are increasing demographic changes in the world that make international and intercultural competence essential for our students.

The paper provided a scope for understanding and envisioning the need and scope for the study abroad programs. First, the assessment of student learning that result from the MAIB program provides useful insights for the Universities. Second, the same could enhance awareness of the educational value of study abroad with the aim of showing how it promotes acquisition of intercultural competence in students.

One of the desired outcomes of MAIB, as an international Master program, is to foster an intercultural mind-set amongst the students. Intercultural competence is a key goal of internationalization because it indicates awareness and understanding of culturally diverse others and situations, as well as the presence of behaviours that promote productive and effective communication among and across cultures.

This paper has explored how the MAIB – joint Master program has enhanced the efforts towards internationalization of education, focusing on development of intercultural competence amongst the MAIB students. Through our experience with the MAIB program, working with students and faculty, we would like to expand the scope of our research by administering the Intercultural Development Inventory (IDI), which has its theoretical basis in DMIS. It is a fifty-item instrument that measures an individual's worldview toward cultural difference. The same shall render the measurement of intercultural competence more scientific and accurate. Since the research is focused on intercultural learning across the Italy and India terms, we shall be sharing the final findings at the end of the Master program after the students have experienced also the Canada term. Nonetheless, current research has shown that MAIB Master program has positively affected student learning and development of students' intercultural competence.

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Building Bridges: Enabling Intercultural Competences Within Double Degree Programs

Fabio CORNO
University of Milano-Bicocca
fabio.corno@unimib.it

Richa LAL
University of Milano-Bicocca
richa.lal@unimib.it

Silvia HASSOUNA
University of Milano-Bicocca
silvia.hassouna@gmail.com

ABSTRACT

In today's globalised world intercultural competences (IC) are central in increasing understanding and improving relations across cultures. Institutions of Higher Education (HE) face a great challenge in having to prepare students to live and work in the global arena and yet, little knowledge exists about which measures can foster intercultural competences. Literature suggests that studying abroad is not sufficient and that the development of students' intercultural sensitivity should be better supported and organized. Thus, we have focused our attention on double degree programs, with particular reference to two issues: (1) how do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC? Building on our previous research, this paper aims to assess the development of students along the intercultural sensitivity continuum of the Bennett's Developmental Model of intercultural sensitivity (DMIS) (Bennett 1986, 1993) at different stages of the educational path of the MAIB programme. MAIB (Master in International Business Development) is a joint double credential Master's program designed by University of Milano-Bicocca in partnership with Alliance University, India and Centennial College, Canada. The qualitative data have been collected through semi-structured interviews with open-ended questions and group discussions. We have expanded the scope of the previous study, including the experiences of the 2nd MAIB cohort students (academic year 2015-2016) who are currently completing the India-term.

Keywords: intercultural competence; internationalization; double degree program;
Intercultural Development Inventory (IDI).

INTRODCUTION

Globalization of the world's economic, political, technological, and environmental systems has resulted in the need for academic institutions to prepare graduates with the knowledge, skills, and abilities to work effectively in the global arena. We are facing rapid increases in students' international mobility. OECD (2014) has stressed the need for national tertiary education systems to approach internationalization as one of the key priorities and has identified "growing globalization" as one of the main trends that will affect financing to higher education. According to OECD (Education at a Glance, 2014), the number of international students at world level has increased from 0.8 million (1975) to 3 million (2005), to 4.3 million (2011). Such figure should exceed 5 million students within a few years. Within a few years, international mobility will interest 5 million individuals across the globe: a trend which brings universities to agree that the development of intercultural competences – or the "ability to communicate effectively and appropriately in intercultural situations" – is a critical skill. Furthermore, the economic crisis and budget restrictions are forcing international companies to be more demanding: companies are looking for qualified employees with international experience, at least bilinguals, and interculturally competent (Bhawuk & Brislin, 1992).

This changing landscape has called for the attention of universities to invest in study abroad programs to prepare students for their life in a globalized world. All around the world, a variety of student mobility programs have developed, which range from academic stay to language courses, internships and study trips to foreign higher education institutions, summer courses, research exchange, etc. At the EU level, various programs have been recently merged into the Erasmus Plus Project which is going to finance 14.7 billion € for the 2014-2020 period (+ 40% respect to previous budget), offering to 4 million Europeans (students, teachers, youngsters) the opportunity to study and gain professional and voluntary experience abroad (Blanco, Frascaroli & Pasolini, 2015). Beyond transferring study credits and acquiring language skills, study abroad programs provide the participants with opportunities to immerse in-depth into getting an international exposure.

Although the development of intercultural competence is continuously emphasized, it is questionable how these study-abroad programs actually contribute to the students' intercultural sensitivity; in Milton Bennett's words: "every program, no matter at what level, format, or focus continues to claim that educational cross-cultural contact contributes to intercultural competence and thus to global citizenship" (2009). In this paper we will argue that, although short-term intercultural trainings can be effective in building up cultural awareness and changing individual attitudes towards other cultures (Hammer & Martin, 1992; Pruegger & Rogers, 1994), intercultural education, intercultural competence and intercultural sensitivity development have to be conceived as a long-lasting and continuous learning process that should ideally be designed over a prolonged period (Graf, 2004).

This study originates from the idea that exposing an individual to cultural diversity is not sufficient to develop intercultural skills and is necessary to expose individuals to a continuous learning process, which elicits reflections about cultural diversity. How the development of intercultural sensitivity can be fostered and supported is an issue that needs to be further investigated. Thus, we looked at the role of double degree programs (DDP) in the development of intercultural competence with particular reference to two issues: (1) How do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC?

One of the longitudinal research studies, conducted by Vande Berg, Connor-Linton & Paige (2009) has provided significant evidence on the positive effects of teachers/trainers' pro-active interventions on intercultural learning. Taking these findings into account, it is consequently desirable to identify and apply specifically designed intervention techniques and strategies which facilitate the development of intercultural sensitivity (Anderson et al. 2006). This paper contributes to this aim by presenting MAIB - Master in International Business Development as a case in point to understand and demonstrate the holistic approach towards building intercultural sensitivity among the students. MAIB is a joint double credential Master Program between University of Milano-Bicocca, Italy, Alliance University, India and Centennial College, Canada, where students study and live in Milan, Bangalore and Toronto, across 3 different campuses in 3 global dynamic cities in the world.

1. DEVELOPING INTERCULTURAL SENSITIVITY WITHIN THE MAIB PROGRAM:

1.1. Intercultural competence: a definition

The importance of effective intercultural relations in both global and domestic contexts is well recognized (Brislin, Cushner, Cherie & Yong, 1986; Hammer, 1989, 1999a; Kealey, 1989). As Bhawuk & Brislin (1992) suggested, "To be effective in another culture, people must be interested in other cultures, be sensitive enough to notice cultural differences, and then also be willing to modify their behaviour as an indication of respect for the people of other cultures". In this paper we use the term "intercultural sensitivity" to refer to the ability to discriminate and experience relevant cultural differences, and we use the term "intercultural competence" to mean the ability to think and act in interculturally appropriate ways. We argue that greater intercultural sensitivity is associated with greater potential for exercising intercultural competence.

1.2. An innovative approach

MAIB has been designed as a comprehensive Master's program to support the development of intercultural sensitivity among the students. The program includes: an intensive orientation course at the start of the Italy term; a 40 hour course on cross-cultural communication followed by a 10 hour pre-departure preparation before leaving for India. Moreover, there are 3 intensive coaching sessions with a personal coach during the first 3 months of the program, followed by two on-line coaching sessions in each of the two remaining terms. During the Course on cross-cultural competencies, communication is defined as the "mutual creation of meaning" and explored as both a tactical issue of improving understanding and as a strategic issue of creating value from cultural diversity. Some attention is also given to how intercultural competences can be sustained at an organizational level in global organizations.

The pre-departure program aims at sensitizing students to Indian and Asian culture and specific characteristics (e.g. as regards history, social, politics or economics). Lectures and seminars are organized held by experts on India. The faculty of the course on Cross-cultural skills once again focused on the need for cultural learning with the objective to raise among the students a general awareness and understanding of cultural diversity in typical intercultural interactions.

During the 2nd Term of the MAIB program, the students study and live at the campus of Alliance University, Bangalore, India, and experiencing *real-life* in the host country. At the start of such term, MAIB students go through a seminar on *Socio-cultural environment in India – Understanding & appreciating differences.* They are put in touch with their Indian buddies to explore campus life and connect with the Indian students. Visits are organized to Non-government/NGOs to understand the social reality. Bangalore site seeing trips and other useful historic and cultural events are also planned, in order to foster students' awareness and understanding of Indian social and cultural traditions.

As part of the courses the students take in India, direct interface with industry is planned, in order to help them understand the work environment and get an opportunity to participate in small projects, putting theory to practice. The students are encouraged to write personal reflections on the blog. Faculty has been selected based on its competence, as well as on its sensitivity, and ability to encourage and support students in their academic and social life at the campus.

As already mentioned, the students continue their interaction with their Coach through Skype meetings. The Course Director, Coordinator and the Cross-Cultural Skills Course faculty also maintain a constant interaction with the students. The India term closes with exams, results and feedback from the students and faculty. The students thereafter move to Canada for their 3rd Term at Centennial College in Toronto.

In Canada, the students study at the Centennial College campus in Toronto and follow courses offered within the IBM program. Here too an initial detailed Orientation Program is organized by the International Department of the Centennial College and seminars are organized to give an insight into the socio-economic, cultural and political environment in Canada, particularly focused on the Ontario State. Being immersed into the IBM class, the students get to interact with Centennial students (coming from a very international background) and the International department staff helps them to settle in. All along the 14 months period the students are constantly supported by the MAIB course director and the program's coordinator.

The development of intercultural competence and thereby intercultural sensitivity is a challenging aim that calls for innovative approaches of teaching and learning. Therefore, as shared above, an innovative, learner-centred pedagogical design based on Bennett's DMIS model that combines individual and co-operative learning and applies experiential and reflective learning methods has been developed and implemented in the MAIB program. These methods have been chosen based on an intensive engagement with relevant literature, among them for example Graf (2004), whose research findings suggest that an experiential orientation supports the development of intercultural competence. At the same time DMIS model of intercultural sensitivity (Bennet 1993) helps us in analysing and measuring the development of intercultural sensitivity along the continuum.

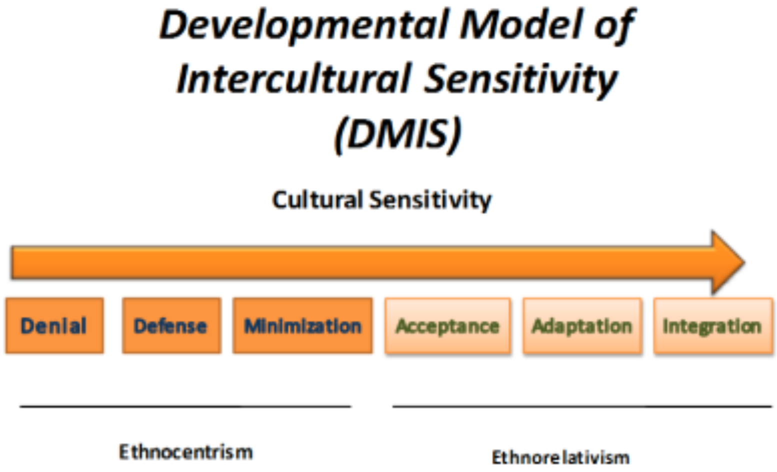
2. THEORETICAL FRAMEWORK

Research studies in such diverse areas as overseas effectiveness (e.g., Brislin, 1981; Cleveland, Mangone, & Adams, 1960; Kealey & Ruben, 1983; Landis & Brislin, 1983a-c; Landis & Bhaget, 1996), international management (e.g., Adler, 1991; Black, 1990; Black, Gregersen, & Mendenhall, 1992; Black & Mendenhall, 1990), international study abroad (e.g., Klineberg & Hull, 1979), and international transfer of technology and information (e.g., Hawes & Kealey, 1979, 1981; Kealey, 1996) have identified intercultural competence as central in increasing understanding and improving relations across cultures (Bennett, 1993a, b; Hammer, 1999b). Additional research on domestic intercultural relations (contact across forms of ethnicity, gender, age, sexual orientation, etc.) has found a similar key role for intercultural competence (e.g., Gardenswartz & Rowe, 1993).

While cross-cultural research has posited the importance of intercultural competence in both global and domestic contexts, work by Bennett (1986, 1993b) has additionally suggested the Developmental Model of Intercultural Sensitivity (DMIS), an underlying theoretical framework, useful for conceptualizing intercultural sensitivity and competence.

The DMIS model (Bennett 1986, 1993) of intercultural sensitivity proposes that individuals can be positioned along a continuum, characterized by different stages or orientations, ranging from ethnocentric perspectives towards more ethnorelative perspectives.

Fig. 1



As figure 1 indicates, the DMIS includes six stages, ranging from an ethnocentric orientation – that views the world through one's own cultural experience – towards an ethnorelative orientation, which takes into account multiple perspectives, adding to one's own views of the world also others' cultural perspectives. Three stages are identified for both orientations: for Ethnocentrism: Denial, Defense, and Minimization. Individuals in the Denial stage are unable to discriminate between various cultural differences and often miss cultural cues that suggest an underlying cultural relevance to different behaviours and communication patterns. The three stages within ethnorelativism are Acceptance, Adaptation, and Integration of difference.

We chose DMIS as theoretical framework for several reasons. First, it is a theoretically based measure sought to assess the impact of the study abroad experience on the intercultural sensitivity of students. Second, it has undergone extensive psychometric testing and is a reliable and valid measure (Hammer, Bennett, and Wiseman, 2003). Third, an established research literature base has developed over time, illustrating its use (Paige, 2003). On the basis of its grounding in theory, its empirical reliability and validity, and the fit with our program goals, DMIS deemed a good choice for measuring students' intercultural sensitivity.

This theoretical framework has provided us the conceptual guidance in program planning for the **MAIB Master Course** in order to explore the cultural journey of our students living and studying in Milan (Italy, Europe), Bangalore (India, Asia), and Toronto (Canada, North America). Our objective is to assess the development of our students along the intercultural sensitivity continuum.

3. METHODS

This study investigates the role of double degree programs (DDP) in the development of intercultural competence with particular reference to two issues: (1) how do students enrolled in double-degree programs develop IC? (2) How should double degree programs be structured in order to facilitate the development of IC? In order to answer these questions, we base our analysis on data that was collected at the end of the India term during the first two editions of the Master: academic years 2014-2015 and 2015-2016. The respondents from the MAIB second edition (2015-2016) are six: 4 females and 2 male from different nationalities (India, Italy, Jamaica, Russia, Romania, Mexico). The new data have been integrated with data which was collected in a previous research and presented at the annual international interdisciplinary conference (AIIC 2015) in Portugal. In the previous study we discussed how the 1st MAIB cohort had approached intercultural learning during the Italy and India terms.

What emerged was that the MAIB program had a positive impact on the development of the students' intercultural competence. The data were collected through qualitative interviews with nine students (3 to 6 person and on Skype) and focus groups. The interviewees were students from Italy, Mexico, Brazil, China and the United States at the end of their period in India in April 2015. In the first study, preliminary and follow-up interviews were conducted at the beginning and the end of the period in India. Particular attention was given to the subjective experiences and re-elaborations of the students.

In order to gain a better understanding of the perspectives and perceptions of individuals exposed to cultural diversity we chose a mainly qualitative approach. The aim of the current study is to understand the main factors contributing (or hindering) the development of inter-cultural sensitivity among students and expand the scope of our previous research using a comparative approach. Data were collected through semi-structured qualitative interviews and open-ended questionnaires conducted in person or on Skype. Such an approach seemed more flexible as it allowed respondents to use their own words and concepts. The interview guidelines developed to identify and measure:

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4. FINDINGS

During the interviews, students from batch 1 expressed strong emotions and vivid memories when talking about their experiences abroad; this can be attributed to the fact that the interviews were conducted shortly after the end of the period in India when the memory of experiences was still very recent. In addition, Whalen (2009) noted that the experiences abroad have a particularly strong impact on student's emotional state. When describing their arrival in India, (non-Indian) students reported a sense of confusion, remembering the traffic, the chaos, new smells and the vivid colours. It is pertinent to that students from batch 1 had started the India term with an enthusiastic and optimistic attitude, but later had experienced difficulties in adjusting. They struggled with adapting to the new environment; for example, lower levels of cleanliness in the campus' accommodation, the quality of the food served in the cafeteria on campus was defined poor in comparison to the Italian students' standards. Thus, at the beginning of the period in India, most of the non-Indian students were in a state of denial and showed a strongly ethnocentric orientation where "one's own culture is central to reality" (Bennett, 1993).

After various interventions from the coach, the program director and coordinator they slowly began to perceive and understand cultural differences in more observable areas of human behaviour (e.g. clothing, food, music, art, dance), and then to move to more subtle arenas (e.g. nonverbal behaviour, customs, dos and taboos). By the 2nd month of their stay in India, the students had moved toward the Minimization stage. Minimization is not monocultural in its capability, yet it is also not fully intercultural in its recognition of deeper patterns of cultural difference and the ability to appropriately respond to these differences (Bennett, 2004; Hammer, 2009)

In comparison with the Italian students, Mexican and Brazilian students had a relatively positive experience in "breaking the ice" with the new context; they started from the point of Minimization and experienced a certain degree of success in relating with peers in India and navigating their way through unfamiliar cultural practices. These students were able to identify commonalities, which helped to align better with the host country. At the same time they were very conscious of cultural differences. With support and inputs from the coach and the staff they were better able to appreciate diversity and were drawn upon to bridge different cultural practices.

Towards the end of the 3rd month, most students reflected a more acceptance-oriented mindset; they made local friends and showed a strong curiosity about different culture. However, they reported having encountered some difficulties in adopting an appropriate behaviour when confronted with cultural differences with their peers and the teaching staff. To sum up, all the students from batch 1 reduced their ethnocentric tendencies.

In comparison with the first cohort, the initial experience in India was perceived as less difficult by the students of the 2nd cohort. They reported that they struggled initially to adjust to the new environment because of their needs and habits (e.g. it was difficult to initially adjust to the food) but coped easily to the situation. All students considered the host country (both in the case of Italy and India) generally very hospitable and did not particularly encountered problems in living abroad, except for the initial feeling of estrangement. The difference between the 1st batch and 2nd batch students can be explained by considering that the students from the first edition had had little interaction with other cultural groups before starting the Master and were therefore more inclined to use stereotypes and generalizations toward the *other*. Although students from the second edition faced some challenges in dealing with culturally sensitive issues with teachers and other groups, they generally achieved a greater awareness of their difficulties after concluding the India term:

> *When dealing with businessmen and the professors, I think I should have phrased sentences in a less direct way and paid more attention to cultural aspects such as talking about religion in a sensitive way or criticizing how they work* (Student, private conversation, May 2016).

Interviewees reported that some unexpected positive events contributed to change some of their biases and prejudices - related to an initial more ethnocentric attitude. A respondent shared that she completely changed her negative opinion about the hygienic conditions and quality of Indian hospitals the morning she was forced to go to the hospital in the city of Bangalore due to a sudden eye pain. Although the idea was "frightening" the student was positively surprised:

> *I was really surprised to find out that hospitals are almost better than here. It was a good experience, they kept me only a couple of hours* (Student, private conversation, May 2016).

This shows how small episodes can permanently shape one's perceptions and ideas about a relatively unknown context, culture or person.

Students were asked to define the concept of culture and intercultural competence: all of them were able to provide articulated definitions. As previously said, during the period in Italy students followed a course of intercultural communication for business. In the course, culture was described as "the mutual creation of meaning" and was addressed as a strategic element to create added value from cultural diversity.

Nonetheless the interviews conducted with the students from batch 2 highlighted a gap between theory and practice: respondents said they encountered significant difficulties during the teamwork and attributed these difficulties to cultural issues. Students from batch 2 had more difficulties in the interpersonal area compared to students from batch 1. Some of the respondents even spoke about "cultural incompatibility" referring exclusively at the professional level: "working together was really mentally draining". For example, different ideas of what working together means lead to many misunderstandings and tensions in the class.

> *I think that in a multi-cultural class is very difficult to understand each other, you have a lot of pressure on you because you have to make people understand your point of view without offending them* (Student, private conversation, May 2016).

In light of the said difficulties which was mostly related to group-work assignments and that constitutes a fundamental feature of the program, we asked students what they thought the problem was and what were the possible solutions. Two of the students reported that the intercultural communications course had not trained them to solve culture related interpersonal issues. However, the course laid the foundation for more sophisticated and nuanced reflections on cultural issues, proving the idea that experience is effective only when supported by intercultural education. The differences in language, food, customs and practices that elicited an initial feeling of discomfort and inadequacy, later became positive markers of a new experience. A student highlighted how important is to be aware of the processes involved in the development of intercultural communication because this awareness allows one to recognize some mechanisms and patterns that help dealing with disfunctional environment.

The Italy and India terms, although perceived as challenging (mainly because of group dynamics), were both described in positive terms by the respondents. After about a month, the students from batch 2 had shifted from acceptance to adaptation: such stage entails the ability to identify how culture affects a wide range of human experience and the use of a framework for organizing observations of cultural difference. In other word, they acquired the ability to adopt different behavioural patterns. 80% of the respondents reported constructive reflections about their cross-cultural interactions, describing diversity as a factor that can increase mutual interests and add value to an international group. In this view, differences become interesting and stimulating. Two respondents noticed that Indian society seems to be characterized by a more collective dimension in comparison to the individualistic dimension of the Western model.

Overall, there are more positive occurrences in the interviews than negative ones: the experiences described focusing more on the hospitality of the host country and the locals rather than on the challenges encountered when working together as a group. This indicates a positive inclination and the willingness to highlight the constructive aspects of the experience. Consequently, communication emerged as a key tool: you have to make yourself understood, and this can be done effectively only by really taking into account the other person's values system.

> *Trying to shape them and compete fiercely within the group is just pointless and stressful. Instead, we must think forward and show the best of what we are, this impressions will be for life not just*

> *for a project* (Student, private conversation, May 2016).

We believe it is important to highlight that an intercultural group studying together becomes an interconnected system and that communication and openness are the key features binding the group together. Our analysis reveals that the MAIB students had acquired the awareness of being part of an interconnected system.

> *I believe it's essential for everyone to understand that we are connected, we are interdependent on one another, not just at a personal level. If we want to understand globalization we must know what is behind it, and there are a number of countries, people, and cultures with different attributes, all of them valuable for our lives in an indirect way* (Student, private conversation, May 2016).

CONCLUSIONS

In light of the global environment of the twenty-first century, Universities increasingly foster opportunities promote intercultural competence among students, irrespective of whether these students travel outside their home city, region, or country (Levin, 2002; Otten, 2003; Raby, 1996). Of particular note are increasing demographic changes in the world that make international and intercultural competence essential for our students.

The paper provided a scope for understanding and envisioning the need and scope for the study abroad programs. First, the assessment of student learning that result from the MAIB program provides useful insights for the Universities. Second, the same could enhance awareness of the educational value of study abroad with the aim of showing how it promotes acquisition of intercultural competence in students.

One of the desired outcomes of MAIB, as an international Master program, is to foster an intercultural mind-set amongst the students. Intercultural competence is a key goal of internationalization because it indicates awareness and understanding of culturally diverse others and situations, as well as the presence of behaviours that promote productive and effective communication among and across cultures.
This paper has explored how the MAIB – joint Master program has enhanced the efforts towards internationalization of education, focusing on development of intercultural competence amongst the MAIB students.

Through our experience with the MAIB program, working with students and faculty, we would like to expand the scope of our research by administering the Intercultural Development Inventory (IDI), which has its theoretical basis in DMIS. It is a fifty-item instrument that measures an individual's worldview toward cultural difference. The same shall render the measurement of intercultural competence more scientific and accurate. Since the research is focused on intercultural learning across the Italy and India terms, we shall be sharing the final findings at the end of the Master program after the students have experienced also the Canada term. Nonetheless, current research has shown that MAIB Master program has positively affected student learning and development of students' intercultural competence.

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Challenge Learning Strategies For Business Statistics

Somruay APICHATIBUTARAPONG
Faculty of Sciences and Technology
Suan Sunandha Rajabhat University
Thailand
somruay.ap@ssru.ac.th
somruayy@yahoo.com

ABSTRACT

Teaching and learning business statistics is an essential core requirement for most undergraduate and graduate business programs. Most students encounter difficulties in their statistical education. It is a challenge to teach and learn business statistics with interesting and enjoyment. The rapid change and integration of technology innovation was used to encourage and support in teaching and learning statistics particularly. Mobile learning is the new learning environment using wireless transmission and mobile devices. Moreover, mobile learning allows students to have more control over their own learning, to think analytically as well as critically and to construct their own learning through technology. The research aims to develop learning strategies in business statistics on mobile devices. The materials were thirty statistical glossaries consisted of meaning, formulae, examples and usage in business statistics. The quantity approach was use to determine the quality of learning media from sixty volunteers were random selected from undergraduates who interested in business statistics. This paper will discuss the results obtained and the evaluation on quality and usage of media. It is revealed that the quality and usage of media is on effective level. This investigation will be the challenges and opportunities for learning business statistics.

INTRODUCTION

Business competition is tougher than formerly, it forces the firm's role to use more information and forecasts in decision-making. In addition, the business environment is changing with increasing complexity. Makridakis et al. (1983) noted that various factors (e.g. complexity of organizations, demand and technology change, more systematic decision-making, etc.) which have caused the increasing forecasting needs for organizations.

Business statistics education has become a more important concern in the information age. Much of the information in the world around us is determined mathematically by using statistics. Correct statistical usage provides not only any trends in what has happened in the past, but also predicts what may happen in the future. Therefore, business statistics courses are important and compulsory at the higher education level in business both for undergraduate and graduate students. Moreover, business statistics continues to equip students with the technical and logical skills in problem solving. As Giesbrecht (1996) pointed out, almost every discipline, the ability to understand, interpret, and critically evaluate research findings are becoming an essential core skill. In addition, Buche and Glover (1988) agreed that college students interested in becoming practitioners need to be able to comprehend, appreciate, and apply research.

Business statistics concepts are complex, abstract and difficulties in computational. Problems with business statistics learning are universal. Most students in developed and developing countries encounter difficulties in their Statistics Education. Students can be very effective at it and others simply shy away from it. The evidence from a variety of sources makes it clear that many students are not learning the business statistics they need or are expected to learn. The reasons for this phenomenon are related to the way business statistics is taught. The approach of this study is to enhance learning sources in Business Statistics by using challenge learning strategies to those traditionally adopted for teaching business statistics course.

The growth of the Internet has impacted on virtually every aspect of society. Online learning is becoming a favored training option in industry, government, and higher education. Mobile Learning technologies offer teachers and students in a more flexible approach to teaching and learning. CDW-G (2010) pointed that students use the technologies such as mobile devices, blog, and podcasts in their lives and are largely absent from the classroom. Yilmaz (1996) believed that the methods of teaching statistics are not effective. Even though there are a various websites dedicated to interactive learning of statistics with a lot of free download interactive statistical program. Maridakis and Winker (1984) also indicated that Interactive Statistical Programs is a comprehensive system for learning and teaching purpose. Educators should employ mobile technologies to deliver knowledge according to students' lifestyle and provide more online learning for supporting the creation of student communities of interest and disseminates information associated to the academic life. Gikas and Grant (2013) indicated that the advantages of mobile devices for student learning are 1) accessing information quickly, 2) communication and content collaboration, 3) variety of ways to learn, and 4) situated learning. In addition, Greenhow (2011) summarized that using social media tools in learning promotes a more student-centred course. It caused that mobile learning has become a new educational paradigm of learning via mobile technology. Moreover, teaching and learning can be carried out at anyone, anytime and anywhere. This study aims to develop challenge strategies learning in business statistics course by using mobile learning.

THE STUDY

The business statistics on mobile device was developed by using C++ Builder 2009 enhanced by R-program for applying applications and managing database system by Microsoft Access. The learning media of business statistics procedure is following steps: 1) collect the statistical analysis in business statistics by applying R-program 2) design Database 3) establishes database and application 4) implementation and 5) evaluation.
The appropriateness assessment of the business statistics learning material contained 3 aspects: Content and presentation (5 items), Font and color (5 items), and Technical media production (7 items). A 5-point Likert scale was used. The options are 5-Very effective, 4-Effective, 3-Average, 2-Ineffective, and 1-Very ineffective.

This study has been carried out at Suan Sunandha Rajabhat University (SSRU) involving 1) six experts in business statistics and computer technologies 2) sixty volunteer students were randomly selected including both genders, 19-21 yrs-of-age and students interested in business statistics. They were assigned invited to practice with the learning media.

The quantitative approach was used to investigate the evaluation survey on business statistics learning sources by 6 experts and 60 students' opinion in using mobile learning sources. The quality classification level of learning media is defined as shown in Table 1.

Table 1. Rating of quality evaluation

Mean	Quality Classification.
4.50 - 5.00	Very effective
3.50 - 4.49	Effective
2.50 - 3.49	Average
1.50 - 2.49	Ineffective
1.00 - 1.49	Very ineffective

FINDINGS

In assessing the descriptive statistics concerning quality of learning resource for business statistics on mobile devices, the study discovered that the experts' opinion were effective level in font and color and average level in content and presentation, and technical media production. In addition, the overall evaluation was average (mean = 3.34) by the highest average opinions were color of text and color of background. The result was shown as Table 2.

Table 2 Quality of Business statistics learning resource according to Experts' opinions

Items	$\overline{x}$	**S.D.**	**Assessment**
I. Content and Presentation	**3.29**	**0.45**	**Average**
1.1 Clarity in describing the content	3.50	0.55	Effective
1.2 Sequence of content	3.17	0.98	Average
1.3 Accuracy of content	3.17	0.41	Average
1.4 Appropriate in style and presentation	3.17	0.41	Average
1.5Appropriateness of the content presented in each episode	3.50	0.55	Effective
II. Font and Color	**3.50**	**0.55**	**Effective**
2.1 Format of font used	3.33	0.52	Average
2.2 Clarity of text	3.50	0.55	Effective
2.3 Color of text	3.67	0.82	Effective
2.4 Color of Background	3.67	1.03	Effective
2.5 Overall color of screen	3.33	1.03	Average
III. Technical media production	**3.28**	**0.52**	**Average**
3.1 Screen overall design	3.33	0.52	Average
3.2 Appropriateness of the size of the command button	3.17	1.17	Average
3.3 Speed and accuracy of searching information	3.17	0.41	Average
3.4 Availability of the input to the calculation.	3.33	0.81	Average
3.5 Speed and accuracy of the Statistical data analysis	3.33	0.52	Average
3.6 Flexibility in use	3.33	0.52	Average
3.7 Suitability of the operating instructions	3.33	0.52	Average
Total	**3.34**	**0.43**	**Average**

The study discovered that the students' opinions were effective in overall and each factors: 1) content and presentation 2) font and color, and 3) technical media production except in item 3.7, the research result was shown as Table 3.

Table 3 Quality of Business statistics learning resource according to Students' opinions

Items	$\overline{x}$	**S.D.**	**Assessment**
I. Content and Presentation	**3.78**	**0.54**	**Effective**
1.1 Clarity in describing the content	3.83	0.81	Effective
1.2 Sequence of content	3.67	0.98	Effective
1.3 Accuracy of content	4.00	0.63	Effective
1.4 Appropriate in style and presentation	3.83	0.40	Effective
1.5Appropriateness of the content presented in each episode	3.67	0.51	Effective
II. Font and Color	**4.02**	**0.76**	**Effective**
2.1 Format of font used	4.00	0.63	Effective
2.2 Clarity of text	4.17	0.89	Effective
2.3 Color of text	4.00	0.75	Effective
2.4 Color of Background	4.00	0.89	Effective
2.5 Overall color of screen	4.00	0.89	Effective
III. Technical media production	**3.78**	**0.54**	**Effective**
3.1 Screen overall design	3.67	0.51	Effective
3.2 Appropriateness of the size of the command button	3.83	0.40	Effective
3.3 Speed and accuracy of searching information	4.33	0.51	Effective
3.4 Availability of the input to the calculation.	3.83	0.75	Effective
3.5 Speed and accuracy of the Statistical data analysis	4.00	0.98	Effective
3.6 Flexibility in use	3.83	0.63	Effective
3.7 Suitability of the operating instructions	2.50	1.64	Average
Total	**3.84**	**0.49**	**Effective**

From Table 3, the highest average of students' opinion was 4.33 in speed and accuracy of the statistical analysis and the lowest average was 2.50 in suitability of the operating instructions.

CONCLUSIONS

The assessment of the development of business statistics learning strategies on mobile devices indicated that the educational media via mobile technologies achieved an effective level based on students who interested in business statistics. The research finding affirms and realizes as UNESCO pointed that in the twenty-first century, computers are viewed as a crucial component to learning, but mobile technologies will undoubtedly become more integrated and commonplace in both formal and informal education (Shuler, et al., 2013).

This study was intended to be enhancing teachers and students in learning business statistics by using mobile technology. It would be beneficial to those looking for alternative strategies in teaching and learning business statistics for students in Thailand. For the further investigation, it should be expanded more effective and more business statistics technique.

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Changing Shopping Methods In Technology Era: A Study Of 'Diesre.Com' Web Site From Turkey

Tuğçe BORAN
İstanbul Üniversitesi
İletişim Fakültesi, Turkey
gureltugce@yahoo.com

Internet's getting more and more wide spread and being able to easily accessing to it any time and in anywhere using different devices have caused a lot of habits to change by time. Among today's most common behaviours are reading newspapers on the internet, making doctor appointments or buying plane tickets online, watching a soap opera that one could not watch when aired on TV again on the internet. Let alone every aspect of life, this process has also affected methods of shopping habits. Many people prefer shopping on the internet both to save time and choose from wide range of services. The number of the online shopping sites selling clothes increase in Turkey as well as in the world. These sites vary from a chother considering the services they offer (textile, cosmetics, sports equipment etc.) and client profiles (for women, men or the young etc). In addition, there is a client group who determine their clothing preference staking the irreligious vulnerability into account. 'www.diesre.com' differ from the others in this sector in terms of providing services mainly aimed at this specific group. In this study it is aimed at examining this website offering services for 'head-covered' women (tesettür), interviewing with the marketing communication director of the website.
Keywords: B2C, virtual marketing, head- covered outfits

Teknoloji Çağinda Değişen Alişveriş Yöntemleri: Türkiye'den 'Diesre.Com' Web Sitesinin İncelenmesi

Internetin gün geçtikçe yaygınlaşması, her zaman, her yerden ve birçok farklı cihaz ile kolay ulaşım imkanı zaman içinde birçok alışkanlığın dönüşüme yol açmıştır. Günümüzde hızla yaygınlaşan davranışlar arasında; gazeteyi internetten okumak, doktor randevusunu internetten almak, uçak biletini internetten satın almak, kaçırdığımız diziyi internetten izlemek vb. sıralanabilecektir. Bu süreç her alanda olduğu gibi alışveriş alışkanlıklarında da yöntemin değişimine neden olmuştur. Çoğu kişi hem vakitten kazanmak hem de sunulan hizmetlerin oldukça geniş bir yelpazeyi kapsıyor olması nedeniyle internet üzerinden alışveriş yapmayı tercih etmektedir. Türkiye'de de dünyada olduğu gibi web üzerinden giyim alanında hizmet veren alışveriş siteleri gün geçtikçe çoğalmaktadır. Bu web sitelerinin sundukları hizmetler (tekstil, kozmetik, spor malzemesi vb.) ve müşteri profilleri (kadına, erkeğe, gençlere vb.) nedeniyle farklılaştıkları görülmektedir. Bununla birlikte, Türkiye'de dini hassasiyetleri nedeniyle giysi seçiminde bu hassasiyetler doğrultusunda hareket eden bir müşteri grubu bulunmaktadır. 'www.diesre.com' bu müşteri grubuna odaklanarak verdiği hizmet ile sektörde farklı bir yere sahip bulunmaktadır. Çalışmada, Türkiye'de özel bir müşteri grubuna 'tesettürlü' kadınlara yönelik hizmet veren bir web sitesinin; pazarlama iletişimi yöneticisi ile gerçekleştirilecek derinlemesine mülakat yoluyla, incelenmesi planlanmıştır.
Anahtar kelimeler: B2C, sanal pazarlama, tesettür giyim

1. Introduction

The rapid growth of the technology usage caused the reconsideration of the concepts of the marketing literature of 10 years ago. The internet usage, which is increased by the technological developments, has changed the forms of socialization and has had effects on people's everyday habits so changes on business life has become inevitable.

The extent of the 'market' concept has expanded and studies on areas such as 'e-marketing', 'e-market', 'e-commerce' on the 'consumer' focused market researches started. This process has changed the market structure, distribution channels and customer behavior.

E-commerce concept eliminated geographical limitations and enabled customers to access more information and products in less time and with less cost. Within this changing period, it is observed that customers developed tendency to buy coats they didn't touch, buy perfumes they didn't smell or buy shoes they didn't try on. Aksoy (2006a) states that the internet technology transformed the customer behavior in conventional markets. According to him, in behavioral perspective, the internet is an environment where customers are completely free unlike physical environment so the behavior norms of ordinary stores are not valid in this environment. This situation also brings up the problems of creating 'consumer' loyalty, for the same reasons.

Three areas, 'B2C, B2B. C2C', can be specified under the main title e-commerce. In all these three areas, making sure the customer visits the website again with recurrent behaviors after he/she visits the site for the first time, covers a big area of study. The features websites are required to have and the consumer behaviors are the two important focus points.

A Hamburg based market research company 'yStats.com' (2013, 2), reports that clothes are the number one product type in terms of the sales in the worldwide e-commerce market. This report also states that more than one third of the internet users all over the world either bought or intended to buy a product of this type.

The number of internet users in Turkey is increasing every year. According to a report by TUIK (Turkish Statistical Institute), in 2014 (as of the end of September) the number of internet users in Turkey is 39.837.692. In 2013, this number was 32.613.930 and 10 years ago, in 2004, it was 1.474.590. It is clear by these data that the number of internet users in Turkey is increasing at an incredibly rapid rate. The results of another research that is conducted in Turkey are also remarkable. According to these data, in the year of 2014 the number of sales online has increased. TUIK (2014) data states that the rate of internet using individuals ordering products or services is 30.8%. The same rate was found to be 24.1% in the previous year. The same report suggests that the individuals who shops online, in the 12 month period between April 2013 and March 2014, bought 51.9% sport and clothing products, 27% household goods, 26.8% travelling tickets, car renting, etc., 24.9% electric devices, 15.9% books, newspapers, magazines. This data shows the fact that "sport and clothing products" has the highest rate of sales in the last one year in Turkey.

The websites in Turkey, like all over the world, differ from each other based on the services they provide and their customer profiles. In addition to this, it is also observed that the demand of some customer groups varies depending on their religious sensibilities. 'www.diesre.com' has a special place in the market with the service they provide to this customer group. In this study, our object is to analyze a website which provides service to a specific group in Turkey, 'veiled women', via a thorough interview with their marketing communications manager. The results of this study is considered to be important for providing the data to be analyzed with the intention of focusing on a line of business which has a specific target customer group (target group), realizing this line of business in a new market (social media) and the realization of known communication methods (B2C) in a different environment.

It should be stated that the results of this study do not provide all the necessary data on the market and this study shall be regarded as a pilot study.

2. The Development of B2C Sites and Their Characteristics

4P concept (product, place, price ve promotion) can be encountered in almost every source on marketing literature. Marketing approach who focuses on this concept caused the 'place' to be a subject in courses for years. Today we observe that the rapid growth of the internet causes changes not only on people's socialization styles but also on their consumption habits. It is clear that technological developments created virtual consumption environments. This means that we are experiencing a new environment where the power of the place, the color, the sound, the music, the staff, etc. have no effect on customer's choices as we were repeatedly told in our schools before.

Concepts such as 'Business to Customer (B2C), 'Business to Business (B2B)' and 'Customer to Customer (C2C)' are always mentioned in the context of e-commerce. The first B2B online shopping was conducted by Thomson Holidays in 198. (C.Palmer, "Using IT for competitive advantage at Thomson Holidays" by Uygur 2010, p.13). The first B2C is conducted by TESCO, which operates in Turkey as 'Kipa', in Gateshead/England. (Videotex takes Gateshead Teleshopping into the home, by Uygur 2010, p.13). 72 years old Jane Snowball who lives in Gateshead/England is the first electronic customer of the history. . (Michael Aldrich, Finding Mrs Snowball by Uygur 2010, p.13)

"… as technology improved Internet usability, acceptance grew exponentially. Early e-retailers blazing the way were "dot-coms", discrete entities unfettered by brick-and-mortar stores. Internet marketers ere viewed as part of the e-commerce world, distinct from their Old Economy brethren. However, just as Internet usage spread from Silicon Valley to Main Street, Internet marketing was absorbed into marketing's mainstream" Taylor David G., Strutton David (2010:950). It seems that B2C of which we saw examples in 1980s was brought up academically with the spread of the internet. "Academic study of the Internet follows a similar pattern. In the early 1990s, information systems (IS) articles on Internet topics began to appear in publications such as *MIS Quarterly, Information Technology and Management* and others. Studies examine technological aspects of the Internet, including user adoption, vendor attributes. Web site design, platform performance and stability" Taylor David G., Strutton David (2010:950).

Online shopping has been a matter of interest for retail corporations since 1990s. This shows us the fact that first steps towards the growth of online shopping were taken by retail corporations. "In the mid 1990's, leading marketing journals also began publishing prescient, forward-looking articles about the Internet's transformational potential as a driver or marketing activities. Among the first are Hoffman and Novak’s (1996) “hypermedia computer-mediated” communication model, Alba and Lynch’s (1997) work on incentives to go online and Burke’s (1997) predictions about the future of online consumer marketing. A revolution is predicted in marketing thought and strategy (Sharma and Sheth, 2004). And analogies are drawn between the potential of the Internet and the impact of the printing press and democratic governance (Dickson, 2000) ” Taylor David G., Strutton David (2010:950).

It is observed that B2C websites which is one of the focuses of this study have two main type of services.

According to the B2C sites’ place in the market;

1. chain store’s websites
2. shopping websites where several brands make sale

According to the B2C sites’ company structure;

1. Pure Play Companies: Companies which has no other platform to interact with their customers except for the website where they make their sales.
2. Multi-channel Companies: Companies which interact with their customers on various platforms.

It is known that many companies in Turkey first interacted with their customers in their stores and then they created their websites and begin e-commerce with the growth of the internet platform/market.

“Internet pure-plays, once heralded as the leaders of an economic revolution, have lately had a tough go of it. Of the 142 companies with top-ranked websites between 1996-1998, 88% were pure-plays. Just one year later, 61 % had merged of formed alliances with other pure-plays, a handful had joined forces with bricks-and-mortar companies, and 10% had gone bankrupt. This may be just the tip of the iceberg. Of 300 publicly-traded B2C pure-play companies, less than 5% are profitable today, and many are dire straits” Vishwanath and Mulvin, 25-26. Of course this should not be seen as an ending. Successful examples may be found in alternative structures, countries and cultures.

There have been many studies over the years about the effect of physical environments on the consumption. However, today’s B2C web sites are thought to cover an important area of service due to their ability to provide convenience for their customers. For instance, people who live in smaller cities might prefer online shopping because they can have access for more various products and people who live in bigger cities might prefer online shopping because it takes less of their time.

There are two more areas of e-commerce. These are B2G (business to government) and C2G (customer to government). B2G covers commercial actions such as following and managing the transactions and customs procedures between government agencies and private companies via digital platforms and using this digital platform to announce procurements. C2G is the interactions between the government and its citizens. It is also known as ‘electronic government’ or ‘e-government’.

3. Required Characteristics of B2C Sites and Their Safety Measures

Online consumers’ awareness of the site and maintaining customer’s choice are important areas of works. The first step shall be to catch the attention of the visitors of the site. Design elements that make a web site effective can be classified into the following:

- Presentation elements;
- Content;
- Accessibility;
- Navigation;
- Language;
- Transaction pages; and
- Security, privacy and authority (Oppenheim and Ward, 2006, 238).

Considering the fact that the company’s object is to keep the customers interested the structure of the site gains importance. “The stages at which customers lose interest can be summarized under the following headings:

- Home page;
- Product research;
- After product found;
- Shopping cart; and
- Failure to repeat purchase.

A reason for defection which applies throughout each of these stages is:

- Unacceptable download times.” (Vishwanath and Mulvin, 30).

At this stage, it is clear that the company needs to know the customer profile well and form their website in accordance with their profiles. Your brand can be a worldwide known textile retail or it can be an organic jam that is made by a housewife in her house. Therefore, it is very important to make sure that the customer visits the site. The next step shall be to provide the customer an easy shopping means.

‘Customer loyalty’ is a very important matter for both retails and e-commerce. Loyalty is a more delicate and difficult matter for e-commerce. Safety is an important issue for gaining the loyalty of a customer. In electronic commerce, trust remains a critical issue because consumers face the challenge of buying online from an unfamiliar merchant a product or service that they cannot actually see or touch.” Hong and Cho (2011:471). Safety is a significant factor for customers to maintain their preference for the site. The other criteria for the loyalty of the customers are the companies’ product change, payment, shipping and refund policies.

4. B2C and Customer Relationship Management

It is observed that there is a transformation from mass marketing to individual marketing with the evolution of everyday habits. However, there is no change of the human need of belonging. Kaban Kadioglu (2014:105,106) states that the belongingness has always been an important matter for humans and humans always tried to attach themselves to the groups to satisfy that need. He also adds; groups such as family, friends, and fandom or fan groups all serve to satisfy the need of belonging.

Customer loyalty is one of the most important matters in today’s commercial life. Considering the fact that it is difficult to gain customer’s loyalty even when they are in your store, ‘in your house’, in online shopping reaching the customer and gaining their trust is fairly more difficult where there is no real contact involved.

CRM had its origins in two unrelated places. One was in the U.S. where it was driven by technology (Dowling (2002, 87-89) qtd. D.Schultz, 2000, p.11). The second place CRM developed was in B2B marketing in Scandinavia and Northern Europe. The IMP (Industrial Marketing and Purchasing) Group has been instrumental in developing our understanding about the nature and effects of building long-term, trust based relationships with customers. (Dowling (2002, 87-89 qtd.D.Ford, 1990). There are different corporate approaches in both places. The first place has an approach where the database is the base of customer relations and the second place has an approach focusing on supporting more than managing.

E-commerce is a platform where it is very difficult to manage customer relationships. Dowling (2002, 89-90) ‘In B2C markets, the nature of a seller-customer relationship becomes somewhat paradoxical. The paradox is the problem of trying to form a “relation-ship” with customers while at the same time trying to make a profit by selling products and services to them’.

The fact that the customer and the seller are not able to see each other and that the problems have to be solved in a virtual platform are seen as a disadvantages in e-commerce. The first step shall be to transform the consumer to a customer by making them feel the approach towards making their relationship continue after their first purchase. Therefore, a thank you note, an exclusive recommendation or a discount coupon can lead the customer making further purchases. ‘Contrary to the line of argument that long-life customers are more profitable, Graham Dowling and Mark Uncles caution that loyal customers will often be less profitable” (qtd. Dowling and Mark Uncles, 1999, 71-82, Dowling (2002, 93).’ Since the loyal customer makes profit as well, extra advantages, gifts and awards also may also serve to maintain the process of creating the ‘loyal customer’.

5. Changing Shopping Methods in Technology Era: A Study of 'diesre.com' web site from Turkey

5.1. The Aim of the Research

The number of shopping websites that sells clothing is increasing every day in Turkey like all over the world. These sites differ from each other based on the service they provide (textile, cosmetic, sports equipment) and their customer profiles (men, women, young). There are also some customer groups who choose their clothing in line with their religious sensibilities. ‘www.diesre.com’ is known for servicing this customer group. The results of this study is considered to be important for providing the data to be analyzed with the intention of focusing on a line of business which has a specific target customer group (target group), realizing this line of business in a new market (social media) the realization of known communication methods (B2C) in a different environment.

5.2. Sample and Method of the Research

E-commerce is a concept that covers a wide area of work. This study focuses on a Turkish enterprise which makes sales only through their website (B2C) and whose target is a specific customer group (veiled women).

5.3. The Data and Evaluation

The data we use in this study are collected from a detailed interview we conducted with the marketing communications manager of ‘Tozlu & Diesre’s B2C website ‘www.diesre.com’ on 19 July 2015.

The study consists of two main chapters. The first chapter is titled ‘Corporate Information of the Web Site’ and the object of this chapter is to explain the corporate structure of the website ‘diesre.com’. The second chapter of the study is titled ‘The Website’s Policies for Customer Loyalty’. The challenges of today’s B2C shopping websites include the competition with the retail stores and the difficulties of a virtual platform. The object of the second chapter is to ask the questions to explain what diesre.com has been doing to earn customer satisfaction and loyalty.

The study consists of 17 main questions and sub questions to these main questions. However, these 17 questions are not in order in the evaluation part. This is because some questions were answered within a part of another question during the interview. The answers to these questions are included as in the interview (not as in the question form).

We also asked the interviewee for his opinions and suggestions.

5.3.1 Results

The first data we acquired from the interview was the address of the web site. The address is 'diesre.com'.

5.3.1.1 The history of the website

It is stated that the website was started in September 2014. We also learned that the site, within their first year, got the %20 of the market share and they were able to afford the funding of their communication budget since February 2015.

It is known what e-commerce also created many jobs in Turkey. Based on the data above, it is understood that e-commerce is a line of work of which trading volume can expanse rapidly as long as the right opportunity is seized.

5.3.1.2 The content of the website (products) and the services it provides

The content of the website is defined as an online platform where clothing sales are made for conservative women.

This B2c website, which is the subject matter of this study, is considered to be significant in terms of the range of the target group of sales. The product range is strictly designed for the target customer group. This line of work represents a newly recognized market in Turkey.

5.3.1.3 Customer profile of the website and the number of registered customers

It is stated that the website has about 1 million members. The customer profile of the website is described as the following:

a. The average age of the visitors is 25-34,
b. Most of the customers are from Istanbul, Ankara and Izmir.
c. 91% of the customers is women and the 9% is men.

It is clear that the majority of the customers of the website is women. This shows us the importance of the fact that men feel more comfortable shopping in any store they prefer whereas conservative women use more products that are designed with religious sensibilities such as clothing ('hasema', topcoat) and accessories (cap, scarf magnet, etc.).

It is also remarkable that most of the customers are from the three biggest cities in Turkey. It can be inferred this is caused by the difficulties of living in a big city (e.g. traffic, overpopulation). People prefer saving time and avoiding from the traffic by online shopping.

There are still significant number of people who still prefers to go to the stores and try on the product even though e-commerce is growing every day. Based on the data above, the average age being 25-34 confirms this common opinion.

When the website is analyzed (this kind of study is not included in this one), the first thing anyone would notice that most of the images on the site are of young women. Moreover, there is also a 'big size' section where there are images of a middle aged female model. This defines the customer profile the website aims to have.

5.3.1.4 Competitors and the position in the sector/market share

There are some other firms whose target groups are the same with the company we interviewed. 'sefamerve.com' and 'modanisa.com are two biggest competitors of the 'diesre.com'. It is stated that 'diesre.com' is the third biggest brand in their sector.

Based on the data above, it is clear that the target group of these firms is not actually wide. Therefore, it is observed that shopping habits of Turkish people is still going on the same line with the retail shopping habits in a market where the target group is bigger.

5.3.1.5 The opinion on the idea that e-market is the place for 'the people who doesn't want to deal with people'

The interviewee stated that this definition is inadequate. According to him, this is not a lack of relationship but an online version of an offline relationship so saying that there is no relationship involved would be wrong. The interviewee describes what people gain with online shopping as follows:

1. Time (he says it is the most precious)
2. The chance to see more products and more choice
3. Not having a salesman who might trick the customer to buy something. On the contrary, you can see thousands of people who bought the same product.
4. Not having to wait in line.

Based on the data we collected, today's customer –it is stated above that the majority of customers are from Istanbul, Ankara and Izmir- has a tendency to online shopping. The group of people who have these characteristics are thought to be more easily adapting to changes. It is also observed that the interviewee always sees the advantages of B2C.

5.3.1.6 The opinion on earning the loyalty of customers at e-commerce

The interviewee answered this question by saying ‘too hard’. The interviewee defines e-commerce and the market as a platform where the customer can compare two products in seconds and have access to the complaints, comments, other products, and every information on the product very easily. He defines the electronic market as market where there is war not a competition. Therefore, having a good business model too keep the customers, choosing the target customers right and having a consistent marketing on that sector is crucial.

Based on the answer the interviewee gave to us, it is crucial to decide the target group first and make a good business plan. After all these stages, the next steps shall be conducting a good public relations, having a target audience based approach and planned working.

5.3.1.7 Definition of ‘loyal customer’ in e-commerce

According to the interviewee, the loyal customer is who shops two times and visit the site at least 15 times a month. Based on the data, the definition of loyalty has changed with the evolution of technology over the years. This approach should be considered as a unique contribution for the B2C companies.

5.3.1.8

It is understood that every month the site gets 30% more customers. Although, it is also stated that this number should not be compared with non-e-commerce sectors. The interviewee used Cohort analysis to answer. ‘The percentage of loyal customers is 40%. The plan is to make this number 50%-60% by 2016.’

Based on the data, it is clear that the market ‘diesre.com’ is in growing rapidly even though it is a new one. The stillness in the retail market is not observed in e-commerce. 50%-60% growth signifies the potential of this market’s trading volume.

5.3.1.9 Customers’ reasons for loyalty

It is stated that the loyalty is earned by giving the customer their money’s worth.

For the evaluation of the data, considering 4P of marketing, the correlation between the product and the price is clear. This shows the fact the keeping the product promise is as important as the communication.

5.3.1.10 Exclusive loyalty implementations for the customers

The interviewee stated that they don’t have such implementations currently. However, he also stated that they are considering it and they are planning to launch a new program related to this matter.

Based on the interviewee’s answer, e-commerce, which is a growing market, also requires public relations projects.

5.3.1.11 Research on the design and customer satisfaction

The interviewee informed us about a system they use to track the customer’s instant reactions and mouse movements. He also stated that they are interacting with customers on their website or social media in real time. All of the customers’ complaints, requests and suggestions are noted and reported. These reports leads to actions eventually.

Based on the data; every measure to detect the satisfaction of the customers (including the technical tracking) is taken. The evaluations of these tracings form the new business plan of the company.

5.13.1.12 Policies for the customers’ feedback, suggestions and complaints

Call center, ‘give us your feedback’ button, e-mail and most importantly social media are the means through which public relations are conducted. The website was also chosen as the website which has the highest answered question rating by ‘Web Arazi’.

The award and the detailed answer the interviewee gave us show us the fact that the company uses the internet to create communicate with the customers in a ‘non-face-to-face’ platform.

5.3.1.13 Safety measures and thoughts

The interviewee states that they are using a high standard security. He also adds that there is no difference in terms of security with the websites like ebay and aliexpress and they have taken all the necessary measures.

It is clear that the company is sensitive about the safety of their customers.

5.3.1.14 Policies about the product refunds

The interviewee states that for every product except for underwear and gowns and other personal products, they have an unconditional refund guarantee policy. The refund department pays for the costs and processes every product returned.

Product return is one of the most risky areas of e-commerce. Every company gets damaged if their return process does not managed properly. Our observation is ‘diesre.com’ is a successful company in that matter.

6. Discussion and Conclusion

It is an indisputable fact that the world is changing in a rapid fashion. While computers used to be a luxury office equipment in the offices in 1990s in Turkey, they are now cheap products everyone can access easily.

In line with the information technologies development, the root of economical actions are changing. The way of doing business is transforming from a face to face fashion to electronic based systems. Electronic practices are getting widely popular among governments, businesses, academies, etc.

As it is well known, 'commerce' means buying and selling of goods and services. E-commerce is basically the practice of buying and selling goods and services on an electronic platform. E-commerce, which can be seen as the last form of marketing, has been becoming more popular since the internet became a place to do business in 1990s. In addition, e-commerce's history begins in 1980s given the fact that sales via calls and TV are also a form of electronic commerce.

E-commerce is the focus of this study. The growth of e-commerce in Turkey and the forming of e-commerce that targets specific audiences are the starting points. There is a women customer group who chooses their clothing with different expectations due to their religious sensibilities. 'www.diesre.com' website which has the slogan 'Turkey's conservative brand' has an important place in this target market. In this study, we interviewed the marketing communications manager of website whose specific target audience is 'veiled women' in Turkey and we asked about their relationship with their customers and the management of their company. The target audience, shopping habits of the target audience, loyalty policies and the security process are the focuses of this interview.

The results we had from this study are:

1. 'diesre.com' has grown rapidly in a short time and expects to grow more in this market;
2. The connection between the product and the customer was built well;
3. They had a good way of tracking the customer's behaviors and they prepared new business plans based on it.
4. They are sensitive about two very important e-commerce matters which are their security and refund policies.

The connection between the website and the customer or the potential customer is very important. The concept of loyalty is crucial for this connection. Apart from the policies we discussed above, we also observed that there is an important area of study about how to develop the communication between the customer and the seller. This is also confirmed by the subject matter company of this study by their plan of a new special loyalty program.

We observe that there is not a study on the criteria required for a successful online business. We believe it would be helpful if nations did studies on sectors comparatively or together on this matter.

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Characteristics Of Colours, Interior Design And Their Psychological And Physiological Effects

Nurcan GÖKÇAKAN ÇİÇEK
Department of Psychological Counselling and Guidance
Faculty of Education, Mersin University, Turkey
ngokcakan@mersin.edu.tr

Kaan GÖKÇAKAN
Department of Interior Design
Architecture and Design Faculty, Anadolu University, Turkey
kaangokcakan@anadolu.edu.tr

ABSTRACT

In this study, psychologists', interior architects', designers', doctors' and advertisement writers' studies and thoughts about the impact of interior design and colors were searched. For this purpose, studies national and international studies related to colors were examined and psychological and physiological impacts of colors were investigated. The most important goal of interior design is to create physical environments that address people's physical, mental, emotional and social requirements. While creating these environments, it is crucial that people are happy, peaceful, comfortable and healthy when using them. Interior art aims at achieving visual effects and functionality. In this regard, the expectation is to design places that people can feel themselves in psychological well-being. Besides the interior art, which has an important effect on human psychology, the impact of colors on emotions has attracted scientists' attention for years. For this purpose, studies have been conducted but to a limited extent. In this study, the aim was to collect the results of related studies in the area conducted by scientists in various professional fields. Thus, it was planned to present to the reader the places that people live in more happily, peacefully and healthy; and the reasons why they use certain colours at home and in business by providing examples.

INTRODUCTION

The main aim of interior design is to develop the functionality, enrich the aesthetics and consider the psychological effects of the interior space (Ertek,1994).

Baring in mind that an architectural work of art cannot exist without the existence of space, we should look at how architects define space; "space is an emptiness that separates people from their environment and allows them to do certain actions" (Hasol,1990).

According to Lang (1987), the buildings and designs that architects create have an influence on human behaviour. As such, architects and designers need to take action so that they create environments which also have psychological effects on the user.

Human beings both affect and are affected by the environment they live in. In other words, individuals can change and better their environment based on their needs and expectations. The individual, being the main element of interior design, shows variations with regards to culture or group. Actually, even within the same culture or group, there are differences among people in terms of age, gender, socio-economical status and personal characteristics. In interior design, all physiological, psychological and social needs of the user have to be met. There are some features that account for the harmony between the human being and the environment. These consist of the shape, colour, smell, texture, sound and symbolic meaning.

The concept of living space resulted from humans' need to protect themselves from life conditions and to meet their basic needs. Having fulfilled the basic necessities, people want to create a home where they can sustain their life in peace and comfort. The change from crowded families to core families has also resulted in the change of preferences towards more simple living spaces. Rather than gorgeous and luxurious spaces, peaceful, healthy and functional places are being preferred. Especially the individuals of today who are subject to a hectic and speedy work life prefer to live in organized, and simple places with minimal details and far from the chaos; places that will not put a burden on their eyes, body and soul. To meet these needs, a lot of studies and research have been conducted on interior use and interior organization. These have formed the foundations for interior architecture and interior design. In interior design, there are factors which affect the individual's peace and comfort; these include the psychological effects of light regulation, the features of the material (warm or cold), sound insulation, heat comfort and the choice of colours.

Colour is an indispensable part of interior design. Thus, studying the colours for interior and the effects of colours are of vital importance. It is similar to the way how cheerful a person feels when it is sunny; and also how unhappy a person feels on a rainy day. Colour has the energy to influence both emotions and cognitive processes (Kalia, 2013).

According to Engelbrecht (2003) and Shabha (2006), psychological reactions towards colours are the result of the changes in a person's state of emotions and attention.

Once colours are perceived and transmitted to the brain, the brain produces a hormone that affects the individual's emotional state, cognitive receptivity and level of energy (Engelbrecht, 2003).

As for Torrice, Logrippo (1989), because colour waves can be absorbed by the body, the effect of colour cannot be limited to visual perception only.

Similar results were obtained in the research conducted by Harry Wohlfarth and Catherine Sam, who studied both visually impaired and non-impaired children. The results suggest that we are affected from colours in such a way that it goes beyond the visual limits. One hypothesis claims that despite the lack of visual ability, neurotransmitters in our eyes transmit the data about light to the brain and this data enables the hypothalamus to produce a certain hormone. It is exactly this hormone that has numerous effects on our psychological state, rational clarity and energy level (Zelanski, Fisher, 2003).

TYPES OF COLOURS

The Dictionary of Turkish Language Society defines colour as "different sensations on the eye as a result of the way objects reflect or emit light". In the 17th century, famous physician and mathematician Sir Isaac Newton, carried out various experiments to prove that the rainbow is comprised of all existing colours. He darkened a room and let a thin sun light enter into the room from a tiny hole. Putting a prism in front of it, he succeeded in reflecting all seven colours on a white panel, just like it is the case with a rainbow. Newton, following this experiment, named these seven colours as the Visible Spectrum. These colours are; red, orange, yellow, green, blue, indigo and violet (Zelanski, Fisher, 2003).

In nature, there are three basic colours, which are red, yellow and blue. Accent colours are formed by mixing these three. For example, the combination of red and yellow results in orange, the combination of blue and yellow results in green, and the combination of blue and red results in purple. Colours located opposite each other on the colour spectrum are called transverse colours. These colours are blue and orange, purple and yellow, green and red.

Another categorization is based on the effects colours have on people, namely cold and warm. Warm colours are red, orange and yellow; whereas cold colours are blue, green and purple. (Artut, 2004).

Black, White and grey are neutral colours. Neutral colours are the combination of all main colours, which leads to colourlessness (Kalmık, 1964). Warm colours usually have the effect of liveliness, joy, excitement and action. Cold colours lead more to calmness, comfort and relaxation (Altınçekiç, 1994).

CHARACTERISTICS OF COLOURS, PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS

Colours are not only used to express emotions but they are also used to activate (Zelanski, Fisher, 2003).
As Zelanski andFisher (2003) suggest, it is worldwide accepted that colours do have an impact on our emotions. While blue and green make us feel in peace, bright red, orange and yellow tend to have a stimulating effect.

RED

Psychological and Physiological Effect:

According to Martel (1995), red is the colour of passion and liveliness. It has the effects of increasing alertness, attracting attention, activation, brain stimulating, excitement, courage and power.
Chiazzari (1998) relates the red colour to liveliness, power, warmth, sensuality, assertion, anger and impatience.
Vodvarka (2008) claims that red accelerates the heart beat and respiration. Engelbrecht (2003) suggests that red increases the sense of smell and affects appetite. That's is why a lot of brands in food sector all over the world

use the colour red. Coca Cola, Nestlé, KFC, Wendy's, Arby's and McDonald's are some of the most famous examples. Because of its physiological effect, items that target teenagers also use red in their logo. It is highly probable that companies such as Levi's, Ray Ban, H&M, New Balance and even Netflix use red in their logos because it creates excitement in the individual. According to a study investigating the effect of multi-coloured lights on physiology, red waves do not only stimulate heart, circulatory system and suprarenal glands but also increase stamina and life force (Zelanski, Fisher, 2003)

Use in interior:

Red, when used in interior, can be said to cause excitement and negatively affect time perception and lead to disturbance in sleep. Thus, it explains why casinos and night clubs commonly refer to this colour. Baring in mind its psychological and physiological effects, it can be claimed that red, when used on walls or ceiling, may lead to disturbances related to time or lack of anger management on the side of the individual. On the other hand, as red is associated with warmth, an interior dominant in the red colour can be perceived as warmer than it actually is. As we all know from examples from traffic, red also has a warning effect. As such, it is reasonable to use red in interior, especially if warning is needed in floor covering and height difference.

YELLOW

Psychological and Physiological Effect

Pile (1997) states that yellow, when compared to red, is less aggressive. It is interpreted as sunny and joyful, which suggests that yellow is the happiest colour in the spectrum. Yellow is the colour of creativity (Morton, 1998). Chiazzari (1998) claims that yellow is associated with happiness, rational stimulation, optimism and fear. In addition, the colour of gold is combined with wisdom, wealth and idealism. Martel (1995) believes that yellow, among all others, is the only colour that increases the power of muscles. Zelanski, Fisher (2003) thinks that yellow light waves act as stimulants to the brain and neural system, trigger rational alertness and activate the nerves in the muscles.

Use in interior:

It would be wise to suggest that yellow would make people using the interior more active as it is associated with daylight and the colour of the sun itself and people tend to be more active during the day when compared to night time. Apart from this, an interior that looks bright will be perceived as being more spacious that it really is. Furthermore, as yellow is a warm colour and it is associated with the sun, people will perceive the place as warmer than it normally is.

GREEN

Psychological and Physiological Effect

Chiazzari (1998) relates green to harmony, relaxation, peace, silence, sincerity, honesty, contentment and generosity. According to Martel (1995), green is associated with silence, productivity, life, growth, nature, wisdom and belief. The results of a questionnaire conducted in Europe and US suggest that green is mostly associated with nature, life, health, youth, spring, hope and desire (Heller, 2009). Pile (1997) claims that green is more preferred by people who are intelligent, social, fluently speaking and fond of food. Moreover, the colour has a calming, relaxing and refreshing effect. Zelanski, Fisher (2003) state that green light waves regulate the heart and circulatory system, contribute to relaxation and cure illnesses such as hay fever and liver problems.

Use in interior:

Considering the psychological and physiological effects of green, when used in interior, it can be claimed that it will have a relaxing, calming and even refreshing effect on people who associate green with nature and nature with calmness. Thus it is logical to use green in bed rooms; for example, a place that is used for relaxation. Considering this relationship, health institutions that use green seem to have a appropriate approach to their choice.

BLUE

Psychological and Physiological Effect

As for Chiazzari (1998), blue is associated with tranquility, width, spaciousness, hope, belief, flexibility, faith and acceptance. Dark blue is related to seriousness and thinking broadly (Martel, 1995). Studies conducted in Europe and US suggest that blue is mostly associated with harmony, loyalty, trust, distance, eternity, imagination, coldness and sometimes sadness. In a poll done in Europe and US, half of both male and female participants chose blue as their favourite colour, making it the most popular colour (Heller, 2009).

Verghese (2001) states that blue is a tranquilizing, relaxing and comforting colour. Zelanski, Fisher (2003) claims that blue light waves affect thyroid glands and throat in a refreshing and calming way, and lower blood pressure. Deep blue reduces pain. Bluish green light, on the other hand, lessens infections, calms down nervous breakdown and regulates weaknesses in the immune system. Hepatitis seen in premature birth is also cured with exposure to blue light (Zelanski, Fisher, 2003).

Use in interior:
Blue is the colour that people are used to seeing around them quite frequently during the day; may be they are not aware of it but it is the most frequent colour. For people who associate blue with the eternity of the sky, its use in interior will give the impression of spaciousness in the place. As the association comes from the colour of sky, this effect can be created when used on the walls and ceiling, rather than floor covering.

When the psychological and physiological effects of blue are considered, it can be said that interior which is dominant in blue would give its user a much more calming and relaxing effect when compared to the colour of red. It is well-known that blue is considered a cold colour and as such, is associated with coldness. Likewise, the effect that it will give its user is that of coldness in. It is likely that the user will perceive the place as colder than it actually is.

ORANGE

Psychological and Physiological Effect

According to Chiazzari (1998) orange is related to joy, security, creativity, stimulation and activation. In a study conducted in Europe and US by Heller (2009), orange is mostly associated with entertainment, being extraordinary, extrovertness, warmth, fire, action, danger, taste-aroma and autumn. Seybert (2007) believes that orange implies happiness, and increases courage, attention and the amount of oxygen that reaches the brain.
Martel (1995) states that orange,which is the symbol of balanced power, intuition and pure happiness, spreads optimism. Zelanski, Fisher (2003) claims that orange light waves have a positive effect on the Solar plexus (the neural network in the abdominal cavity), the immune system, the lungs, the pancreas and the digestive system.

Use in interior:
As orange is the result of the combination of yellow and red, its effects in interior is also a combination of the two. Taking the stimulant influence of red and the optimism of yellow, it can be said that orange will create an atmosphere of curiosity and restlessness. Another feature similar to yellow is that it will make the place look brighter when used on the walls and ceiling. As with the colour red, when used in interior, orange will have the effect of stimulation. As a matter of fact, multivitamins used as stimulants are usually produced in orange.

PURPLE

Psychological and Physiological Effect

Pile (1997) believes that purple is the colour of sensitivity and artistic nature. While the light shades of the colour define magic and joy, dark shades represent nobility and mysteriousness. Violet stands for authority, chaos, death, dedication, and holly love (Martel, 1995). According to Chiazzari (1998), indigo and violet are related to spirituality, intuition, inspiration, deep thought and innocence. Heller (2009), in a study done in Europe and US, points out that the colour purple is mostly associated with kingdom, magic, mysteriousness and religion. Pink, on the other hand, is the colour of eroticism, charm, womanish behaviour and temptation.

Questionnaire results from Europe and US suggest that purple symbolizes arrogance, extravagancy and individualism. Furthermore, among the seven fatal sins, purple stands for arrogance (Heller, 2009). Moreover, purple is the colour that is unconventional, artificial and rarely found in nature. The first colour synthesized is purple as well. Zelanski, Fisher (2003) claim that indigo light waves fight against high fever and skin diseases. Violet light waves, impact the brain, purify and have a refreshing and disinfectant effect. It also regulates the metabolism and suppresses hunger.

Use in interior:
Purple is one of the oldest colours used in interior. According to the research done by Varichon (2000), somewhere between 1600 BC and 2500 BC, purple was used to draw human hand and animal figures with the help of hematite and manganese sticks in Pech Merle cave located in France, in an area called Midi-Pyrénées. This is one of the oldest known man-made interior design examples to change colour.

The use of dark shades of purple may lead to a depressive atmosphere. The use of light shades result in a womanish effect on the interior. This influence comes from the fact purple stands for the colour of flowers and woman attraction. When used in combination with black, it creates a cosmic effect. When used with white, the connotation is nobility.

BROWN

Psychological and Physiological Effect

According to Chiazzari (1998), brown is associated with physical and emotional satisfaction, earthiness, reclusion and narrow mindedness. Heller's study (2009) conducted with participants in Europe and US suggests that people relate brown mostly with modesty, rurality and poverty. According to the questionnaire results, brown is the least liked colour.

Use in interior:

Pile (1997) believes that brown has a more positive effect on home comfort. If combined with warm colour shades, it displays comfort. However, when used alone, it creates a depressive atmosphere.

In fact, people are used to seeing brown; it is the colour of earth, the colour of most tree trunks and mammals. Its different shades are commonly used in furniture and interior/exterior walls. In the use of brown, the determining factor is not the colour itself but the type of material that is chosen. The use of wood, which is a natural material, can create a warm atmosphere. However, if brown is used dominantly, it may have a detractive effect. Fast food restaurants are a good example for brown interior walls where customers are expected to eat quickly and leave rather than spend hours.

BLACK, WHITE AND GREY

Psychological and Physiological Effect

Rather than being a colour, black is the state of "lightlessness". Ladu (1989) claims that black symbolizes seriousness and prestige. Dark grey and blue are considered in a similar manner and may reflect similar features.
Chiazzari (1998) believes that black is associated with femininity and protection. The questionnaire results in Heller's study (2009) suggest that in Europe and US, black is mainly associated with mourning, end, secrecy, power, magic, violence, malice, and elegancy. Martel (1995) indicates that white is comprised of all existing colours. It is the symbol for unity and purity. Rather than being a colour, white is the state of being "the brightest". Chiazzari (1998) points out that white represents peace, innocence, loneliness and spaciousness.
Ladu (1989) states that white is the brightest shade and it symbolizes emptiness, simplicity, cleanliness and purity. Birren (1988) believes that grey, when used in its darker shades can be quite depressive; however when used in lighter shades and in combination with warm colours, it can form a convenient background. Chiazzari (1998) related grey with independence, separation, loneliness and self-criticism.

Use in interior:

When black is used on all walls and ceiling, it tends to create a depressing feeling because it is known to absorb all the light it receives. When used as floor covering, it may give the impression of depth.

White, on the other hand, when used both on walls and the ceiling, may make decrease the user's ability to perceive and lose the perception of depth. The reason why this colour is frequently used in mental hospitals is to prevent patients from subconsciously perceiving different things.

The use of grey may lead to an industrialized feeling in the interior. Grey, which is the colour of machines and devices in factories, may create a metallic atmosphere in place.

RESULT

Colour plays a vital role in the world of design, and because it is related to so many different places, it may influence human life enormously. Knowing the psychological effects of colours is a must to people working in various areas of design (interior architecture, graphic design, advertising).

Starting from birth up to the time of death, the concept of colour is evident in all phases of life; and as such the use and choice of colour is quite significant. It has great effects on the places people live in, the clothing they choose, the emotions they experience, their physiological well-being, interpersonal relationships and their state of happiness. Colours are an indispensable part of our lives; they create energy and affect us as long as we are alive. The colour choice of the individual determines whether the psychological, physiological and social effects will be positive or not.

If the aim is a more peaceful and calm state of mind, the appropriate colours to be chosen in homes and in clothes would be blue and green. However, if the tendency is towards energy, excitement and creativity, the correct colours are yellow, orange and red.

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Children's Agency. New Perspectives On Weekly Outdoor Days In German Primary Schools

Sarah SAHRAKHIZ
Educational Sciences
Johannes Gutenberg-University of Mainz
Germany
sasahrak@uni-mainz.de

Christian ARMBRÜSTER
Educational Sciences
Johannes Gutenberg-University of Mainz
Germany

Robert GRÄFE
Educational Sciences
Johannes Gutenberg-University of Mainz
Germany

Marius HARRING
Educational Sciences
Johannes Gutenberg-University of Mainz
Germany

Matthias D. WITTE
Educational Sciences
Johannes Gutenberg-University of Mainz
Germany

ABSTRACT

In recent years, concepts of curriculum-based learning outside the classroom are on the rise in primary school education. The present study examines the socio-material arrangement(s) of extracurricular learning spaces in the model project "Draußenschule" ["outdoor school"] in Germany from the perspective of children's agency. In an ethnographic approach, based on participant observations and group interviews with pupils, the article addresses the question of which agency outdoor school enables for children. Referring to approaches of practice theory as well as relational social theory, three social practices by pupils are elaborated, in which agency appears: 1) Practices of free play 2) Practices of establishing communities and 3) Practices of presenting oneself as expert and provider of knowledge. These practices reveal, that the children realize agency by appropriating, reproducing, transforming but also by redefining 'arrangements of meanings', which are particularly related to the materiality of outdoor school and their social embeddedness. The findings show agency as a promising approach for the analysis of educational arrangements, in which children are involved.

Keywords: Agency, Childhood, Outdoor School, Ethnography, Practice Theory, Materiality

INTRODUCTION

Primary school children realize agency in social and material relations, which are generally organized in institutionalised arrangements of classroom. Underlying ideas about curriculum-based learning outside the school building at primary school level have become more and more important in recent years (Ahrens, 2009; Waite, 2011; Fuhs & Brand, 2014; Erhorn & Schwier, 2016). These developments go along with changed arrangements of bodies, objects and spaces as well as with changes in children's agency in the context of school lessons. That is the starting point of this contribution, which discusses agency in the course of restructuring the educational setting in a German model project named "Draußenschule" ["outdoor school"]. The concept of outdoor school derives from the understanding of education as a holistic and interdisciplinary process. The teaching and learning outside the school building covers various subjects and happens once a week by making use of natural and cultural amenities in the immediate neighbourhood. The German University XXX accompanies the pilot project with help of an ethnographic approach. Participatory presence at three outdoor schools made it possible to gain insight into the children's 'social and material world' within this context. The article addresses the question of *which* agency outdoor school enables for children. Therefore, the study bases on field notes made on the spot, close descriptions of participant observation and written records of group interviews with pupils. Following David Oswell (2016, p. 25), "children's agency is less something that can be or needs to be asserted, as something to be explored". The current contribution explores agency within practices of children, resulting out of social and material relations in the outdoor school. After outlining the theoretical and methodological framework as well as elaborating the concept of agency, a close description of the educational setting of the extracurricular learning spaces follows. Subsequently, three key practices of children in outdoor school are elaborated, in which agency appears, followed by a conclusive discussion of the results.

THE STUDY

Considering children's agency in primary school lessons, two theoretical perspectives were chosen as leading approach: On the one hand, the empirical research was led by the central assumption of practice theory, conceiving practices as the "smallest units" (Reckwitz, 2003, p. 290) of social theory and analysis. In this comprehension, social practice can be understood as a routinized "nexus of doings and sayings" (Schatzki, 1996, p. 89), which are connected by implicit knowledge. Following these thoughts, children's agency in outdoor school must be searched in the social practices in which pupils participate. The idea of understanding agency as a feature and effect of practices (Bollig & Kelle, 2016, p. 39) leads – on the other hand – to the theoretical approach of relational social theory. According to this, agency is not to be seen as a pre-social, anthropological precondition of children or childhood, but rather as a capacity, that is generated and enabled in social relations, within a social network, where children and their practices are involved (Emirbayer & Mische, 1998). For a clearer understanding of what is meant by the term *agency*, the elaborations of Mustafa Emirbayer and Jeff Goodwin (1994) can give an appropriate definition: According to the authors, human agency is defined as "the capacity of socially embedded actors to appropriate, reproduce, and, potentially, to innovate upon received categories and conditions of action, in accordance with their personal and collective ideals, interests and commitments". Following the question, *which* agency is enabled in outdoor school, it is – moreover – helpful to refer to a further assumption of practice theory, saying practices are both embedded in material artefacts and objects and performed in socio-material arrangements (Bollig & Kelle, 2016, p. 38 f.). Paying regard to that and observing the martial structure of outdoor school, such as arrangements of bodies, objects and spaces as well as social practices of dealing with(in) them, children's agency gets tangible. For the analysis, an ethnographic approach was chosen. Agency in social practices of children in outdoor school were reconstructed based on observation protocols and interview transcripts. The study was designed in a way, that over a period of two years, the researchers visited weekly outdoor days at three primary school classes once a month. In addition, group interviews with all 51 children of the three outdoor schools were conducted at three points in time: 1.) September 2014, shortly after implementing the outdoor school practice, 2.) July 2015, after one year and 3.) July 2016, after two years of practice. The following analysis refer to the group interviews at the first two points in time as well as to one year of participant observation. The interview-groups included four to five pupils. At the beginning of the studies, the pupils were at the outset of second grade (age 7 to 8), at the finish, they reached the end of third grade in primary school (age 8 to 9). Outdoor days took place in the closer social and natural environment, like forests or parks respectively museums or factories. The classroom provided both starting and endpoint. The outdoor school lasted one school day. The teacher, who was sometimes supported by external experts, provided the daily structure. Characteristic for outdoor school lessons was an alternation of *class time* and *free time* where children were allowed to choose their activities on their own. By analysing the socio-material setting of outdoor school, three types of children's practices could be reconstructed, in which agency appears: 1.) Practices of free play, 2.) Practices of establishing communities and 3.) Practices of presenting oneself as expert and provider of knowledge.

FINDINGS

Practices of Free Play

The observation of outdoor days show, that free play activities, initiated and kept up by the children themselves, play a vital role in the outside. By taking a closer look, two main aspects of these practices are to identify, in which children's agency becomes obvious. The first one is to be seen in the creative circumventions of control and disciplining settings of school, which show in the practices of so-called "hidden games". To take a closer look at this type of game, one may refer to a sequence from a group interview with pupils from an outdoor class:

> *Kent: "Secretly we always play Star Wars [...] with the sticks. We are not allowed to do that. We always do that secretly."*
> *Fabian: "Then, then we mostly take the sticks as pistols and then tschtschs ((shooting sounds))."*

As the assertion of Kent makes evident, the children know about the rule, not to play with sticks during outdoor school, while still doing it regularly – in a secret way. This practice is connected through the implicit pupils' knowledge of the socio-material arrangement of outdoor space and the possibilities to act, which goes along with one another. To clarify that, another explication of Kent and Fabian out of the same group interview also regarding their Star-Wars-Game can be added:

> *Kent: "In outdoor school, Mrs Schmidt is hardly ever looking behind herself. We can always play secretly."*
> *Interviewer: "I see, and in the classroom?"*
> *Fabian: "There she catches everybody, every time."*

Following the explanation, in the outdoors pupils feel to have more opportunities to act (freely) at extracurricular learning places, because of the less structured arrangement of bodies and line of visions. On the contrary the classroom is (and can be) more controlled by the teacher. Looking at the arrangements of bodies and line of visions in the classroom as well as in the outdoors, it becomes clear:

Fig. 1: Arrangement of bodies and line of visions in classroom lessons.

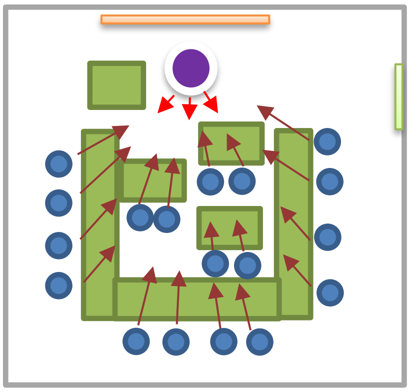
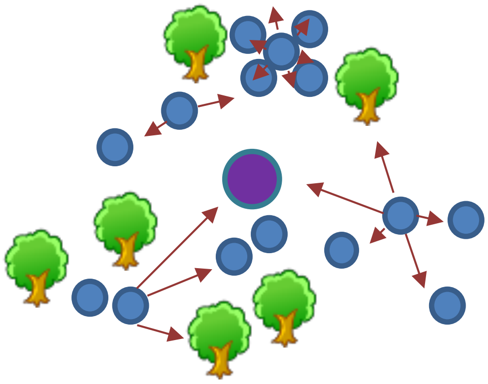


Figure 1 shows a typical arrangement of bodies and line of visions in the classroom, as also observed all the three schools. Bodies and views of pupils and the teacher are arranged along straight lined axes. Every child sits on a chair behind a desk. The teacher stands in front of the class, looking towards the pupils from an elevated position. While the line of visions [Fig. 1: pictured as arrows] of the pupils mostly face the teacher and the blackboard, the teacher's view faces the pupils. Through the elevated position the teacher can oversee the whole class. This arrangement of bodies and views is bound by a bunch of institutionalized rules about permitted and forbidden behaviours in the classroom, like not talking with classmates during lessons, staying on one's seat, raising one's hand, if one would like to contribute, not leaving the classroom without a solid reason and so on. In this arrangement of rules, bodies and of course objects in the classroom, a specific control and disciplining setting of classes become apparent. Every deviation by moving the body, changing the view or raising one's voice is easily recognized and may be sanctioned by the teacher. The possibilities to act in class – as a pupil participating in lesson as well as a peer with one another besides the teachers' instruction – are highly shaped by this arrangement.

Fig. 2: Arrangement of bodies and line of visions in lessons at an
extracurricular learning place (here: the forest).



As shown in *Figure 2,* in contrast to the classroom, the bodies of pupils and the teacher at a typical setting in outdoor school are not intentionally arranged along straight lines and there are partly big distances between them. From observance protocols is known, that most pupils are standing and moving within a certain range. They are able to turn their bodies as well as their views in any direction. So is the teacher. In many cases, she cannot oversee the whole class at the same time. While the bodily arrangement in the classroom can be characterized as 'rigid', the arrangement at an extracurricular learning place can be distinguished as 'dynamic'. The ensemble of rules in outdoor lessons is also a specific one. For example, talking to classmates in a moderate loudness, moving within the closer environment, getting in touch or cooperating with classmates are allowed ways of acting and don't have to be justified by the pupils. Instead, it is, for example, forbidden to harm animals or plants, to go alone deeper into the forest, to move beyond hearing distance or – at *School B* – to involve sticks in the games.

Within this modified socio-material setting in the outdoors, the pupils realize new forms of practices, which concern also how to deal with rules and proscriptions. The practice of so-called 'hidden games' can be seen as a paramount example. Using their standing and moveable bodies as well as the 'forbidden' objects of sticks and avoiding the teacher's view, the children create and keep up role games at the 'backstage' of lessons (Zinnecker, 1987), where they address themselves as peers and game partners. By referring to a precisely explored knowledge about a changed arrangement of bodies and views – which is condensed in the assertion, that *"the teacher is hardly ever looking behind herself"* – the children develop adequate forms of practices, which allow them to circumvent the control and disciplining setting of lessons and follow their interests. As seen above, these practices are also supported by a compendium of rules, which encourage interactive engagement at the extracurricular learning places.

By taking a closer look at the quoted objects, a second aspect of free playing practices in outdoor school can be elaborated. One should know that the children have a great variety of free playing games on weekly outdoor days, such as various forms of symbolic games and games with rules. A role game, like playing Star Wars as expressed before, can serve as an appropriate example for a typical free play activity. Within the Star-Wars-Game, which is inspired by the same-named film series, the children use objects of the outdoor space – namely the sticks – 'transform' them into guns and swords by saying, *"I have the red double-bladed lightsabre now"*, and perform symbolic actions like shooting and beating within the context of an incessant battle between good and evil in the vastness of space. Besides the vast extent of the forest and the arrangement of bodies in this setting, it is especially the quality of the objects, which enables these practices. While most objects and their arrangements in the classroom suggest defined usages, many objects at extra-curricular learning places, like the forest, offer a greater variety of potential uses and meanings. This difference can be explained with the help of Bruno Latour's (1994) term of *artefact*, which denotes objects that are intentionally created by human beings for a certain usage. Within networks, certain calls of action ("scripts") are implemented into these artefacts through a process of translation. For their part, the artefacts again require specific actions, which the users recall in dealing with these objects (Latour, 1994). When looking at the material arrangement inside the classroom, it becomes obvious that this setting prepares a composition of artefacts. However, this does not apply equally for arrangements of objects at extracurricular learning places like the forest, which – usually – are neither constructed by human beings nor intentionally constructed for a certain usage. Of course, also objects in the natural environment, like trees and sticks, have been culturally appropriated by humans within different contexts; took and take part in various practices. But in the context of school in the outdoors, these objects offer a heterogeneous variety of potential uses and meanings to all participating actors. Consequently, they often have to be appropriated self-acting and situation-related. Free playing activities like the role-play are popular ways for pupils to do so and to give own significances to objects in outdoor school (Hörning, 1999, p. 90 f.). These processes may also contrast to the teacher's intention to establish an educational field. Objects might be supposed to be seen different, as learning objects, while the pupils appropriate this space as a playing field with their peers. In this sense, the secret 'battles' that the children perform in a symbolic game by using the 'forbidden objects' of sticks, can also be interpreted as a 'battle' over the arrangement of meanings at the backstage of outdoor lessons. So children's agency in practices of free play appears also in the collective appropriation of the outdoor space.

Practices of Establishing Communities

A second type of social practices in outdoor school, where agency shows, can be seen in the various forms of children *establishing communities.* There are for example social practices, which can be called 'doing difference' (West & Fenstermarker, 1995), referring in particular to creation of gender differences between boys and girls. The participant observations show, that the children's activities often take place in gender homogenous groups. Sometimes it is the teachers, who arranges these group compositions: Sports competitions of 'boys against girls' are one example observed in the outdoor school. But also in situations, when the children are conceded to

explore the outdoor space on their own, they often choose same-gender groups. When making this a subject in a group interview, Emma explained regarding her classmates: *"They hate girls and we hate boys."* In this statement, a certain perception about gender relation between boys and girls is proclaimed, which is then elaborated later in this group interview, when Lilli explains the differences between boys and girls: *"They [the boys] are much meaner than us, the girls"*. Given reasons for that are, that the boys in their class – unlike the girls – are intentionally pushing, disturbing and bugging other pupils. While the boys are drawn as active and more aggressive beings, the girls appear in their own descriptions as more passive, reserved and kind. These differences are also linked to playing practices, as Isak, a boy in this class, explains. According to him, girls play 'girls' games', like *"Barbie or princess"*, while boys play 'boys' games, like *"cars, soccer, boxing*".
With this nexus of doings and sayings, the children draw boundaries by addressing themselves as boys or girls and name distinctions to reinforce this differentiation referring to practices of playing or behaviour patterns. All of this goes along with (self) permitted and proscribed forms of arranging contact to the other group: While annoying and pushing are widely accepted practices for the boys in contact with the girls, they have to fear being derided by their male group, if they act across the boundaries and play with the girls. Besides the teasing, certain catching games for example in the context of being in love – mostly girls catching boys –, are recognized practices of interactions between boys and girls in the outdoor school context. In the sense of Barrie Thorne (1993) the interactive work at the boundaries of gender and, with that, the construction of gender differences by the children, can be defined as *borderwork*. Children's agency appears here in reproducing as well as in redefining differences in community-based practices. Although adults – like teachers – are not immediately involved in these occurrences, they are relevant actors in the network of outdoor school, bringing in their own beliefs and stereotypes about gender related activities, which again are picked up and reinterpreted, reproduced, modified and redefined by the children within their 'borderwork' (see also Esser, 2015, p 45 f.).

Above the establishment of gender-orientated communities, children's agency becomes also apparent in the practice of using the body of pupils as a collective, which provides competent support in difficult situations in the outdoors. A situation, where a classmate in outdoor school suddenly runs away can serve as an example here. The girl Amelie describes:

> *"Once we were at this huge tower and then Klara ran away. That was really bad. Look, we said, we have to get to Klara, before she runs onto the street and then, look, she jaywalks the street, there, where a garbage truck stood. Imagine! And then we caught her, really, we sat her down on a bench, Isak held her in place."*

In this situation the pupils realize, how one of their classmates puts herself in danger, by running away from the group towards a busy street. Instead of letting the teacher solve the problem on her own, the pupils feel responsible and take it upon them to run after the girl and catch her. A tall boy, who is rather labelled an outsider in class, because of his often rude behaviour, uses his strength to secure and hold the girl, until the teacher arrives.

By this example, it becomes particularly apparent, how children's agency is not just enabled, but also rather demanded by the socio-material arrangement of outdoor school. Unlike the classroom, the visited places in the outdoors are often not prepared for lessons with primary school children and also provide potential dangers through more freely arrangements of bodies and objects. In addition to that, the teacher cannot always prevent these dangers in outdoor space. Knowing that, the pupils are encouraged to pay particular attention as well as to cope with unexpected situations. Children's agency in this case is seen in quickly mobilizing the body of pupils as a collective, which provides a competent support in a difficult situation as well as using particular qualities of single pupils to solve the problem. A central point in this consideration is the fact that the pupils do not act in this way through external instructions. Instead, children's agency is produced in the creation and participation in the quoted practices, which refer to an implicit knowledge of the socio-material arrangement of the extracurricular learning places. Vice versa "silent knowledge" (Hengst, 2009, p. 64) about the space(s) of outdoor school is appropriated through participating these social practices.

Practices of Presenting Oneself as Experts and Providers of Knowledge

The case of children acting as competent supporters in difficult situations in outdoor school leads to the third type of practices: children presenting themselves as *experts and providers of knowledge*. This takes place in didactic arrangements, when the teacher asks about phenomenons in outdoor space and children are able to bring in their knowledge about these subjects as in the following sequence from a participant observation.

> *Mrs Schreiner gets on to the rabbit. She asks the children, if they know where rabbits sleep. After the other pupils ventured guesses, Olivia explains that rabbits sleep in holes in the ground and protect*

> *themselves from natural enemies there. To the question, how she does know all of that, she answers, that she is spending much time with her family outdoors.*

The example shows, the teacher asks a question, which brings to light knowledge, that is not gained in the school context. Most pupils answer with long-shot guesses, which points to the fact, that this has not been a subject in class. Still, the girl Olivia can answer the question by referring to knowledge acquired in her lifeworld – in the family context, where she often spends time outside. Besides family, also media shows to be an important source of knowledge for the children. In various group interviews, children mention educational channels on TV as source of their knowledge about nature-relevant topics, e.g. plants or animals. Through the practice of presenting themselves as experts by referring to an often exclusive knowledge gained in the own lifeworld, children like Olivia generate social recognition at the 'frontstage' of classes, where they are mainly addressed as pupils and graded by their performance (Zinnecker, 1987, p. 34 ff.).

Moreover, these practices can be found also in periods, when pupils have time for free explorations. The following sequence was observed when a class visited a children's library in outdoor school:

> *Jessica runs with a book, titled "How boys and girls are ticking", to Gregor and wants him to come with her to the ‚reading place'. She says: "Come Gregor, I will now explain to you, how you will become a girl".*

The pupil Jessica considers the material arrangement of the children's library, which provides several retreat areas with tables, chairs, couches, carpets and bookshelves, as an appropriate setting to impart knowledge to her classmate. With help of a book found in the library, she presents herself as an expert for "how to become a girl". Obviously, she ascribes a lack of knowledge to Gregor considering this subject and inviting him to the "reading place" filling there the gab. The book serves as a didactic medium, which supports the knowledge transfer. Concerning the content, she can rely on her knowledge gained out of the book (before) and certainly also rely on lifeworld knowledge about being a girl. Moreover, Jessica can draw on an existing knowledge about shaping educational settings with help of didactic materials from her own experiences in school. By taking up these bodies of knowledge, the girl uses the open space, in which all pupils are allowed to move freely and rummage in books, to create an educational setting, where she can present herself as an expert and competent provider of knowledge in the peer-context. Again it appears that – besides the social framing of lessons in the library by the teacher – the material arrangement of the library plays a vital role in the execution of social reality. With Bernd Hackl (2015, p. 145 f.) one could say that the library serves as an 'arrangement of meanings', which communicates with the users, appeals to them or provokes them, enables certain mental and physical actions or obstructs them and by that essentially affects children's agency.

CONCLUSION

The study examined the socio-material arrangement of extracurricular learning places in outdoor school under the theoretical perspective of agency. Of particular interest was the relation between the materiality of outdoor school and children's agency in this context. The analysis focused on the arrangements of bodies, objects and spaces – taking into account that this has to be an analytic differentiation – and their relevance for children's agency. Especially the confrontation of lessons at extracurricular learning places and lessons in the classroom, changes in material and, with this, social arrangements could be elaborated. Concerning the above-quoted categories, it can be revealed, that the analysed arrangements of bodies in outdoor school can be described as dynamic and mostly in motion, while the arrangement of bodies in the classroom, intentionally arranged along straight lined axes, follows a rigid order. The objects in the classroom – like schoolbooks, pencils, blackboard etc. – suggest defined usages; many objects at extracurricular learning places, like sticks and stones, allow various and heterogeneous meanings and potential usages to the children. The space of classroom in general, with bodies sitting shoulder to shoulder at shared tables, surrounded by walls, is characterized by narrowness and allows less liberty of action than the more spacious outdoor spaces. Considering that any arrangement of materiality has inscribed calls to action (Latour, 1994), the elaborated practices of children in outdoor school show, children's agency particularly appears in dealing with these calls to action by non-human as well as human actors. Both, reproduction and transformation of 'arrangements of meanings' (Hackl, 2015, p. 145) were shown a central aspect of children's agency in the outdoors. Children's agency shows furthermore in practices, where pupils give significance to objects by using them in a certain way, embed them in temporal and spatial structures and allocate a position and a meaning to them within a whole complex of actions (Hörning, 1999, p. 90 f). By doing so, the pupils sometimes act against the intentions and attributions of (inscribed) meanings or against allowed ways of acting. This reveals the creative potential, which appears in the agency of children. Likewise, the elaborated practices make it obvious, that the children's capacity to reproduce, transform and redefine "arrangements of meanings" in outdoor school does not exist irrespectively of the material

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Children's Bilingualism And Language Delay: A Literature Review

Georgios MOUTSINAS
Hellenic Ministry of Education, Research and Religious Affairs
One-teacher Primary School of Agrafa of Evrytania, Greece
giorgio7_cool@hotmail.com

ABSTRACT

This paper aimed to examine the development of language acquisition mechanisms in bilingual preschoolers and primary school-aged students by reviewing the thirty two (32) most recent (2000-2015) relevant empirical studies conducted at European and international level. Regardless of student age, bilingualism's multiple beneficial impact on children's language development as well as the awareness of the concurrently acquired lingual systems have been observed. Moreover, bilingual children's linguistic and lexical deployment does not substantially fall short of the respective of monolingual. In conclusion, bilingual settings by majority do not burden children's language acquisition, underpinning corresponding educational programs.

INTRODUCTION

Firstly, language delay is defined as the evolutionary failure of linguistic skills timely acquisition in the typical developmental timeframe, also compared to peer rates (Wallace et al., 2015). It is diagnosed in 1 out of 20 up to in 1 out of 5 children in the general population, being of accordingly graded severity and owing to various causes, e.g. autism, physical disabilities such as partially separated palate, psychological disorders or emotional difficulties. However, in two-thirds of the cases its exact causes are unknown, even in typically developing children (Kohnert, Yim, Nett, Kan, & Duran, 2005). Secondly, in regard to bilingual language acquisition, one the one hand the "bilingual paradox" of the seemingly effortless way of learning two or more languages exists, provided with early exposure to different linguistic settings. One the other hand, this subjection is sometimes treated with the suspicion of causing language delay, under the risk of bilingual children's insufficiency in both languages, in comparison to monolingual (Byers-Heinlein, 2014).

Thus, the discussion concerning the characteristics of bilingual language acquisition constitutes a timely topic of international interest, being a composition of two lingual systems (Meisel, 2007). In that context, the constant comparison of a bilingual child's linguistic competence with the respective of a monolingual is mainly directed by the "deficit hypothesis", leading to an ascertainment of language delay and to the creation of perceptions as to negative effects on individual development (Hoff et al., 2012). Nonetheless, bilinguals' abilities comprise linguistic, grammatical, semantic, pragmatic and phonological elements and of a second lingual code. Ergo, under the "theory of particularity", their range should be broader than the ones of monolinguals' (Genesee & Nicoladis, 2006). Still, differences occur between these linguistic competences, with reference to their level and to their field of development; hence, it is considered advisable that research on bilingualism overcomes their collation (Bialystok, 2007). In this manner, Bialystok (2001) and Paradis (2008) suggest bilingual children's linguistic competency to be evaluated focusing on their overall communicative capacity rather than on the developmental level of specific linguistic abilities in each language. Therefore, the aim of this study is to examine the development of language acquisition mechanisms in bilingual preschoolers and primary school-aged students.

RESEARCH METHODOLOGY

A literature research was conducted through the following databases: ERIC, MEDLINE, PsycARTICLES, PsychINFO, SocINDEX, Elsevier, Wiley, Taylor and Francis, and Springer. The key search terms were "children's bilingualism" and "language delay", focusing on studies published between 2000 and August 2015. The research yielded over 100 relevant research studies. Thus, the following criteria were applied to narrow down the search:

1. Studies were conducted with bilingual preschoolers and / or primary school-aged students in educational environments of corresponding level.
2. Studies comprised empirical and measurable data.

In total, 32 research studies matched the abovementioned selection criteria. These studies were then grouped and analyzed for the individual parameters related to the participants' language acquisition mechanisms.

RESULTS

In principle, despite their small number, recent brain scanning studies confirm the typical development of children early exposed to bilingual settings (Flores & Barbosa, 2014; Hulk & Müller, 2000). To continue, early bilingualism's or trilingualism's / multilingualism's cognitive advantages are indicated; notably, participants demonstrate mental astuteness (Brohy, 2001) and increased linguistic and metalinguistic skills, along with improved performance on tests requiring attentional focus (Hulk & Müller, 2000). Likewise, they exhibit high awareness of the learned languages' phonological units (Andreou, 2007), as well as enhanced communicative strategies and memorization techniques (Griessler, 2001). What's more, researchers advocating the "consolidated lingual system hypothesis" argue that children exposed to two languages begin distinguishing them from the age of 3, whereas a prolonged / delayed language development until the given distinction is implied, passing through a phase of substantial monolingualism (Horwitz et al., 2003; Petitto & Holokwa, 2002). On the contrary, research in favor of the "differentiated language system hypothesis" asserts that bilingual children from the age of 2 form rudimentary two-three word sentences using elements from both languages. More specifically, the existence of translational equivalents at 25-30% supports the partial awareness of the simultaneous acquisition of two explicit lingual codes and of the correspondence of every pair of words to the same semantic concept (Austin, 2009; Keshavarz & Ingram, 2002).

Withal, it is presumed that the said combination is positively influenced by sociolinguistic and environmental factors (Gutierrez-Clellen, Simon-Cereijido, & Wagner, 2008; Rothweiler, Chilla, & Clahsen 2012), in conjunction with the participants' stages of language development and age progress (Genesee & Nicoladis, 2006; Scheele, Leseman, & Mayo, 2010). With respect to the latter, the same timespan applicable to monolingual children (i. e. one-word phase at the age of 7-12 months, two-words and fifty-words phases at the age of 1-2 and 2-3 years and / or several months after, respectively) has been observed in bilingual (Holowka, Brosseau-Lapré, & Petitto, 2002; Keshavarz & Ingram, 2002; Petitto et al., 2001). In general, they both produce the same vocabulary (Armon-Lotem, 2010; Glennen, 2002); thereon, scientific attention is drawn to the investigation of bilingual infants' concurrently modulated vocabulary at one-word level (Nayeb, Wallby, Westerlund, Salameh, & Sarkadi, 2015). In that regard, it is deemed that bilingual children apply the case "the fewer the better" for a longer time period than monolingual, facing greater identification and word retrieval challenges for naming (Fennell, Byers-Heinlein, & Werker, 2007; Polκa & Sundara, 2003). Besides, a bilinguals' speed drawback is noted, since they make more use of the language considered first and dominant (Gollan, Montoya, Fennema-Notestine, & Morris, 2005).

Another issue is the determination of the language where the early, "neutral" produced linguistic types belong, by reason of bilingual infants' phonological immaturity; their presence conceals both languages' comprehensive knowledge (Hoff et al., 2012; Kohnert et al., 2005; Nicoladis, 2006). In fact, Holowka et al. (2002) and Petitto et al. (2001) found that bilingual toddlers learning both sign and spoken language at the same time distinguished them from their first lexical productions, not forming two distinct phonological systems in the same oral cavity. In like manner, Petitto and Holokwa (2002) inferred the ostensible perception of language delay that "neutral" linguistic types create, not induced by an inherent linguistic confusion because of the early exposure to bilingual settings. Yet, taking into account the similarities noted between monolingual and bilingual children, it is argued that both first acquire the word (and meaning) concepts of their personal interest, subsequently classifying them identically in the different languages (Gatt, Grech, & Dodd, 2013; Marchman, Fernald, & Hurtado, 2010).

Notwithstanding, it is often speculated that the elimination of any additional requirements (e.g. emotional stress) will alleviate bilingual children's cognitive load (Paradis, 2008; Thordardottir, Cloutier, Ménard, Pelland-Blais, & Rvachew, 2015). Howbeit, where applicable, the reported abrupt school or family linguistic change (Paradis, Crago, Genesee, & Rice, 2003) together with the maintenance or the discontinuance of a bilingual teaching method (Gibson, Peña, & Bedore, 2014; Glennen, 2002) mostly have no effect on language delay. Instead, further student disorientation as well as cognitive and emotional difficulties and disorders of a "double semilingualism" have been observed (Helot & Young, 2002; Mueller Gathercole, 2007).

CONCLUSIONS

Having expressed reservations relating to the probability of bilingual children's delayed linguistic skills acquisition, this review aimed to examine the development of language acquisition mechanisms in bilingual preschoolers and primary school-aged students. Irrespective of student age, bilingualism's multiple beneficial influence on language development is deduced. As a result, bilingual educational programs' ultimate goal ought to be the early exposure to corresponding intercultural environments, with children gaining fuller proficiency in both languages and being subject to significant sociocultural and educational effects. Indeed, using a variety of research sources and taking into consideration both languages of the learners, despite their smaller long-term exposure to each second language, it is verified that bilingual and monolingual children are of consistent development in terms of vocabulary increase rate and of morphosyntactic deployment, with a majoritarian lead of the first language. Nevertheless, the occasionally observed dissimilarities lie in the vocabulary size, being attributed to the frequency and to the context of the exposure to both lingual systems, as well as to their similar characteristics. Thusly, additional research is needed in order to understand the particular determinants contributing to the successful simultaneous learning of two languages from a young age. To conclude with, individualized interventional programs should be developed and documented by research, promoting multiply and systematically bilingual children's linguistic proficiency.

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"Cinema And Therapies". Employing Movies To Improve Basic Skills In Pharmacy Students

Juan TOLOSA
School of Pharmacy
University of Castilla La-Mancha, Spain
Juan.Tolosa@uclm.es

Carlos ALONSO-MORENO
School of Pharmacy
University of Castilla La-Mancha, Spain
carlos.amoreno@uclm.es

Antonio Juan BARBERO
School of Pharmacy
University of Castilla La-Mancha, Spain
antonio.barbero@uclm.es

María del Mar ARROYO-JIMÉNEZ
School of Pharmacy
University of Castilla La-Mancha, Spain
mariamar.arroyo@uclm.es

ABSTRACT

The aim of the 'Cinema and Therapies' project in the Faculty of Pharmacy of the University of Castilla-La Mancha is to complete the acquisition of some of the Key Skills Qualifications (KSQs) the students learn in the degree, such as the reinforcement of a second language, the use of information and communication technology (ICT), their improvement of oral and written communication or the understanding of the ethical compromise of their profession through the employment of movies. In this paper we would like to report the results obtained from this film series and sum up the benefits that students can obtain from it.

INTRODUCTION

The degree in Pharmacy of the University of Castilla-La Mancha is included in the branch of Health Sciences and its main objective is to train specialists in all aspects of drugs and medicines, in accordance with European Directives relating to the pharmacology profession. It requires five years of full time study, and there are two semesters per year. The first two years are foundation years in which students study anatomy, biology, chemistry, basic pharmaceutical science and are introduced to pharmacy. The remaining three years are devoted to higher levels of biomedical and pharmaceutical sciences, together with specialized clinical pharmacy studies. During the fourth and fifth year, considerable time is spent in clinical placements in community and hospital pharmacies, where valuable practical experience is gained.

Key Skills Qualifications (KSQs) are capabilities not specifically included in any modules of the degree but in all of them. They are fundamental for each individual in a knowledge-based society. As the European Union claims "they are particularly necessary for personal fulfilment and development, social inclusion, active citizenship and employment (…) They guarantee more flexibility in the labour force, allowing it to adapt more quickly to constant changes in an increasingly interconnected world". They include good communication in the mother tongue and in foreign languages; correct application of knowledge and methodologies that explain the natural world; cultural awareness; leadership; sense of initiative and entrepreneurship; complete understanding of the ethic and deontological compromise of each profession and employment of information society technology (IST) with skills in ICT.

In order to expand educational opportunities for students throughout their degree, different programs are being currently conducted by the school of Pharmacy of Albacete (Alonso, C. 2013) (Tolosa, J. 2014). In this context, "Cinema and Therapies" program was conceived to improve acquisition of KSQs in the degree of Pharmacy. It started on 2015 and it is conceived to be biannual.

The interdisciplinary nature of the degree of Pharmacy makes that virtually any film in the field of science or science fiction present, directly or indirectly, some aspect that will deepen in one of the subjects of the degree. Therefore, a film series can introduce future elements to new students or remember important concepts already acquired to students in the final years of the degree while they complete their formation.

THE STUDY

The program is open to all students and takes place on September and October, before the first exams take place in order not to compromise the study time. It consists in four sessions, one conference to introduce the program and three movie projections (*GATTACA*, *Dallas Buyers Club* and *Requiem for a Dream* in this first edition) in original version with Spanish subtitles. After each screening, students engage the program through oral presentations or by their participation in a debate. 59 students covering every course of the degree participated in the program this year and their tasks were assigned randomly.

- Bioethics in *GATTACA*. 20 students conducted a debate after the screening of the film about whether or not society should manipulate offspring genetics if science allows it. Regardless of their personal opinion, a third of the students enrolled in the program defended one position (YES or NO) before opening the debate to the rest of the students.

- Contextualization of HIV treatment in *Dallas Buyers Club*. 20 students prepared oral presentations about four of the drugs mentioned in the film -AZT, zalcitabine, peptide-T and Interferon-alpha- showing their mechanism of action, side effects and current use to confront reality and the fictional approach of the film.

- Drug abuse and addiction in *Requiem for a Dream*. The last 19 students prepared oral presentations about the four drugs the plot of the film talks about: heroin, cocaine, amphetamines and benzodiazepines. Their mechanism of action and their short- and long-term side effects (many of them reflected in the film) were discussed.

FINDINGS

After the program, in the evaluation stage, survey forms were the chosen tool to confirm the success of this project and the perception of students about the acquisition of five KSQs: reinforce of the use of a second language (item 1); improvement of the knowledge of ICT (item 2); perfection of write and oral communication (item 3); understanding the ethical and deontological compromise of pharmacists (item 4); and development of useful abilities for future studies (item 5). The results are summarized in figure 1. Independently of their type of participation, all students completed the same survey.

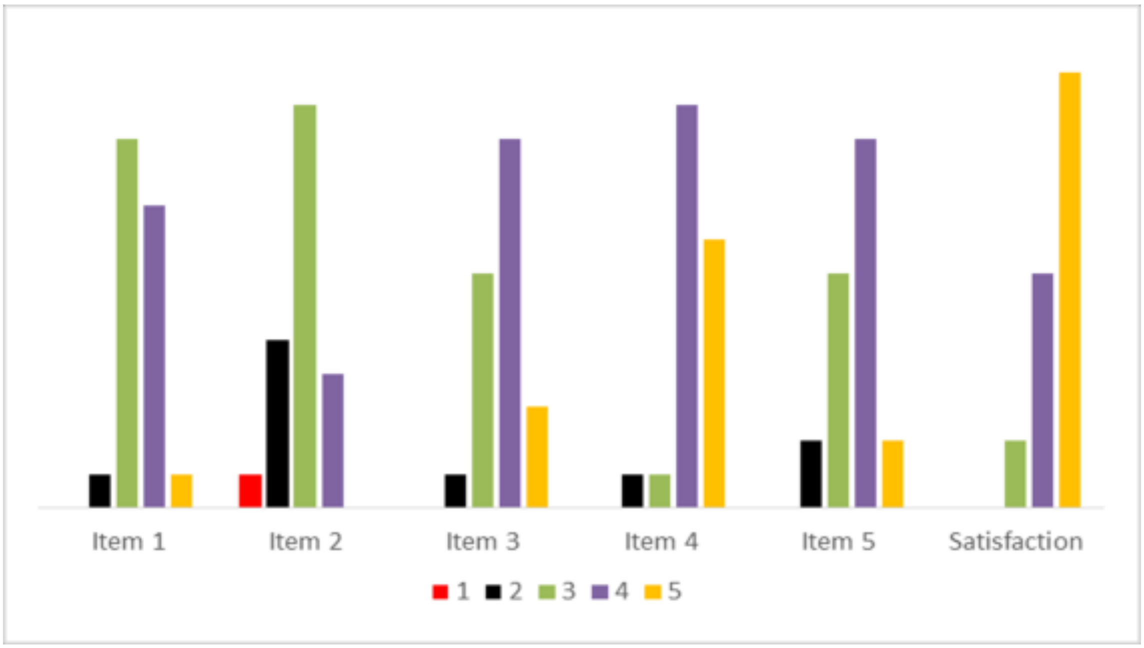

Figure 1. Survey completed after the program by students about the skills acquired during the program. They ranged their opinion from 1 (they do not believe the skill was worked at all) to 5 (they believe that the skill was strongly worked in the program). A similar range was collected about the usefulness of the program (satisfaction)

Students consider that they have worked well or very well 4 of the 5 competences studied. The best results in terms of skills acquisition were obtained for item 4, with an average above 4. The plot of the three films (genetic control, social economic aspects in the pharmaceutical industry and consequences of drug abuse) seems to provide students a clear understanding of the ethical side of their future profession.

Items 3 and 5 also get average values above 3.5, which implies a proper job on the skills associated with the preparation for future studies such as a Ph.D. or the perfecting of oral and written communication, expressed both in the debates and in the presentations that students had to prepare.

Item 1 shows an average above 3. Students think that watching the movies in original version with Spanish subtitles was enough to work on their knowledge of English; but improvement in this aspect of the program seem necessary.

Finally, item 2 in the only one that shows an average value below 3, indicating a low employment of ICTs during the program.

CONCLUSIONS

The results obtained and the high degree of satisfaction expressed by students (figure 1) ensures the continuity of "Cinema and Therapies" as a program to reinforce the acquisition of KSQs in the degree of Pharmacy. However, some improvements should be implemented, especially to increase the use of ICT and to have a greater presence of foreign language content within the program.

Since they are accustom to work with scientific literature along their degree, most of our students already have a significant level of English, so that showing movies in original version subtitled in English instead of Spanish should be considered in future editions of the program.

The presence of science in general and pharmacy in particular in the cultural baggage of the Spanish society is sometimes too low compared to the humanities. It could be therefore appropriate to employ this program as speaker in the implementation of scientific knowledge in society. In this informative task, we will extend the program beyond the university. Students could use the film series as a perfect starting point to generate discussions about many interesting aspects of science, and also to clarify concepts that may be obscure to the average citizen. We will try to make students themselves be the face of the program, reserving a secondary role to teachers as pure articulators. Regarding the use of ICT, students, for instance, can publish press releases and appear in media, working as well other important aspects linked to KSQs as entrepreneurship or teamwork.

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Civility Levels Of The Teaching Staff Of The Faculty Of Education

Rüştü YEŞİL
Ahi Evran University Educational Faculty
Kırşehir, Turkey
ryesil40@gmail.com

ABSTRACT

The objective of this study is to determine the civility levels of the teaching staff of the faculty of education, who are the role models of future teachers. The study is a quantitative study carried out in the survey model. The research group consists of 758 students it total, 256 of whom are male, and 502 are female. Arithmetic mean, t-test, Pearson's correlation test, ANOVA test and Scheffe's tests were used in the analysis of the data. As a result of the analysis, it was determined that the civility levels of the teaching staff are generally good; female students appreciate the teaching staff more, and the civility levels of the teaching staff of the Department of Pre-School Teaching are more problematic.

Keywords: Civilising, teaching staff, faculty of education, civility level.

INTRODUCTION

One of the important concepts that have come to the agenda in parallel to the democratization of the society is civilising (Balkaya, 2015; Aytekin, 2013; İğci, 2008). Democratization or civilising point to a culture (Keyman, 2015; Şirin, 2009; Tutar, Tutar and Erkan, 2012). At the same time, enculturation or acculturation are education problems (Demirel and Kaya, 2012; Gahramanova, 2012). It can be said that schools rank at the top of the institutions that are responsible for the acculturation of the individuals or society.

Variables such as students, teachers, management and legislation make up the main components of schools. The interaction between these components makes up the school culture (Demirel and Kaya, 2012; Balkaya, 2015). While school culture is shaped by its components, on the one hand, it shapes the identity and personality of the people in the environment (Yeşil, 2002; Gahramanova, 2012; Richardson, Tolson, Huang and Lee, 2009).

It can be said that teachers are the most effective component of the school on the acculturation of the students (Komalasari, 2009; Kumral, 2009). Teachers are individuals who shape the cognitive, emotional and behavioural properties of the students, sometimes with the information they transmit, sometimes with the attitudes and behaviours they exhibit, and sometimes with their authority to shape the education process (Kumral, 2009; Revell and Arthur, 2007; Lockwood, 1997). All science people accept that the words, attitudes, and behaviours of the teachers shape the personality of the student (Komalasari, 2009; Gahramanova, 2012; Richardson et al., 2009; Nucci et al, 2005).

Faculties of education have undertaken an important task in the acculturation of the new generation as institutions raising teachers (URL1; Gahramanova, 2012; Nucci et al., 2005; Kumral, 2009). Teachers shape both their and the society's culture by means of sharing their education processes with the new generation. The teaching staff of education faculties that have a part in extending the civil culture to the society have a more important role with their function of raising future teachers (Kumral, 2009; Gahramanova, 2012; Revell and Arthur, 2007; Nucci et all, 2005). In other words, it can be said that the teaching staff have an important effect on the civilising of the society as they will shape the new generation by being role models to pre-service teachers.

The main problem of this study is to determine the civility levels of the teaching staff working at the faculties of education. Thus, it is believed that the correct determinations related to positive or negative situations that can be encountered in regard to the civilising levels of future societies can be made.

Sub-problems of the study

The sub-problems of the study can be listed as follows:

1. What is the civility level of the teaching staff of the department according to the students?
2. Are the civility levels of the teaching staff at different dimensions related?
3. Do the civility levels of the teaching staff vary by their department, gender, place of residence and the type of high school they graduated from?

Objective of the Study

The objective of this study is to determine the civility levels of the teaching staff working at the faculty of education. Thus, it was aimed to determine the problems that can negatively affect the transfer of civil culture to the society with the help of future teachers in terms of the attitudes and behaviours of the teachings staff, and achieve the scientific data that can constitute the basis of making the necessary interventions.

METHOD

Research Model

The research is a descriptive and quantitative study performed in the survey model. The civility levels of the teaching staff were assessed by describing them by using a scale by the students (pre-service teachers) of the faculty of education in terms of different variables.

Study Universe and Sample

The study universe of the research consists of 1726 students in total, who study at the third and fourth grades of eight different departments/programs of Ahi Evran University, Faculty of Education. These departments are Classroom Teaching (CT), Turkish Teacher (TT), Psychological Counseling and Guidance (PCG), Computer Education and Instructional Technology (CEIT), Math Teacher (MT), Science Teacher (ST), Social Science Teacher (SST) and Pre-school Teacher (PST). The sample of the study consists of 758 students. 256 of the students in the sample group are male, while 502 are female.

Data Collection Tools

The data of the study were collected using two tools as the "Personal Information Form" and the "Scale for Determining the Civility Levels of Individuals (SDCLI)" developed by the researcher. The Personal Information Form consists of four questions which aim to collect information on the personal features of the students and are the independent variables of the research. SDCLI is a five-item Likert-type valid and reliable scale, which is gathered under 4 factors and includes 27 items so as to be used in the assessments on the validity levels of the teaching staff. The factor names were determined as Openness to Criticism/Development (O-C/D; 14 items), Participatoriness/Activeness (P-A; 8 items) and Unprejudicedness/Flexibility (U-F; 5 items). The grading is as "(1) Never", "(2) Rarely", "(3) Sometimes", "(4) Most of the time" and "(5) Always". The amount of explaining the variance by the scale is 45,840%, and the Cronbach's alpha reliability coefficient is 0,938. These values show that the scale is a valid and reliable scale (Büyüköztürk, 2012).

Analysis of the Data

The data collected were analysed using the main arithmetic mean, standard deviation, independent sample t-test, Pearson's correlation test, one-way variance analysis (ANOVA) and Scheffe's tests. The level of p<,05 was deemed as sufficient for significance in difference and relationship tests.

FINDINGS

The findings obtained as a result of the study are summarized below in tables, and short explanations are made.

1. The level of the teaching staff to have civil individual properties

Table 1. The level of the teaching staff to have civil individual properties

	N	$\overline{X}$	Sd
O-C/D	720	3,54	,89
P-A	726	3,73	,78
U-F	740	3,71	,88
SDCLI	686	3,68	,77

In Table 1, it is seen that the civility levels of the teaching staff by factors vary between $\overline{X}$=3,54 and 3,73. The general civility levels are $\overline{X}$=3,68 (high). While the civility levels of the teaching staff are better in terms of P-A factor when compared to others; it is at a more insufficient level when compared to O-C/D factor.

2. Relationship between the civility levels of the teaching staff at different dimensions

Table 2. Relationship status between the civility levels of the teaching staff at different dimensions

		O-C/D	P-A	U-F	SDCLI
O-C/D	r	1	,799(**)	,704(**)	,924(**)
P-A	r		1	,669(**)	,905(**)
U-F	r			1	,877(**)

N: 718; **: p<,01

In Table 2, it is seen that there are significant and positive relations between the civility levels of the teaching staff according to the sub-factors of the scale and the scale in general.

3.1. Differentiation of student assessments on the civility levels of the teaching staff by department

Table 3. Differentiation of student assessments on the civility levels of the teaching staff by department

	Depart.	N	$\bar{X}$	Sd		K T	df	KO	F	p	Sch.
O-C/D	(1)CT	92	3,68	,92							
	(2)TT	98	3,27	1,19							
	(3)PCG	84	3,75	,62							
	(4)CEIT	86	3,74	,44	Between groups	37,933	7	5,419	7,111	,000	2-6 3-7 4-7 6-8
	(5)MT	102	3,59	,71	Within groups	542,613	712	,762			
	(6)ST	92	3,78	,58	Total	580,546	719				
	(7)SST	90	3,23	1,20							
	(8)PST	76	3,23	,92							
P-A	(1)CT	90	3,99	,74							
	(2)TT	102	3,66	,95							
	(3)PCG	92	3,95	,60							
	(4)CEIT	86	3,81	,48	Between groups	22,581	7	3,226	5,424	,000	1-7 1-8 3-7 3-8
	(5)MT	104	3,75	,66	Within groups	427,026	718	,595			
	(6)ST	90	3,68	,65	Total	449,607	725				
	(7)SST	94	3,51	1,10							
	(8)PST	68	3,42	,70							
U-F	(1)CT	94	3,84	,99							
	(2)TT	98	3,75	,93							
	(3)PCG	94	3,94	,72							
	(4)CEIT	86	3,70	,71	Between groups	21,529	7	3,076	4,052	,000	1-7 3-7
	(5)MT	110	3,74	,88	Within groups	555,610	732	,759			
	(6)ST	82	3,65	,71	Total	577,138	739				
	(7)SST	100	3,34	1,10							
	(8)PST	76	3,63	,71							
SDCLI	(1)CT	88	3,89	,76							
	(2)TT	96	3,56	,94							
	(3)PCG	82	3,94	,54							
	(4)CEIT	86	3,75	,43	Between groups	23,354	7	3,336	5,888	,000	1-7 1-8 3-7 3-8
	(5)MT	100	3,71	,70	Within groups	384,148	678	,567			
	(6)ST	78	3,70	,62	Total	407,501	685				
	(7)SST	88	3,38	1,06							
	(8)PST	68	3,42	,68							

As is seen in Table 3, the civility levels of the teaching staff by department significantly vary in terms of all factors (p<,01). As a result of the Scheffe's test carried out in order to determine the reason of the differentiations, it was found that the differentiation in O-CD results from the differentiation between the civility levels of the teaching staff of ST and TT and PST departments and the teaching staff of SST and PCG and CEIT departments; the differentiation in P-A factor results from the differentiation between the civility levels of the teaching staff of CT and SST and PST departments, and teaching staff of PCG and SST and PST departments; the differentiation in U-F factor results from the differentiation between the civility levels of the teaching staff of

SST and CT and PCG departments; and the differentiation in SDLCI in general results from the differentiation between the civility levels of the teaching staff of PCG and SST and PST departments.

In the O-CD factor, the civility levels of the teaching staff of PST and TT department are significantly lower than the teaching staff at the department of SST; while the civility levels of the teaching staff of the department of PST are significantly lower than the teaching staff of PCG and CEIT departments. In the P-A factor, the civility levels of the teaching staff of SST and PST departments are significantly lower than the teaching staff of CT and PCG departments. In the U-F factor, the civility levels of the teaching staff of SST department are lower than the teaching staff of CT and PCG departments. When it comes to SDCLI as a whole, the civility levels of the teaching staff of SST and PST are significantly lower than the civility levels of CT and PCG departments. Accordingly, it can be said that the civility levels of the teaching staff of SS and PST departments are less adequate when compared to the civility levels of the departments of PCG and CEIT.

3.2. The state of differentiation of the level of the teaching staff to have civil individual properties by gender

Table 4. The state of differentiation of the assessments made on the civility levels of the teaching staff by the gender of pre-service teachers

	Gender	**n**	$\overline{X}$	**Sd**	**Levene**		**t**	**df**	**p**
					F	**p**			
O-C/D	Male	242	3,48	,87	,572	,450	1,250	718	,212
	Female	478	3,57	,90					
P-A	Male	248	3,55	,83	2,932	,087	4,548	724	,000
	Female	478	3,82	,74					
U-F	Male	244	3,50	,92	2,917	,088	4,529	738	,000
	Female	496	3,81	,84					
SDCLI	Male	226	3,52	,80	1,283	,258	3,857	684	,000
	Female	460	3,76	,74					

In Table 4, it is seen that the assessments made on the civility levels of the teaching staff are between $\overline{X}$= 3,48 and 3,55 for male students and $\overline{X}$=3,57 and 3,82 for female students. There is a significant difference between the assessments of female and male students to the advantage of female students in terms of all factors apart from the O-CD factor and in terms of SDCLI (p<,01). Male students consider the civility levels of the teaching staff in terms of all factors and the overall scale as more inadequate.

3.3. The state of differentiation of the assessments on the teaching staff of the students by their places of residence

Table 5. The state of differentiation of the assessments on the teaching staff of the students by their places of residence

	Place of residence	n	$\overline{X}$	Sd		K T	df	KO	F	p	Sch.
O-C/D	(1)Student house	242	3,62	,87							
	(2)Dormitory	282	3,42	,96	Between groups	7,066	3	2,355	2,941	,032	1-2 3-2 4-2
	(3)Family	106	3,63	,78	Within groups	573,480	716	,801			
	(4)Apart house	90	3,61	,83	Total	580,546	719				
P-A	(1)Student house	248	3,72	,75							
	(2)Dormitory	284	3,71	,83	Between groups	2,776	3	,925	1,495	,215	
	(3)Family	108	3,70	,78	Within groups	446,831	722	,619			
	(4)Apart house	86	3,90	,67	Total	449,607	725				
U-F	(1)Student house	246	3,69	,87							
	(2)Dormitory	286	3,63	,95	Between groups	5,157	3	1,719	2,212	,085	
	(3)Family	110	3,78	,84	Within groups	571,982	736	,777			
	(4)Apart house	98	3,88	,70	Total	577,138	739				
SDCLI	(1)Student house	224	3,70	,75							
	(2)Dormitory	272	3,59	,82	Between groups	4,705	3	1,568	2,655	,048	2-4
	(3)Family	106	3,70	,76	Within groups	402,797	682	,591			
	(4)Apart house	84	3,85	,61	Total	407,501	685				

As is seen in Table 5, the assessments made by the students on the civility levels of the teaching staff by their places of residence significantly differ in terms of the O-CD factor and SDCLI in general (p<,05), while there is no differentiation in other factors (p>,05). As a result of the Scheffe's test carried out in order to determine the source of this differentiation, it was determined that students' opinions differ in the O-CD factor between the students who stay in student dormitories and in other places. Students staying in dormitories find teaching staff more inadequate in terms of their civility levels. In SDCLI in general, it was determined that this differentiation exists between the students staying in student dormitories and in apart houses. Students staying in dormitories assessed the teaching staff as less adequate.

3.4. The state of differentiation of the assessments on the civility level of the teaching staff by the types of high school from which the students graduated

Table 6. The state of differentiation of the assessments on the civility level of the teaching staff by the types of high school from which the students graduated

	Graduated high school	n	$\bar{X}$	Sd		K T	df	KO	F	p	Sch.
O-C/D	(1)General High School	346	3,48	1,00	Between groups	5,696	3	1,899	2,353	,071	
	(2)Vocational High School	116	3,58	,72	Within groups	574,529	712	,807			
	(3)Anatolian High School	252	3,61	,80	Total	580,225	715				
P-A	(1)General High School	356	3,69	,87	Between groups	6,479	3	2,160	3,499	,015	
	(2)Vocational High School	112	3,67	,64	Within groups	443,104	718	,617			1-3 2-3
	(3)Anatolian High School	252	3,82	,70	Total	449,582	721				
U-F	(1)General High School	350	3,64	,93	Between groups	9,889	3	3,296	4,257	,005	
	(2)Vocational High School	118	3,65	,74	Within groups	566,874	732	,774			1-3 2-3
	(3)Anatolian High School	266	3,82	,85	Total	576,763	735				
SDCLI	(1)General High School	326	3,63	,85	Between groups	6,842	3	2,281	3,861	,009	
	(2)Vocational High School	112	3,64	,61	Within groups	400,470	678	,591			1-3 2-3
	(3)Anatolian High School	242	3,77	,70	Total	407,312	681				

As is seen in Table 6, the assessments made by the students on the civility levels of the teaching staff by the type of high school they graduated from do not differ in the O-CD factor (p>,05), it differs significantly in the P-A and U-F factors and in overall (p<,05). As a result of the Scheffe's test, it was determined that these differentiations resulted from the difference between the assessments of the students graduated from Anatolian High School and General High School and Vocational High School. The students who are graduated from Anatolian High School appreciate the civility levels of the teaching staff more when compared to others.

CONCLUSIONS

The results obtained as a result of the study are discussed as follows.

1. The civility levels of the teaching staff are generally high. It can be said that this will contribute to the teaching staff being a right role model and the students' learning of the civil culture by living it (Yeşil, 2002; Kumral, 2009; Revell and Arthur, 2007; Nucci et al, 2005). Indeed, Gahramanova (2012) states that the university education process and the process of creating value in the minds of young people are overlapping, and this period is quite important in students' developing a cultural personality. For, according to her, the period when the personality is shaped and becomes stable is between 18 and 20 years of age.

Nevertheless, teaching staff are more problematic in terms of being open to criticism and development. This can be interpreted as the teaching staff act more antidemocratically in the practices that require students to act critically. The desire of the teaching staff to dominate the teaching process and their concern of finishing the subjects, and on the other hand, the tendency of university students to declare opinions in certain discourses may have led the teaching staff to preventing this.

On the other hand, the weaknesses of people, who must have an academic personality like teaching staff, of being closed to criticism and development are an important deficit. For, one of the most evident properties of the academic personality is to criticise and be open to criticism and development (Ortaş, 2004). According to Erdem (2012), criticism and critical thinking are among the main properties that science and science people must have. Ortaş (2004) defines universities as "environments that ensure the recognisability of the incidents by seeing and discussing by prioritizing the reason over emotion in a philosophical discussion environment." Accordingly, it should be indicated that it is important that the teaching staff who are also science people at the same time (URL 1) are open to criticisms and development in order to be role models for both themselves and their students. Teaching staff can be suggested giving more place to practices that will contribute to the dominance of the criticism culture in a civil and democratic attitude.

2. The civility levels of the teaching staff at different dimensions are positively and significantly correlated. Accordingly, it can be said that there is integrity between the dimensions of civility that are multi-directionally correlated (Demirel and Kaya, 2012; Komalasari, 2009; Yeşil, 2002). This is consistent with the assertion that different dimensions of culture are interrelated (Richardson et al, 2009; Lockwood, 1997; Balkaya, 2015). It can be interpreted as civilising of the teaching staff in one dimension more will contribute to their becoming more civil in other dimensions, as well.

3. In general, the civility levels of the teaching staff of SST and PST departments, which can be deemed to have social content, are more problematic. At the same time, the civility levels of the teaching staff in PCG and SST departments with a higher content of equally weighted and science/mathematics lessons are better. The teaching staff of the department of PCG are especially in a better situation. That the teaching staff of the department of PCG are more competent in knowing individuals such as psychology and counselling may have led to such a result. Upon examining the PCG professional definition in the literature of the lesson content in the curriculum of the department of PCG, that communication competencies and the use of individual recognition techniques have a particular importance attracts the attention (Kuzgun, 2014; Yeşilyaprak, 2016). Kumral (2009) states that the teaching staff that are not deemed to be adequate in terms of their communication competencies are regarded as poor and criticised by the students. There are also studies showing that the students from the department of PCG are evidently better in terms of their communication competencies (Dilekman, Başcı and Berktaş, 2008; Karataş, 2012). Accordingly, it can be suggested to include lessons on communication and student recognition in the curriculum of each department.

4. There is a significant difference between the assessments of female and male students in terms of all factors apart from the O-CD factor and in terms of SDCLI. Female students appreciate the civility levels of the teaching staff more. The positions of female and male students within the traditional social structure may have led to such a difference. As is known, in the traditional Turkish society, the movement area of girls is more limited when compared to boys. Girls are under the close control both by their families and other adults in the society (Günay and Bener, 2011; Ersöz, 2010). This perception of being under control and supervision among girls may have led to their perceiving the university environment and the attitudes and behaviours of the teaching staff as more flexible and libertarian when compared to men. Furthermore, there are also research findings in their assessments that females are more tolerated when compared to males. Çoban, Karaman and Doğan (2010) have shown that females approach differences in a more tolerated manner.

On the other hand, that teaching staff behaved differently towards female and male students may also have led to assessment differences. Teaching staff may be treating female students in a more flexible and understanding way. It can be said that this is not a right attitude as it means gender differentiation in communication. Although legal regulations also show that positive discrimination towards girls will be made/should be made (Ersöz, 2010; Günay and Bener, 2011; Soysal, 2010); there is a segment of the society that criticises this attitude (Dedeoğlu, 2009; Soysal, 2010). In the study carried out by Asan (2010), it was determined that both the teachers and the texts and pictures in course books include gender discrimination. Dedeoğlu (2009) states that the positive discrimination towards females, especially in work life, fosters the gender discrimination perception in the society. This detracts many females from work life. According to him, there is a tendency in the West to eliminate gender discrimination.

5. The assessments made by the students on the civility levels of the teaching staff by their places of residence significantly differ in terms of the O-CD factor and overall SDCLI. Students staying in student dormitories find teaching staff more inadequate in terms of their civility levels. This may be a consequence that students staying in student dormitories fail to have the opportunity to act freely and express their emotions they find in student dormitory environment in the classroom environment. Student dormitories are more flexible and free when compared to classroom environments both in terms of time and restrictive rules. Teaching staff in classrooms are more restrictive as classrooms are purposeful and planned environments. This may have led to their assessing the teaching staff stricter and prim. On the other hand, as of the traditional structure, family environments are both warmer and sincerer and are also places where especially the authority of the father is felt (Günay and Bergen, 2011; Ersöz, 2010; Yeşil, 2002). This brings about the fact that students can act within certain limits in their families while they can act more freely in apartment house environments.

6. The assessments made by the students on the civility levels of the teaching by the type of high school they graduated from significantly differed in terms of the P-A and U-F factors and overall SDCLI. Students who have graduated from Anatolian High School appreciate the civility levels of the teaching staff more when compared to others. Students from Anatolian High Schools, where the education and teaching conditions are more disciplined and teaching-oriented, may have assessed the environment at education faculties and the behaviours of the teaching staff as more civil. Indeed, Anatolian High Schools are schools that focus on university exams and where educational discipline is more dominant. Nevertheless, the atmosphere is more flexible in vocational high schools and general high schools. Students can act more arbitrarily. This may have caused the students from this type of high schools to assess the atmosphere at the faculty of education more disciplined and strict (Berberoğlu and Kalender, 2005).

Together with all these, another important reason for the differentiation in the assessments made on the civility levels of the teaching staff may be the differences in the civility perceptions of the students. While civility, a concept of the Western origin, dates back to very old times, its expression in Turkey is quite new (İğci, 2008; Aytekin, 2013; Keyman, 2015; Jonaski, 1998). Although it occupies the agenda of the politicians, jurists, educators, etc. much in recent years, is researched much, and the effect power of the non-governmental organizations increases in Turkey and around the world day-by-day (Karakuş, 2006; Young, 1999; İğci, 2008; Balkaya, 2015), it can be said that it cannot be built on a right basis both in terms of its theoretical reflections and its reflections on political and social life. Multi-dimensional discussions on what civilisation is still take place especially in Turkey (İğci, 2008; Aytekin, 2013; Balkaya, 2015; Karakuş, 2006). As a result of wrong meanings and meaning giving, while some people consider civilising as the basis of chaos and complication, others consider it as an efficient way out for the country and society to develop (İğci, 2008; Young, 1999; Cohen and Arato, 1992; Jonaski, 1998). For this reason, it can be said that more studies on civilising should be carried out in Turkey. It can be said that the scientific studies on what to do in order to determine the perception of civility among individuals, introduce content that fits our culture, and extending this correct perception to the whole society, should be prioritised.

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Classification Of Expenses In Income Statement: Is There Any Difference Between Nature And Function From The Students' Point Of View?

David PROCHÁZKA
Department of Financial Accounting and Auditing
University of Economics, Prague
The Czech Republic
prochazd@vse.cz

ABSTRACT

Financial statements serve as an important tool of informing investors and other users about the financial position and performance of companies. The decision-usefulness of information indicating a particular company's performance is dependent, inter alia, on the classification of expenses presented in the operating section of the income statement. Using a sample of 216 students enrolled into a university course "Introduction to Accounting", a regression model contains a weak form of evidence (significant at 10%) for the difference in the results of a midterm test, checking for the students' knowledge of both methods (classification by nature and classification by function). The students solving an example, requiring the classification of expenses by their function, perform slightly better (by 2.5%) than their colleagues, unravelling the same example with the classification of expenses by their nature. The finding has inferences for the education as well as the practices. A weaker comprehension of accounting procedures relating to the classification of expenses by their nature in accounting courses, if not removed by practical experience, can result in material errors contained in the financial statements of real companies and thus to mislead the users. On the other hand, regression model indicates that students are able to learn from past mistakes, as failure in the course in a previous semester increases the test score by 7% (significant at 1%).

INTRODUCTION

The preparation of financial statements is the final phase of an accounting cycle and it is a crucial task of accountants in delivering information useful to investors and other users in their economic decision-making. When designing the content and format of financial reports, a company has to decide, which classification to use for the disaggregation of operating expenses. According to the International Accounting Standard 1 (IAS 1.99), an entity shall present the expenses using a classification based on either their nature or their function within the entity. The choice is not discretional, as the entity shall select the classification providing its users with information that is reliable and more relevant. Furthermore, an entity classifying expenses by function shall disclose additional information on the nature of expenses (IAS1.104). For these reasons, a professional accountant needs to master both approaches so that financial statements meet the informational requirements of users. Both classifications have certain advantages and disadvantages for the users' point of view. The distinct information potential is mirrored in the phase of regular bookkeeping as well as in the phase of preparation of financial statements, as different accounting techniques shall be applied to ensure matching of revenue with expenses. Naturally, this feature of transaction recording and financial statements preparation has an impact on accounting education and selection of suitable teaching methods. Accounting courses shall be organised so that students obtain the knowledge and competence needed for practical mastering of both systems, including awareness of the errors, which may occur during recording and/or finalisation phase.

The goal of this paper is to investigate, whether there is any difference between students' ability to prepare an income statement, which presents the expenses according to their function, compared to students' ability to prepare an income statement with the classification of expenses based on their nature. To answer the research question, the paper examines the results of the second midterm test in the "Introduction to Accounting" course taken by the students of the Faculty of Finance and Accounting at the University of Economics, Prague. As the classification by nature does not guarantee automatic matching of revenue with expenses (the matching requires accounting for the change in inventory), better results are expected for the students solving the variant of the test requiring the classification by function.

The rest of the paper is structured as follows. The introduction is ensued by the review of relevant literature, which serves as a basis to refine the paper's goal by developing the research hypotheses. Third section describes the research design and presents its main results. Final section concludes.

LITERATURE REVIEW

The students' performance in any type of subject and on any level of education is one of the major issues in education research. There are several factors explaining the variance in success rates across different groups of students, such as self-efficacy, intrinsic motivation, self-regulation, and social support (Spitzer, 2000). The relative impact of each variable appears to be cross-sectional and/or time heterogeneous (Marginson & Rhoades, 2002); and studies on similar aspects of education process produce frequently distinct results. Mixed findings are also evidenced by the research of students' performance in accounting courses. (Bouillon & Doran, 1990) identify the association of having experience with accounting from the high school with the students' results in the introduction course to accounting at the university level. The same conclusion is demonstrated by (Lynn, Shehata, & White, 1994) and (van Rensburg, Penn, & Haiden, 1998). However, the high school experience with accounting does not influence (Bouillon & Doran, 1990), or even degrades (van Rensburg et al., 1998) the performance of university students in advanced courses on accounting.

Similarly mixed conclusions are also available for the student-endogenous factors. General ability to learn is the only variable confirmed across studies as being one of the crucial determinants of success rate (Bouillon & Doran, 1990), (Lynn et al., 1994), (Tho, 1994), (Jackling & Anderson, 1998). (Naser & Peel, 1998) stress that the intelligence predisposition needs to be accompanied with an active student's effort to pass successfully an accounting course. Regarding personal characteristics, (Gul & Cheong Fong, 1993) find evidence of the variance in performance depending on a personality type, but (Oswick & Barber, 1998) challenge this view by showing that personality traits are not associated with the performance in accounting. From recent research, (Tan & Laswad, 2015) attribute the learning style mastered by a student as being a factor affecting the results. Similarly divergent outcomes of research are present in the case of the importance of language proficiency, if accounting is taught in foreign language (Gul & Cheong Fong, 1993), (Jackling & Anderson, 1998). From commonly applied variables, gender seems to exhibit similar patters across studies, which evidence its neutral impact on likelihood of passing an accounting course.

Alongside with the determinants of performance, research in accounting education focuses on the specifics of different teaching methods, for example the case studies (Boyce, Williams, Kelly, & Yee, 2001), (Weil, Oyelere, Yeoh, & Firer, 2001), (Hassall & Milne, 2004), the computer business games (Marriott, 2004) and other problem-based teaching methods (Milne & McConnell, 2001). Different assessment methods are a matter of interest as well. The advantages and disadvantages of multiple choice tests in accounting education are originally addressed by (Collier & Mehrens, 1985) or recently by (Einig, 2013). (Mohrweis, 1991) assesses the utilisation of writing assignments. Finally, (Tinkelman, Venuti, & Schain, 2013) investigate the impact of changes in the weights assigned to various tasks in course assessments on the ultimate course grades. Despite a great range of studies on accounting education is elaborated (Apostolou, Dorminey, Hassell, & Rebele, 2015), there is no piece of work addressing the students' ability to master a selected part of a particular course syllabus (e.g. preparation of balance sheet, double entry, accounting for intangibles, etc.). The paper fills in this gap by providing the evidence on students' partial performance in the area of the preparation of income statement, focusing on the classification of operating expense by nature or by function.

Based on the literature review, following hypotheses about the students' performance in the midterm test on classification of expenses are proposed:

- H1: There is no difference in mastering accounting procedures relevant for the classification of expenses by function compared to the classification of expenses by nature.
- H2: There is no difference in the performance of students having the accounting specialisation as their major and "non-accounting" students.
- H3: There is no difference in the success rate of students according to their gender.
- H4: There is no difference in the success rate of students according to the year of their study.
- H5: There is no difference in the success rate of students according to their age.
- H6: There is no difference in the success rate of students according to their nationality.
- H7: There is no difference in the success rate of students enrolling the course for the first time compared to the students repeating the course.

RESEARCH DESIGN, DATA, AND RESULTS

Based on the literature review, the hypotheses will be assessed with the following regression model.

$$Points = \beta_0 + \beta_1 Test + \beta_2 Major + \beta_3 Gender + \beta_3 Age + \beta_4 Year + \beta_5 Average + \beta_6 Language + \beta_7 Attempted + \varepsilon$$

Table 1: Description of variables

Variable	**Description**	**Values**	**Expected direction on "Points"**
Points	The percentage result of the midterm test	0-100%	xxx
Test	The type of test according to the required classification of expense	Function Nature	Students solving the variant "Function" should have better result
Major	Major specialisation of the student	ACC (accounting) BAN (banking) EDU (economic education) FIN (finance) TAX (taxation)	Indecisive
Gender	The gender of a student	M (male) F (female)	No difference
Age	The age of a student, when taking the course	Young (less 22 years) Mature (22 years and older)	The higher age, the better result
Year	The year, in which a student takes the course	Integer ranging from 1 to 4	The higher year, the better result
Average	Weighted average score for other subjects already taken by a student	Continuous variable: ranging from 1 (the best score) to 4 (the worst score-failure)	The better average, the better result
Language	Proxy for mother language	CZE (if a student is of Czech or Slovak nationality) nonCZE (otherwise)	Native speakers should perform better
Attempted	Indicates, whether a student was enrolled in the course already in previous semester	No (first attempt) Yes (failure in previous semesters)	Indecisive

(Bouillon & Doran, 1990) indicate that a student's study programme can determine the outcome of the test, as students having accounting as a major specialisation perform better than those, who selected other fields of study. However, in case of this sample, students are quite homogeneous, as all are students of the Faculty of Finance and Accounting and their majors are closely related. The expected direction of the "Major" variable is therefore unpredictable. Referring to previous research (Tho, 1994), (Jackling & Anderson, 1998), the variable "Sex" is not supposed to produce different results. (McKenzie & Gow, 2004) present a positive correlation of age and performance, as the older student benefits from self-reported learning styles. The model captures two approximation measures of learning capacities – "Age" and "Year" (indicating the number of years, a student has already been studying at the university). General capability to learn is the major determinant of performance (Guney, 2009), (Jackling & Anderson, 1998), (Naser & Peel, 1998). This factor is expressed by the variable "Average", measuring score from other courses taken during the study. As one third of students in the sample are not of Czech nationality, the model also controls the language proficiency. Despite previous evidence is inconclusive (Gul & Cheong Fong, 1993), (Jackling & Anderson, 1998), the natural expectation is that Czech students shall perform better, as they do not face to language barriers. (Bouillon & Doran, 1990), (Lynn et al., 1994), (van Rensburg et al., 1998) identify the positive impact of experience with accounting at a high school on the performance of students in the introductory course on accounting at universities. The model approximates this kind of experience by controlling for the failure of students in the same course in previous semesters. However, the expected direction on dependent variable is not clear.

The model will be tested using data on the second midterm test in the course "Introduction to Accounting", which is a compulsory subject for all bachelor students at the University of Economics, Prague. Its assessment is composed of two individual midterm tests (15% of total assessment), semestral group case study (15%), activity during the semester (10%), and final test (60%). The test on classification of expenses is written in the middle of a 13-week semester and it includes following tasks: the opening of the balances (6% of the total score), the recording of 10 transactions requiring either functional classification of expenses or classification by nature, including the measurement of inventory (64%), and the preparation of balance sheet and income statement (30%). To get a homogeneous sample, only students of the Faculty of Finance and Accounting are examined. The students of this faculty are expected to work in the related fields and shall thus have greater incentives and predispositions to perform better than students from other faculties. To avoid the influence of external factors (such as different teaching styles of different teachers; different tests; etc.), the sample consists only students enrolled with the same teacher.

The final sample contains 216 students of the same tutor writing the same midterm test. Figure 1 shows the frequency distribution of the students' percentage performance in the midterm test. The distribution is skewed to the right, i.e. the majority of students reach or are close to reach the ideal 100% mark. Table 2 sketches the descriptive statistics of dependent and independent variables, including their univariate tests measuring the potential variation in the response variable "Points" depending on different levels of a particular explanatory variable. The Mann–Whitney U test is used for the testing of difference in means for all independent variables except for the group variable "Major", where The Kruskal–Wallis test is applied.

Figure 1: Frequency distribution of the mid-term test assessment

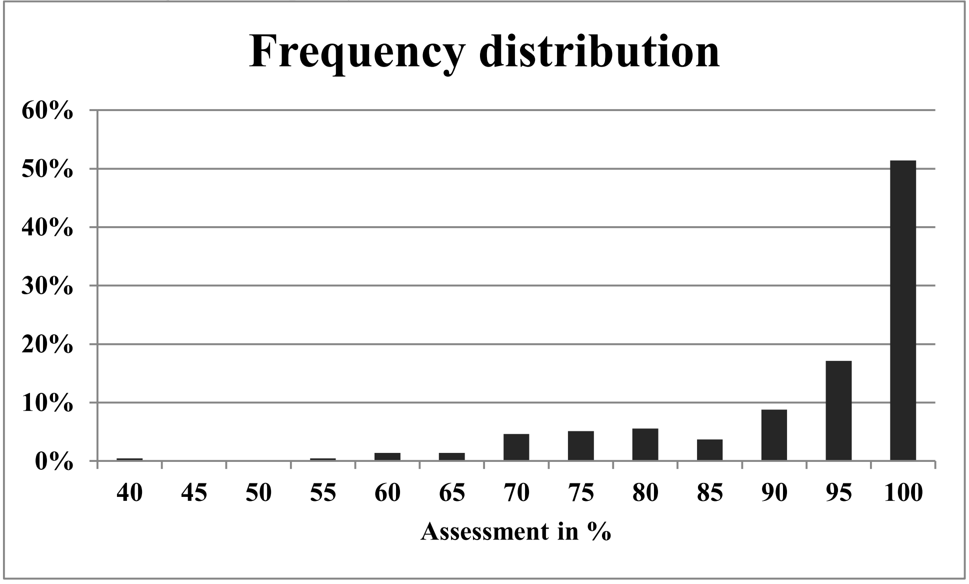

Table 2: Descriptive statistics and univariate tests

Variable	Value	Count	Min	Median	Max	Mean	St. Dev.	Univariate tests
Points	xxx	216	44.00	96.00	100.00	90.68	11.36	xxx
Test	Function	109	53.00	96.00	100.00	91.82	11.21	W = 6542
	Nature	107	44.00	94.00	100.00	89.51	11.45	p = 0.119
Major	ACC	60	57.00	97.00	100.00	91.70	11.11	KW = 8.5594
	BAN	42	44.00	93.50	100.00	86.83	14.13	p = 0.036**
	EDU	3	72.00	88.00	100.00	86.67	14.50	
	FIN	84	56.00	96.00	100.00	92.36	9.74	
	TAX	27	65.00	93.00	100.00	89.59	10.75	
Gender	Female	138	53.00	96.00	100.00	91.05	11.00	W = 5626
	Male	78	44.00	96.00	100.00	90.01	12.10	p = 0.578
Age	Young	194	44.00	96.00	100.00	90.74	11.49	W = 1963.5
	Mature	22	67.00	94.50	100.00	90.09	10.38	p = 0.537
Year	1	59	53.00	96.00	100.00	90.64	11.57	W = 4686#
	2	153	44.00	95.00	100.00	90.51	11.41	p = 0.665
	3	2	96.00	97.00	98.00	97.00	1.41	
	4	2	98.00	98.00	98.00	98.00	0.00	
Average	xxx	216	1.160	2.405	3.390	2.357	0.467	W = 46656 p = 0.000*
Language	Czech	167	44.00	96.00	100.00	90.65	11.50	W = 4321.5
	Foreign	49	53.00	93.00	100.00	90.76	11.00	p = 0.547
Attempted	No	192	44.00	96.00	100.00	90.53	11.42	W = 2229.5
	Yes	24	58.00	96.50	100.00	91.83	11.70	p = 0.796

* 1% significance; ** 5% significance

\# The Mann–Whitney U test id applied only for the pair "Year 1 vs. Year 2"

Finally, regression analysis is run to detect significant determinants of students' performance holding other effects fixed. As the distribution of the test's results is heavily skewed to the right (see Figure 1), a generalised linear model (GLM) with gamma distribution is used for the estimation of parameters. GLM is preferable over OLS, if the error distribution does not conform to normal distribution. Furthermore, the model controls for the heteroscedasticity.

Table 3: GLM Regression

Dependent variable: Points (%)	estimate	t-statistic	p-value
Constant	121.292	19.911	0.000
Test-Nature	-2.455	-1.671	0.096***
Major-BAN	-4.766	-2.214	0.028**
Major-EDU	-4.798	-0.787	0.432
Major-FIN	-1.948	-1.001	0.318
Major-TAX	-0.741	-0.296	0.767
Gender-Male	-0.020	-0.013	0.990
Age-Young	-2.158	-0.864	0.389
Year	0.145	0.093	0.926
Average	-11.578	-6.573	0.000*
Language-NonCZ	2.863	1.549	0.123
Attempted-Yes	6.988	2.705	0.007*

* 1% significance; ** 5% significance; *** 10% significance

The analysis of regressors' estimates reveals that general ability to learn (measured by the variable "Average") is associated with the performance at the midterm test at 1% significance level. Each grade down (in average score) leads to an 11.5% drop in the test's result. Similarly, an unsuccessful attempt to pass the course in previous semesters increases an average score from the midterm test by almost 7% (with p-value = 0.007). Hence, students are able to learn from the past mistakes and can capitalise on the previous experience with the course content. Furthermore, the students studying Banking as their major specialisation perform significantly worse (at

5% significance level) than the students with the major in Accounting. Differences for other specialisations are not statistically significant. Finally, there is a 2.455% difference in the average score, holding other effects fixed, in favour of students solving the example with the functional classification of expenses. However, the p-value is relatively high and the association is identified only if 10% significance level is admitted. A weaker comprehension of accounting procedures relating to the classification of expenses by their nature in accounting courses by students might be rubbed off to their jobs, once they enter the job market. Material errors can then occur in the financial statements of real companies and thus to mislead the users. This risk is although mitigated by the above described finding, that students reattempting the course are able to learn from their past mistakes. Finally, the remaining explanatory variables, such Age, Year, Gender, and Language are not found statistically significant.

CONCLUSIONS

The paper contributes to current knowledge in accounting education by analysing the study results in one particular piece of the assessment in the introductory course on accounting at the university level. Using data on 216 students solving a midterm test, which focuses on the classification of operating expenses in the income statements of a manufacturing company, the results of regression model draw attention to three main findings. The first one is unsurprising and in line with the previous research. The performance in accounting is positively associated with a general capacity to learn. Secondly, unsuccessful achievement in past semester increases likelihood of repeating students to perform better than novices in the course. Thirdly, students have slightly worse test's assessment in case of classification of expenses by their nature compared to the variant with a functional form of classification. This conclusion is a matter of importance for the practice, as a weaker comprehension of accounting procedures relating to this classification can produce material errors in financial statements of real companies.

Regarding the main limitations of the study, at least two aspects shall be mentioned. Firstly, the test's design might not be developed in a manner to measure the students' comprehension of the topic satisfactorily. Secondly, despite 18.1% students managed to write a test in the range 75-89%, which is a fairly good result (the second best grade), a comparable extent of errors in real financial statements would surely surpass the acceptable materiality level. Future research shall therefore examine the "success rate" alternatively, for example by binary dependent variable – "passed" (over 90%) and failed (below 90%) – to deliver an error-free solution of the test's example. Another option is to transform the variables and to test the mutual interdependencies under a fuzzy-set design.

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Classroom Management And Inclusion: Pedagogical And Technological Approach.

Maria Concetta CARRUBA
Research Centre on disability and marginality (CeDisMa)
Università Cattolica del Sacro Cuore
Milan, Italy
MariaConcetta.Carruba@unicatt.it

ABSTRACT

This paper is a discussion of technology and teachers preparation about classroom management, differentiation and inclusion. Nowadays the role of teaching and educating the youth has become more difficult than in the past [1]. In the classroom there are present students with different approaches to learning, but also students with disabilities and/or students with specific learning disabilities and they need a specific approach to have a good experience at school. The role of teachers is central to promote well-being in the classroom for all students, included those with disabilities. Every student needs a teacher who understands the power of Universal Design for Learning and Differentiation and manages the classroom according to the guidelines allowing inclusion for everyone. Technology can support teachers to teach more inclusively and is an essential tool for students to learn in a more effective way. This is mainly true when technology solutions allow to personalize the approach to learning and therefore to make the learning experience more interactive and immersive. When students are more engaged, in fact, they are more motivated and they perform better. The following two Apps can support teachers in classroom management and create a better learning context for all students: Classroom App and iNclusion App.

INTRODUCTION

" Is it getting harder to manage your classrooms?". This was one of the questions of the research carried out from September 2012 to May 2013 by Research Centre on Disability and Marginality (CeDisMa, http://centridiricerca.unicatt.it/cedisma) in the Catholic University of the Sacred Heart in Milan. The goal was to understand, through specific indicators, the teachers' perception about the difficulties to manage the classroom. This study allowed the researchers to reach a statistically significant sample of teachers (754) from different schools level in Italy (from kindergarten to secondary schools), in order to allow an easy and direct participation.

The project was set up in order to analyze the indicators of complexity in a classroom and to define a pedagogical approach to answer the teachers' needs. The data analysis and results have clearly pointed out the increasing complexity of the teachers' role and the relational dynamics involved in the process of teaching-learning. First of all, since 1977 (L. n.517/1977), when Italian schools started to include students disabilities, the School System has experienced continuous adjustments to build a "school for all students" [2]; secondly, our society has been continuously changing and that has had a repercussion at school because, since there are new needs in the society, this translates into new needs for students in the classroom such as new need in society it is translatable in new needs for student in classroom such as immigrants students, students with difficult economic or social background, bad mannered students; thirdly, students have more transversal competences and are more multitasking than their teachers and are able to use technology better than teachers. Technology is for students a new way to learn.

In conclusion, teachers need support to answer those necessities and deserve a training to obtain the competences and strategies to teach inclusively, to manage the classroom accurately and to use new approaches in order to answer their students' needs (that nowadays is a digital student), to keep up with the society.

THE STUDY: THEORETICAL FRAMEWORK

Classroom management is a challenge that many teachers constantly face. They must be ready to guide all students in the class to do their best version, to be able to learn, to be active and a pro-active part of the teaching-learning process, to be motivated and interested in knowledge. "Without a safe learning environment, teachers cannot teach and students cannot learn" (Kaufman and others, 1998). Schools are safe when they are able to include all students, when they allow everyone all to participate in the classroom, when answer to all students' needs. The role of teachers is getting harder especially considering the complexity of today's society.

In schools, teachers need to face with many kinds of inclusion: not only the inclusion of student with disabilities but also inclusions of foreign students, bad-mannered students, students with dyslexia or other specific learning disabilities, unmotivated students or students with difficult social conditions. Furthermore, in addition to these issues, there is also the technology gap between teachers and students. The latter use technology to communicate, to meet someone, to play and to learn. Teachers, instead, are often technologically illiterate or, if they have some skills, they are usually the result of self-study and, frequently, they are afraid of disappointing their students' expectations.

In general, and especially in the classroom, it's important for generations to bridge this gap so that they can power up an effective teaching-learning process. The classroom management is the first support teachers have to bridge the gap: if teachers know how their students learn, how they live in the classroom and how they are able to respond to their teachers' offers, then true learning can happen.

How should teachers manage the classroom to allow all students to really learn?

How can teachers promote motivation for all students?

In today's difficult situation, classroom management can be a solution to support teachers to teach in the best way and represents a set of effective strategies to guide the class and promote the interests of all students also in order to respect the values of the Universal Design for Learning.

Teachers play a fundamental role in the cognitive, social and emotional development of their students by giving them the opportunity to learn, as numerous studies have shown [3]. The classroom management sets the stage for learning in this way; without it, classrooms are chaotic, disorganized and blundering [4]. Effective teaching and learning, in fact, cannot take place in poorly managed classrooms [5]. The classroom management is based on the principle of establishing a positive classroom environment encompassing effective teacher-student relationships [6].

In their definition of classroom management, Evertson and Weistein (2006), describe it as a set of actions to create a supportive global environment of students. They explain [7] five actions that teachers can use to manage effective the classroom:

1. developing supportive relationships with and among students;
2. organizing the activity and giving clear instructions;
3. using group management and cooperative learning methods;
4. employing appropriate interventions to support students with behavior problems;
5. promoting an ongoing interaction between teachers and their students.

In Brophy' definition [8], the classroom management refers to the actions taken to create and maintain a learning environment conducive to successful instruction arranging the physical environment, establishing rules and procedures, promoting students' attention and engagement in activities.

The classroom management is not only a way to teach but a set of strategies to promote students' engagement; it is based around teachers' ability to organize the classroom using an effective connection between management and teaching to realize a "good lesson movement". This is possible through these strategies [9]:

- withitness (teachers' ability to know what was going in classroom);
- overlapping (being able to present a new topic while preventing misbehaviors);
- momentum and smoothness (to be able to "roll-with-the-punches" and to keep on a plan or course action);
- focus group (the ability of teacher to engage the whole class).

In addition, in effectively managed classrooms it is necessary to establish:

- clear rules and procedures;
- disciplinary interventions;
- teachers-students relationships;
- mental set (that includes two aspects: 'withitness' and 'emotional objectivity') [10].

All these strategies allow to teachers to catch students' interest e promote learning. Have digital skills allowing them to use such tools to manage the classroom and to establish a student-teacher connection. Nowadays, technology is present in schools but, as some studies prove, often teachers didn't receive a correct training and so they're unable to use these tools in the most appropriate way. On the other side, students are able to explot technology for their own daily activities, but lack the essential skills to apply technology to the learning process. To promote a correct use of technology, it is important for teachers to guide students to find out how technology solutions can support their learning process and improve their competences. Furthermore, technology allows moreover to differentiate the activities according to specific students' need. Using technology, teachers can help students with disabilities, students with dyslexia, students that have different approaches to learning. That's why it is important to apply different technology tools for education so that each teaching style can match each individual learning style

How it is possible use technology during the lessons?

How can technology solution support the classroom management?

How can technology promote inclusion in the classrooms?

FINDINGS

In the field of education, the well-being of students is a necessary condition to make them feel included, accepted, part of the class and therefore ready to learn. This analysis about two Apps allows to reflect on the well-being in classroom, teachers perception about students' motivation and management. The two apps considerd in this analisys are the iNclusion App (https://itunes.apple.com/it/app/inclusion/id1093478813?mt=8), by CeDisMa and MMN (Marketing Media Network, http://mmn.it), a support for teachers to think about their teaching style and their management competences, and Classroom (https://itunes.apple.com/it/app/classroom/id1085319084?mt=8), by Apple, a support for an effective classroom management and teachers-students relationship. iNclusion App is a technological tool for Italian teachers to analyze how the classroom management can support students' motivation [11]. It is based on a qualitative questionnaire which will be filled in by primary, middle and secondary school teachers (in Italy) to find out how often they implement educational actions. The iNclusion App works in a specific platform: Research Kit (http://researchkit.org) that allows the collection of data. Teachers need an IOS device to use the iNlcusion App (8.4 or following).

(https://itunes.apple.com/it/app/inclusion/id1093478813?mt=8)

Teachers can use the App following these steps:

- they login to the format and agree to transfer their data to the platform;
- they read a short presentation about CeDisMa research center and the aim of the study;
- they select the teacher's questionnaire;
- they answer the questions (60 question about classroom management, students in the class, teacher and student needs - special needs included).

The questionnaire will also drive teachers to reflect on the importance of students' motivation. A motivated student is a student that feels well in the class.

Good class management creates a positive work environment and therefore plays an important role in implementing a more functional "context" for learning, as a social and physical reality. The data collected will make it possible to analyze and "measure" the relationship between class management, students' motivation and the subsequent impact on their learning. The platform will allow the research team to provide a qualitative data analysis. Technology is no longer just a way of processing statistics and data, but it's an invaluable support for research. Teachers will find it useful to analyze their own class management skills and to share procedures, good practices and needs [11]. This App can promote actions and interventions to encourage well-being, supported by technology; students' engagement in learning processes; social well-being in the classrooms. Based on the classroom management strategies, the App help teachers in the process to create collaborative and profitable environment in order to enhance learning in the classroom. Thanks to the iNclusion App, teachers can think over their own strategies to improve the learning environment in the name of inclusion of all their students. The first tool they need to use to do so is of course observation. When teachers answer to the questions they can focus on:

- classroom management [12];
- relationships in the teaching-learning process [13];
- students' behavior in the classroom [14];
- best practices to teach [15].

After the first use, about four month later, teachers will get a notification asking them to re-use the App to notify any changes about their teaching style. iNclusion App can support teachers to teach and manage the classroom in order to create a positive atmosphere in the classroom. Teaching and learning should bring joy. Every child deserves a champion, an adult who will never give up on them, who understands the power of connection, and insists that they become the best that they can possibly be [16]. Thanks to this App, teachers will be able to think about inclusion and students' motivation. If students feel actively part of a lesson, they can learn better and more effectively [11]. This can be possible if teachers are able to select their methodology according to the single individuals they're teaching to [11]. At the moment feedback received (data available only from April 29th, 2016) confirms CeDisMa's theory on the the importance of supporting teachers in developing the strategies and methodologies to promote inclusion and well-being [17] in the classroom.

The second App, Classroom, is a technological tool released by Apple (in March 2016) to manage the classrooms according to the theoretical framework, such as presented in this paper, about this topic. This App allows to convert each iPad into a didactical tool that help teachers to guide their students through technology to really learn and make it possible to supervise the progresses of the class.

(https://itunes.apple.com/it/app/classroom/id1085319084?mt=8)

Thanks to this tool it is possible open the same App on all devices present in the classroom or, when it is necessary to differentiate the activities, open different application to answer students' needs (single or in group). Using Classroom, teachers can focus on inclusive strategies which include at he same time students with disabilities, dyslexia or any sort of special needs. Using Classroom, students are able to think over their learning style. To use Classroom, all students and all teachers need an iPad. It needs to be configured with an education configuration profile, and the requires an iPad running IOS 9.3 or later. Once properly set up, teachers can use Classroom to open apps, web pages, assign iPads and much more on their student's devices. All the devices are sharing contents in a digital class:

- every student has an account and when the student is it at school , the account is visible to teachers;
- every teacher has an account and is able to control more classrooms.

By a simple touch, teachers can:

- assign Shared iPads to students;
- start, focus or pause students work;
- see what students see with Screen View;
- share students' work on the classroom Apple TV;
- organize students' devices using groups.

According to the privacy policy, when teacher views the students' iPad, students can see, in their iPad, a blue line that informs them about that the Screen view was activated. Teachers can view all the screens on the same page or can decide to visualize a single iPad' activities. To catch everyone's attention, teachers can also lock all iPads (selecting a student or a group of students), which might be helpful during an important announcement or activity or to avoid misbehaviors and distraction. This App includes the framework for classroom management, witch allows to promote learning activities that answer single student's need but without neglecting the classroom as a whole and the other students. It can be said that this App is inclusively for three reasons at least: first of all, when teachers use Classroom , they can share contents that every student can personalize without other tools or technologies; secondly, it is possible not only to control the students but also to guide them towards their personal learning style through different activities, resources, tools in an informal way (through private, not public, remarks that can be sent to the students' iPad); thirdly, the App is a a tool that supports teacher during the classroom management, allowing them to better understand students' learning style, to reinvent teachers' style so that they can follow an approach based on the students' needs; thus through an innovative instrument innovative that students admire and use daily.

CONCLUSIONS

To conclude this dissertation, it is possible to declare that:

- it's getting harder and harder to deal with students;
- technology can be a connection between generations in the classrooms;
- teachers need more support to teach in today's societies' complexity;
- students deserve the best school and the best teachers to became the best they can.

Technology isn't the only solution to difficulties we are facing in schools nowadays, but might be one of the solutions that teachers can apply in their didactical activities. Technology is a way, an instrument and it is therefore important for teachers to learn to use it, not only to set up a more interactive and lively didactics, but also like a tool that allows to promote a correct classroom management, inclusion and personalization. Technology is not very widespread in schools: this happens because teachers lack the right tools (or maybe an internet connection), because they lack the right skills or just ignore the full potential of technology. In the hands of a well-trained teacher, technology, allows to achieve a school opened to everyone, also for students with disabilities or specific needs [18]. These two Apps, presented in this paper, deserve a curious teacher who wants to test a new way for education. Technical skills aren't a prerequisite: they will come along with training and using the tools. When teachers teach, they have to focus on students and when teachers have students with special needs, technology can be the way to get to all students, to overpass "barriers", to allow students to hear, to see, to write, to learn according to their individual needs, to be able to do achieve a goal in their own way. Clearly, technology can't cancel the difficulties, but it can build a bridge and help creating the most inclusive context possible.

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Comparing Higher Educational Students Levels On Educational Stress Management

Cengiz ŞİMŞEK
Fatih University Faculty of Education, İstanbul, Turkey
csimsek@fatih.edu.tr

Besra TAŞ
Fatih University Faculty of Education, İstanbul, Turkey
besra.tas@gmx.de

Celal GÜLŞEN
Fatih University Faculty of Education, İstanbul, Turkey
celalgulsen@gmail.com

Muzaffer SAVRAN
Fatih University Faculty of Education, İstanbul, Turkey
muzaffer296@gmail.com

Y. Emre DURMUŞ
Fatih University Faculty of Education, İstanbul, Turkey
yunuse.durmus@gmail.com

ABSTRACT

Today, stress is at the base of our lives. It plays an active role in many different areas of life and it is also dominant in education. This pressure and nervous situation effect college students. Meeting the academic expectations of universities may tire many college students out. Adapting to university environment and having a new friend environment create a stressful period. This study determines educational stress level of verbal and numeric college students; also pressure of studying, workload, grade anxiety, self expectation and hopelessness will be researched. Also gender differences will be determined. The type of the scale used in the study is self-assessment scale/Paper pen test. The scale is a medium which is based on providing information about educational stress levels of individuals and the individual. Turkey validity of the scale is tested on 300 college students. The study group consists of 300 women and 297 men (597 in total) who study in a foundation university in İstanbul.

Keywords: Gender, university, student, education, stress

INTRODUCTION

Stress is a form of reaction which changes the balance of living beings and and towards incidents which are difficult to deal with. Stres has certain and uncertain situations. People generally see stress as trouble. Stress occurs when people see incidents as a threat to their physiological and psychological health (Santrock, 2012). People receive many stimulants from the environment. These stimulants consist of many internal and external conditions that are known as stressors and have many types. These internal and external conditions are stimulants that direct people towards stress (Gerrig and Zimbardo, 2014). Also people assess all troubled situations as stress. However, not all these stressful events result in bad situations. When we look at the course of our lives, we sometimes see stressful events in our daily lives resulting in a good way. Eustress means "well" in Old Greek. So when we use stress in a controlled way, it can bring along positive changes (Gerrig and Zimbardo, 2014). Stress has constructive and destructive effects on human life (Aydın, 2008, p.93).

Stress

According to Aydın, stress indicators are gathered in three stages as behavioral stress indicators, psychological stress indicators and physical stress indicators (Aydın,2008,p.vii-ix). Aydın (2008) states physical stress indicators as hypertension, digestive disorder, sweating, shortness of breath, headache, fatigue, allergy, nausea. Behavioral stress indicators are insomnia, sleep request, anorexia, overeating, smoking, alcohol use. Psychological stress indicators are emphasized as tension, discord, avoidance of cooperation, constant anxiety, feelings of inadequacy, misplaced haste. Stress-performance relation can be gathered in two titles as eustress and distress (Aydın, 2008, p.93-95).

Education / Education Stress

"Education is the period in which the individual create conscious change through his/her own behavior and life" (Ertürk,1972,p.12). It is the process in which wanted changes occur consciously and through the person's own behaviors and life (Ergün, 2009, p.1). It is the process creating behavior change in an individual. It is the social interaction process in which an individual adapts to general rules, beliefs and manner of life (Demirel and Kaya, 2009; Gülşen, 2014, p.77-78). "It is the process of changing a behavior in education" (Şişman, 2010, p.189). Education can also be defined as "the process to turn/to be turned into a person into mature, virtuous, perfect being" (Şişman, 2010, p.2) It can be realized through education. Communication should be flawless for this to happen. Communication abilities of people decrease in stress and excitement moments (Aydın, 2008, p.101-102)

Educational Stress in Turkey

"There is no equality of opportunity in education" (Akyüz,2012,p.423). People who live in our country study in different regions. This difference cause socio economical and education opportunities to differ. These effect the success of students (Gülşen, 2015a, p.1918-1930; Gülşen, 2015b, p.166-171) . (The effect on the success of students creates stress.)

The number of universities has increased and there is a strong demand in recent years in our country. This situation cause graduates to be unemployed (Akyüz,2012,p.423). Uncertainty in adult years for people who study to enter into a college, study in a college and graduate from a college may cause stress.

Constant increase in rate of literacy is against women and daughters (Akyüz,2012,p.424).

Students who study in crowded classes may be disturbed from discipline models teachers use to lead the class and may feel pressured (Akyüz,2012,p.442)

College exams in Turkey create negative effects in high school education and cause students to come to colleges unprepared (Çelik, 2011). This process may create stress in students who start to university with lack of information.

Exam stress

Students spend most of their daily lives for education. Because of this, they experience different emotions when they prepare for exams or classes. This situation is likely to put a student under stress (Plotnik, 2009). Students sometimes get worried. This is because they are not sure if they will lose their motivation while competing with other students and that they do not think their intelligence as sufficient (Plotnik, 2009).

DEALING WITH STRESS

According to Aydın, individual strategies to deal with stress are as such: changing personal qualities, physical movement (sports and exercise), breathing exercises, meditation, bio-feedback, relaxing, nutrition, social support, social, cultural, sportive activity participation, massage, prayer and religious ritual, time management (Aydın,2008,p.x-xi).

Sub-titles

This study determines educational stress levels of numeric and verbal college students; it aims to analyze grade anxiety, hopelessness of their self-expectations and workload. Also gender differences will be determined.

For this reason, the study determines educational stress levels according to the questions below.

1- What are the differences of education stresses according to the workload of verbal and numeric students?
2- What are the differences of education stresses according to the study pressure of verbal and numeric students?
3- What are the differences of education stresses according to the hopelessness of their self-expectations of verbal and numeric students?
4- What are the differences of education stresses according to the gender of verbal and numeric students?
5- What are the differences of education stresses according to the class level of verbal and numeric students?
6- What are the differences of verbal and numeric students according to student type (full scholarship, half scholarship, fee-paying)?
7- What are the differences of education stresses according to the class level of verbal and numeric students?
8- What are the educational stress status of verbal and numeric students according to the people who experience it?
9- What are the educational stress status of verbal and numeric students according to the settlement?

METHOD

Since the acquired date presented numeric quality, the use of quantitative method was easy in the study. This is an important situation for measurement process. The type of the scale used in the study is self-assessment scale /

Paper pen test. The scale is a medium which is based on providing information about educational stress levels of individuals and the individual. Turkey validity of the scale is tested on 300 college students. The scale applied is developed by Ölcek, Akın, Gediksiz,Arslan and Akın (2012). It is a medium which aims to measure stress level students experience in education during adolescence / young adult period. Grades received from the classes, thoughts on future, attitude of parents and attitude of the individual towards himself/herself measure emotional situation towards teachers and friends.

Sub-headings of the scale consist of work pressure, workload, grade anxiety, self-expectation, hopelessness areas.

Population and Sample: Sample of the study consists of 597 students in İstanbul Foundation University. Number and percentage of female participants are *(f* = 300, 50,3 %), number and percentage of male participants are *(f* = 297, 49,7 %). In the sample acquired, work pressure, workload, grade anxiety, self-expectation, hopelessness areas are analyzed.

Data Collection

This study determines educational stress level of verbal and numeric 597 college students in Istanbul Foundation University; also pressure of studying, workload, grade anxiety, self expectation and hopelessness are analyzed. The necessary permit was received according to the use of the scale and the necessary direction for the use of it was included on the scale.

Analysis of the Data

In the statistical evaluation of the data acquired, SPSS – Statistical Package for the Social Sciences-package program is used. Statistical operations are realized regarding the problem of the study and sub-problems on the data coded on the program. As statistical operation, arithmetic mean, standard deviation, one-way analysis of variance and multivariate analysis of variance (MANOVA) are used.

DISCUSSION AND ANALYSIS

The purpose is the analysis of self-expectations and education stress status of students. This study is the analysis of comparison of educational stress of college students who receive education in numeric and verbal areas. This study determines educational stress levels of numeric and verbal college students; it aims to analyze grade anxiety, hopelessness of their self-expectations and workload. Also gender differences will be determined. Socio demography frequencies and results acquired are below.

Table 1

Gender	F	%
Women	300	*50.3*
Men	297	*49.7*
Total	597	100.0

As is seen in the table, 597 people participated in total. Number and percentage of female participants are *(f* = 300, 50,3 %), number and percentage of male participants are *(f* = 297, 49,7 %).

Table 2 Department

Department	F	%
Verbal	300	*50.3*
Numeric	297	*49.7*
Total	597	100.0

Departments of the students are divided into two in the table. Number and percentage of verbal department participants are *(f* = 300, 50,3 %), number and percentage of numeric department participants are *(f* = 297, 49,7 %).

There is no significant difference in the participation rates of the students in numeric and verbal departments.

Table 3 Class Level

Class level	F	%
grade2	198	*33.2*
grade3	150	*25.1*
grade1	143	*24.0*
grade4	105	*17.6*
Other	1	*,2*
Total	597	100.0

As is seen in the table, the most participants are from grade 2 *(f* = 198, 33,2 %) and grade 3 *(f* = 150, 25,1 %) follows it. These are followed by grade 1 *(f* = 143, 24,0 %) and then grade 4 *(f* = 105, 17,6%) and finally by others *(f* = 1, ,2 %).

Table 4 Scholarship Status

Scholarship status	F	%
Half-scholarship	259	*43.4*
Fee-paying	205	*34.3*
Full scholarship	132	*22.1*
Other	1	*,2*
Total	597	100.0

As is seen in the table, the most rate is consisted of half-scholarship students *(f* = 259, 43,4 %). Then fee-paying participants *(f* = 205, 34,3 %) follow it. Full-scholarship students *(f* = 132, 22,1 %) follow it and others comprise the last part. *(f* =1, ,2%)

Table 5 Marital Status

Marital status	F	%
Single	581	*97.3*
Married	13	*2.2*
Divorced	3	*,5*
Total	597	100.0

As is seen in the table, the most rate is consisted of singles *(f* = 581, 97,3 %). Then married students *(f* = 13, 2,2 %) follow them. A small percentage of them is comprised of divorced students *(f* = 3, ,5 %).Since rate of singles is low in the table, it is considered that students do not consider getting married in college.

Table 6 Settlement

Settlement	F	%
Metropolis	318	*53.3*
City	177	*29.6*
District	67	11.2
Village-town	35	*5.9*
Total	597	100.0

As is seen in the table, most of the students live in metropolis *(f* = 318, 53,3 %). The second line is consisted of people who live in cities *(f*=177, 29,6 %). People who live in districts follow them *(f*=67, 11,2 %). Then people who live in villages-towns follow them *(f* = 35, 5,9%).

Table 7 Geographical Attitude

Geographical attitude	F	%
Democrat	396	*66.3*
Protective	102	*17.1*
Authoritative	52	*8.7*
Liberal	41	*6.9*
Other	6	1.0
Total	597	100.0

As is seen in the table, the most rate is consisted of democrats *(f* = 396, 66,3 %). People who are protective follow them *(f* = 102, 17,1 %). Then people who are authoritative *(f* = 52, 8,7 %) liberal *(f* = 41, 6,9 %) and other *(f* = 6, 1,0 %) follow.

Table 8 Settlement

Settlement	F	%
Parents	210	*35.3*
Friend	167	*28.2*
Dorm	132	*22.3*
Relative	15	*2.5*
Alone	48	*8.1*
Mother	10	*1.7*
Father	10	*1.7*
Total	597	100.0

Parents (*f* = 210, 35,3 %) friend (*f* = 167, 28,2%) dorm (*f* = 132, 22,3 %) alone (*f* = 48, 8,1 %) relative (*f* = 15, 2,5%) mother (*f* = 10, 1,7 %) father (*f* = 10, 1,7 %)

Table 9 Correlations

	Work pressure	Workload	Grade anxiety	Self-expectation	Hopelessness
Work pressure	1				
Workload	,414**	1			
Grade anxiety	,393**	,129**	1		
Self-expectation	,426**	,268**	,395**	1	
Hopelessness	,377**	,159**	,251**	,334**	1

**Correlations are at 0.01 significance level (double queue).

Before starting MANOVA test, correlations between dependent variables should be checked. It is important to determine these relations to define significant MANOVA effect. Correlations shown in the table present that variables for MANOVA printouts are at an acceptable limit.

1.Predictions made for gender

Table 10 Multivariate Tests

Impact		Value	F	p
Section	Pillai's Trace	,963	3051.127	0.000
	Wilks' Lambda	,037	3051.127	0.000
	Hotelling's Trace	25.813	3051.127	0.000
	Roy's Largest Root	25.813	3051.127	0.000
Gender	Pillai's Trace	,071	8.977	,000
	Wilks' Lambda	,929	8.977	,000
	Hotelling's Trace	,076	8.977	,000
	Roy's Largest Root	,076	8.977	,000

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components differ statistically according to the gender of the participants ($p=0.000<0.01$). Wilks Lambda represent the part described by predictive variances of generalized variance in the dependent variance.

Tablo 11.Box's test

Box's M	30.842
F	2.038
sd1	15
sd2	1425106.264
P	,010

In the MANOVA method, inter-group (dependent variances) covariance matrix is assumed equal. As a result of Box's M test above, because of p > ,001, it is determined that covariance matrix regarding dependent variance is equal. Educational stress components included in the analysis differ in terms of score according to the gender and it is possible to make an estimation.

Table 12. Levene's test of error variance equality

	F	sd1	sd2	p
Work pressure	1.371	1	595	,242
Workload	,550	1	595	,459
Grade anxiety	,259	1	595	,611
Self-expectation	6.691	1	595	,010
Hopelessness	1.465	1	595	,227

When all variances become (p>0.05) in variance homogeneity between groups, the results are significant. In this case, except self-expectation variance, all variances can be used separately in the analysis. p value of self-expectancy variance is smaller than 0.05, thus it does not included in the analysis.

Table 13.MANOVA results of Educational Stress components according to Gender Difference

Source		Sum of Squares	sd	Mean Square	F	Sig.
Gender	Work pressure	,984	1	,984	,082	,774
	Workload	103.242	1	103.242	13.610	,000
	Grade anxiety	12.502	1	12.502	1.427	,233
	Hopelessness	2.063	1	2.063	,270	,603

Significant differences are acquired according to the gender in workload variance in the results of multivariate analysis of variance. Workload is significant with 1, F=13.61 degree of freedom (p=0.000<0.05). There is no significant difference between gender for other variances. Except the specified variance, women and men levels are equal. In the workload variance, women are higher than men in average (Women average:0,66; men average:8,83).

2.Predictions made for Class Level

Table 14. Multivariate Tests

Impact		Value	F	p
Section	Pillai's Trace	,961	2886.028	0.000
	Wilks' Lambda	,039	2886.028	0.000
	Hotelling's Trace	24.541	2886.028	0.000
	Roy's Largest Root	24.541	2886.028	0.000
Class	Pillai's Trace	,090	3.666	,000
	Wilks' Lambda	,911	3.696	,000
	Hotelling's Trace	,095	3.719	,000
	Roy's Largest Root	,067	7.882	,000

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components differ statistically according to the class of the participants (p=0.000<0.01). Wilks Lambda represent the part described by predictive variances of generalized variance in the dependent variance.

Table 15 Box's M test

Box's M	81.759
F	1.788
sd1	45
sd2	624321.018
p	,001

In the MANOVA method, inter-group (dependent variances) covariance matrix is assumed equal. As a result of Box's M test above, because of p > ,001, it is determined that covariance matrix regarding dependent variance is equal. Educational stress components included in the analysis differ in terms of score according to the class and it is possible to make an estimation.

Table 16. Levene's test of error variance equality

	F	sd1	sd2	p
Work pressure	1.214	3	592	,304
Workload	3.218	3	592	,022
Grade anxiety	,858	3	592	,462
Self-expectation	3.144	3	592	,025
Hopelessness	1.098	3	592	,349

When three variances become (p>0.05) in variance homogeneity between groups, the results are significant. In this case, except workload and self-expectation variance, all variances can be used seperately in the analysis.

Table 17. MANOVA results of Educational Stress components according to Class Difference

Source		Sum of Squares	sd	Mean Square	F	Sig.
Class	Work pressure	176.422	3	58.807	5.027	,002
	Grade anxiety	233.787	3	77.929	9.243	,000
	Hopelessness	89.045	3	29.682	3.958	,008

In the result of the multivariant analysis, significant differences are obtained according to grade anxiety, hopelessness variances. Work pressure is significant with 3, F=5.027 degree of freedom (p=0.002<0.05). Grade anxiety is significant with 3, F=9.243 degree of freedom (p=0.000<0.05). Hopelessness is significant with 3, F=3.958 degree of freedom (p=0.008<0.05). The significance of other variances is not included in the study.

In the next stage, paired comparisons in each variation are realized to understand which classes have difference, homogeneous groups are created by using Tukey HSD test. In this case, class differences for work pressure are listed as such: First class, third class, fourth class and second class. The class that feels the work pressure the most is the first class and the class that feels it the least is the second class. Class differences for grade anxiety are as such: First, third, fourth. There is no significant difference in second classes. The sorting of hopelessness is as such: First, second and forth classes. There is no significant difference between third classes.

3. Predictions according to the settlement

Table 18. Multivariate Tests

Impact		Value	F	p
Section	Pillai's Trace	,929	1530.183	0.000
	Wilks' Lambda	,071	1530.183	0.000
	Hotelling's Trace	12.990	1530.183	0.000
	Roy's Largest Root	12.990	1530.183	0.000
Settlement	Pillai's Trace	,022	,863	,607
	Wilks' Lambda	,978	,862	,608
	Hotelling's Trace	,022	,861	,609
	Roy's Largest Root	,014	1.617	,153

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components do not differ statistically according to the settlement of the participants ($p=0.000<0.05$).

In this case, MANOVA test cannot be applied and there is no significant difference between settlements.

4.Predictions regarding geographical attitude

Table 19. Multivariate Tests

Impact		Value	F	p
Section	Pillai's Trace	,926	1466.337	0.000
	Wilks' Lambda	,074	1466.337	0.000
	Hotelling's Trace	12.576	1466.337	0.000
	Roy's Largest Root	12.576	1466.337	0.000
Geographical attitude	Pillai's Trace	,036	1.439	,120
	Wilks' Lambda	,964	1.440	,120
	Hotelling's Trace	,037	1.440	,120
	Roy's Largest Root	,014	1.617	,023

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components do not differ statistically according to the geographical attitude of the participants ($p=0.000<0.05$).

In this case, MANOVA test cannot be applied and there is no significant difference between geographical attitudes.

5. According to the department -verbal numeric predictions

Table 20. Multivariate Tests

Impact		Value	F	p
Section	Pillai's Trace	,962	2999.207	0.000
	Wilks' Lambda	,038	2999.207	0.000
	Hotelling's Trace	25.374	2999.207	0.000
	Roy's Largest Root	25.374	2999.207	0.000
Department	Pillai's Trace	,038	4.706	,000
	Wilks' Lambda	,962	4.706	,000
	Hotelling's Trace	,040	4.706	,000
	Roy's Largest Root	,040	4.706	,000

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components differ statistically according to the department of the participants ($p=0.000<0.01$). Wilks Lambda represent the part described by predictive variances of generalized variance in the dependent variance.

Table 20. Box’s M test

Box's M	38.262
F	2.528
sd1	15
sd2	1425106.264
p	,001

In the MANOVA method, inter-group (dependent variances) covariance matrix is assumed equal. As a result of Box's M test above, because of $p > ,001$, it is determined that covariance matrix regarding dependent variance is equal. Educational stress components included in the analysis differ in terms of score according to the department and it is possible to make an estimation.

Tabel 21. Levene's test of error variance equality

	F	sd1	sd2	p
Work pressure	,362	1	595	,548
Workload	3.839	1	595	,051
Grade anxiety	,537	1	595	,464
Self-expectation	,120	1	595	,730
Hopelessness	4.711	1	595	,030

When one variance become ($p>0.05$) in variance homogeneity between groups, the results are significant. In this case, except hopelessness variance, all variances can be used seperately in the analysis.

Table 22. MANOVA results of Educational Stress components according to Department Difference

Source		Sum of Squares	sd	Mean Square	F	Sig.
Department	workpressure	138.706	1	138.706	11.847	,001
	workload	9.238	1	9.238	1.193	,275
	gradeanxiety	80.785	1	80.785	9.342	,002
	self-expectation	17.717	1	17.717	2.383	,123

Significant differences are acquired according to the work pressure and grade anxiety in all variances in the results of multivariate analysis of variance. Work pressure is significant with 1, F=138.706 degree of freedom ($p=0.001<0.05$). Grade anxiety is significant with 1, F=9.342 degree of freedom ($p=0.002<0.05$). There is no significant difference between departments in terms of work load and self-expectation. Hopelessness variance is not included in the model. In the work pressure, it is seen that verbal average is lower than numeric (Verbal average=10,77; numeric average=11,74). In terms of grade anxiety, numeric is superior (Verbal average=8,50;numeric average=9,24).

Table 23. 6. Predictions according to the scholarship:

Multivariate Tests				
Impact		Value	F	p
Section	Pillai's Trace	,959	2743.763	0.000
	Wilks' Lambda	,041	2743.763	0.000
	Hotelling's Trace	23.292	2743.763	0.000
	Roy's Largest Root	23.292	2743.763	0.000
Scholarship	Pillai's Trace	,056	3.390	,000
	Wilks' Lambda	,945	3.407	,000
	Hotelling's Trace	,058	3.424	,000
	Roy's Largest Root	,049	5.797	,000

Multivariate test statistics presented in the table above (Pillai's, Wilks', Hotelling's Trace, and Roy's Largest Root) test zero hypothesis in which "variances in the group are equal in terms of average" and that is among MANOVA assumptions. In the study realized, Pillai's Trace and Wilks' Lambda tests are based on to determine the difference of group averages. According to Pillai's Trace and Wilks' Lambda tests, it is concluded that educational stress components differ statistically according to the scholarship status of the participants ($p=0.000<0.01$). Wilks Lambda represent the part described by predictive variances of generalized variance in the dependent variance.

Table 24

Box's M test	
Box's M	58.871
F	1.937
sd1	30
sd2	651322.050
p	,002

In the MONOVA method, it is assumed that covariance matrix is equal in the group (dependent variances).
Since it is p > ,001 in the result of Box's M test, it is determined that covariance matrix regarding dependent variances are equal.
Educational stress components included in the analysis differ in terms of score according to the scholarship and it is possible to make an estimation.

Table 25. Levene's test of error variance equality

	F	sd1	sd2	p
workpressure	3.503	2	593	,031
workload	,215	2	593	,806
gradeanxiety	,416	2	593	,660
self-expectation	2.902	2	593	,056
Hopelessness	5.621	2	593	,004

When all variances become (p>0.05) in variance homogeneity between groups, the results are significant. In this case, except work pressure and hopelessness variances, all variances can be used separately in the analysis.

Table 26. MANOVA results of Educational Stress components according to Scholarship Difference

Source		Sum of Squares	sd	Mean Square	F	Sig.
Scholarship	workload	10.521	2	5.261	,678	,508
	gradeanxiety	22.783	2	11.391	1.300	,273
	self-expectation	3.060	2	1.530	,204	,815

There is no significant difference according to the scholarship in any of the variances specified in the results of the multivariate analysis.

RESULT

Significant differences are acquired according to the gender in workload variance in the results of multivariate analysis of variance. Workload is significant with 1, F=13.61 degree of freedom (p=0.000<0.05). There is no significant difference between gender for other variances. Except the specified variance, women and men levels are equal. In the workload variance, women are higher than men in average (Women average:0,66; men average:8,83).

It is determined that educational stress components show a significant difference statistically according to the class of the participants.

In the result of the multivariate analysis, significant differences are obtained according to grade anxiety, hopelessness variances. Work pressure is significant with 3, F=5.027 degree of freedom (p=0.002<0.05). Grade anxiety is significant with 3, F=9.243 degree of freedom (p=0.000<0.05). Hopelessness is significant with 3, F=3.958 degree of freedom (p=0.008<0.05). The significance of other variances is not included in the study.
In the next stage, paired comparisons in each variation are realized to understand which classes have difference, homogeneous groups are created by using Tukey HSD test. In this case, class differences for work pressure are listed as such: First class, third class, fourth class and second class. The class that feels the work pressure the most is the first class and the class that feels it the least is the second class. Class differences for grade anxiety are as such: First, third, fourth. There is no significant difference in second classes. The sorting of hopelessness is as such: First, second and forth classes. There is no significant difference between third classes.
It is determined that educational stress components show a significant difference statistically according to the

settlement of the participants. It is determined that educational stress components show a significant difference statistically according to the geographical attitude of the participants.
There is no significant difference according to the scholarship in any of the variances specified in the results of the multivariate analysis.

As a result of this, MANOVA results are the most interesting field of educational stress components according to class difference in the study. Especially at the second stage, the result that presents which classes have differences under work pressure area, first class is determined as the class that feels it the most and second class is the class that feels it the least. Regarding the grade anxiety, the results are first class, third class and forth class, respectively. In this area, there is no significant difference in terms of second class. In hopelessness area, it is first, second and forth classes, respectively. There is no significant difference in third class in terms of class.

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Comparing The Mathematical Thinking Experiences Of Students At Faculty Of Education And Faculty Of Arts And Sciences

Cemalettin YILDIZ
Giresun University, Turkey
cemalyildiz61@gmail.com

ABSTRACT

The aim of this study is to compare the mathematical thinking experiences of fourth grade students at faculty of education and faculty of arts and sciences in the stages of specializing, generalizing, conjecturing, and proving. The study was conducted with 72 fourth grade students in the spring term of the academic year of 2015-2016. While 36 were from the elementary mathematics teaching programme at faculty of education; 36 of students were from the department of mathematics at faculty of arts and sciences. The data were collected via the study worksheets and unstructured observations that were performed during the application and they were analyzed via content analysis method. Findings acquired from the worksheets and observations that were performed during the application show that students at faculty of education are more successful in the stages of mathematical thinking than students at faculty of arts and sciences.

Keywords: Mathematics education, mathematical thinking, faculty of education, faculty of arts and sciences.

INTRODUCTION

Mathematics is one of the most important tools of improving thinking (Keskin, Akbaba Dağ, & Altun, 2013) and requires a specific form of thinking. This form of thinking is referred to as “Mathematical Thinking (MT)”. MT is not essentially different from daily and scientific thinking, but a form of daily thinking developed with a specific method (Yıldırım, 2004). Since MT is one of the most significant objectives of mathematics education (Baki, 2008; Stacey, 2006), it is of great importance for people. Because people need to think in order to continue their lives (Sternberg, 1996).

It is noted in the literature that MD consists of following components: *specializing* (Alkan & Bukova Güzel, 2005; Hacısalihoğlu, Mirasyedioğlu, & Akpınar, 2003; Liu, 2003; Piggott, 2004; Stacey, Burton, & Mason, 1985)*, abstraction* (Alkan & Bukova Güzel, 2005; Tall, 2002), *synthesizing* (Tall, 2002), *generalizing* (Alkan & Bukova Güzel, 2005; Hacısalihoğlu et al., 2003; Liu, 2003; Piggott, 2004; Stacey et al., 1985; Tall, 2002), *conjecturing* (Alkan & Bukova Güzel, 2005; Hacısalihoğlu et al., 2003; Liu, 2003; Piggott, 2004; Stacey et al., 1985), *modelling* (Tall, 2002), *problem solving* (Piggott, 2004; Tall, 2002), *proving* (Alkan & Bukova Güzel, 2005; Hacısalihoğlu et al., 2003; Liu, 2003; Stacey et al., 1985; Tall, 2002; Yıldırım, 2004), *analogy* (Liu, 2003), *induction* (Liu, 2003; Yıldırım, 2004), *deduction* (Liu, 2003; Yıldırım, 2004)*, and reasoning* (Umay, 2003). When these components are examined, it seems that specializing, generalizing, conjecturing, and proving stand out among other components. Since it would not be possible to assess all components in a single study, it was decided to investigate only the components which stand out among others. Components included in the study are described briefly below:

Specializing is the main component of MT (Mason, Burton, & Stacey, 2010). Specializing can be defined as the act of examining special conditions when faced with a problem situation (Burton, 1984). Working on such special conditions is of great importance in terms of providing a foundation for conjecturing and generalizing (Çelik, 2016). In specializing, concrete examples of abstract problems are considered (Nickerson, 2010).

The word generalizing is defined as “mind’s act of thinking in general or the transition from special to general” in the Dictionary of Turkish Language Association (Turkish Language Association [TLA], 2011). Generalizing is one of the main activities of mathematics education (Baki, 2008) and the second main component after specializing (Hashemi, Abu, & Kashefi, 2013). The generalizing process involves revealing patterns between certain examples and conjecturing about larger set/sets which involve these examples as well (Çelik, 2016).

In the Dictionary of Turkish Language Association, the word conjecture is defined as “the theoretical thought or hypothesis which is not yet verified with experiments, but expected to be verified” (TLA, 2011). Conjecturing is the process of sensing that something might be true, estimating, and researching whether it is true (Çelik, 2016).

This process automatically occurs in a circular manner when performing the specializing phase and the generalizing phase (Arslan & Yıldız, 2010; Mason et al., 2010).

Proving is the process of revealing the accuracy of something by showing evidences (TLA, 2011). Proving is the last stage of the activity in which ideas are concluded during problem solving (Tall, 1991). For mathematicians, proving involves considering new conditions, focusing on important bits, taking relations into account, making predictions, formulating definitions when necessary, and forming valid arguments (Hanna & de Villiers, 2012).

From these descriptions, it can be said that "MT is a process in which these four components follow each other" (Alkan & Bukova Güzel, 2005; Arslan & Yıldız, 2010; Hacısalihoğlu et al., 2003; Keskin et al., 2013). In some studies in the literature (Hacısalihoğlu et al., 2003; Hendersen, 2002; Piggott, 2004; Tall, 2002), it is noted that MT skill can be improved with activities related to problem solving. The importance of MT and problem solving is highlighted in updated mathematics teaching programs as well (Ministry of National Education [MoNE], 2013a, 2013b). In this regard, this study investigates MT processes of students attending different faculties focusing on activities related to problem solving. Therefore, this study aims to reveal differences between 4th year mathematics students attending the Faculty of Education (FE) and the Faculty of Arts and Sciences (FAS) in terms of MT processes. Determination of differences between students attending different faculties in terms of MT will shed light to how teaching and learning activities should be carried out, guide faculty members in determining course content, and examine improvement of FE and FAS students in MT processes.

METHOD

The study utilizes the qualitative research approach. Qualitative research is a method which examines the study problem in an interpretative approach based on a holistic point of view (Karataş, 2015).

Study Group

The study group consists of 36 fourth year students attending the elementary mathematics teaching program of the FE in Giresun University and 36 fourth year students attending the mathematics department of the FAS in the same university in 2015-2016 academic year. This study utilizes the maximum diversity sampling to determine common or different aspects in a variety of situations, thus describe the problem in a wider framework (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2009). All students in the study group participated in the research on a voluntary basis. Among FE students, 10 were male and 26 were female, whereas among FAS students, 17 were male and 19 were female. Also, most students in both faculties were regular high school graduates and attended the science department in high school.

Data Collection Tools

The data were collected via three worksheets developed by the researcher and through unstructured observations. Questions in the worksheets were prepared utilizing works of Baki (2008) and Watson and Mason (1998). Each worksheet consists of two activities and 9 questions in total. It was concluded from opinions of three academics, experts in mathematics education, that questions in the worksheets were aimed at specializing, generalizing, conjecturing, and proving phases. The questions were encoded as W_aS_b, where indicates the worksheet and b indicates the question number. The first worksheet (W_1) contained questions related to unit squares and the second worksheet (W_2) and the third worksheet (W_3) contained questions related to unit cubes. The 1st and 5th questions in the worksheets were related to *specializing*; the 2nd and the 6th questions were related to *generalizing*; the 3rd, 7th, and the 9th questions were related to *conjecturing*; and the 4th and 8th questions were related to *proving*. In order to test the feasibility of the worksheets and determine the time required to answer questions in the worksheets, a pilot study was performed with 3rd year prospective mathematics teachers. During the pilot application, it was realized that the number of cubes in the second worksheet was wrong and made the necessary correction to give the worksheet its final form. One of the most important data collection tools in qualitative research is observation (Yıldırım & Şimşek, 2008). For this reason, unstructured observations were used in this study in order to observe behaviors of FE and FAS students in classroom environment and describe these behaviors in detail.

Implementation of Data Collection Tools

The students were given three hours to answer the questions in the worksheets during the actual implementation. The students worked in groups of two. The researcher participated in the implementation without hiding his identity and guided students. The researcher tried to collect data by asking Watson and Mason's (1998) MT encouraging questions without leading students to any direction.

Data Analysis

The data obtained from the worksheets were analyzed using the content analysis method. Firstly, an answer key containing possible answers from the students was created. Then, answers given by the students were tabulated according to questions. Then, the data in the tables were read by the researcher multiple times and draft codes were created for each question in the worksheets. Answers with the same meaning were placed under the same code. Another researcher was asked for help to ensure the reliability of the encoding and answers from the students were encoded separately by two researchers. The following formula was used to calculate the consistency of codes prepared by two researchers: "Reliability = [Agreement / (Agreement + Disagreement)]" (Miles & Huberman, 1994). Using this formula, the consistency between two researchers was found to be 92.3%. Two researchers discussed on codes on which they did not agree, reached an agreement on codes and the common codes were presented to the reader in tables. The observation data and answers given by students to questions asked during the observation process were used in order to interpret answers given to questions in the worksheets.

Limitations

Questions in the worksheets were aimed at specializing, generalizing, conjecturing, and proving phases of MT. Also, instead of all subjects in mathematics, these questions were related to unit squares and unit cubes. Finally, this study was limited to 36 fourth year students attending the elementary mathematics teaching program of the FE in Giresun University and 36 fourth year students attending the mathematics department of the FAS in the same university.

FINDINGS

This section involves answers given by students to questions aimed at specializing, generalizing, conjecturing, and proving phases and findings obtained from observations.

Specializing

In the 1st and 5th questions in the worksheets, students were asked to draw 3 and 4 unit squares side-by-side and calculate the number of adjacent edges in the final shape (W_1S_1); find the perimeter of shapes composed of 3 and 4 unit squares drawn side-by-side (W_1S_5); draw 3 and 4 unit cubes side-by-side and calculate the number of adjacent edges in the final shape (W_2S_1); find the surface area of shapes composed of 3 and 4 unit cubes drawn side-by-side (W_2S_5); draw 8 and 10 unit cubes in a way that the number of junction points will be 3 and 4 (W_3S_1); calculate the number of adjacent surfaces in the final shapes consisting of 8 and 10 unit cubes in a way that the number of junction points will be 3 and 4 (W_3S_5). Codes created for the specializing phase and student answers related to these codes are given below:

Code 1: Drawing All Systematic Shapes Correctly: This code was related to drawing both shapes which were systematic and had a certain pattern correctly, therefore associated with W_1S_1, W_2S_1, and W_3S_1. The success rate related to this code was 88.9%, since some groups were not able to draw any of the shapes. Examples from answers given by the students to W_2S_1 and W_3S_1 are given below:

Figure 1a: Shapes drawn by FE students for W_2S_1

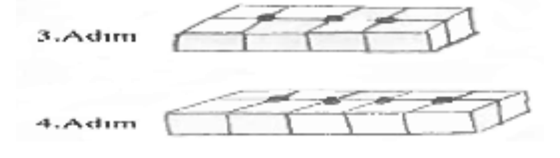
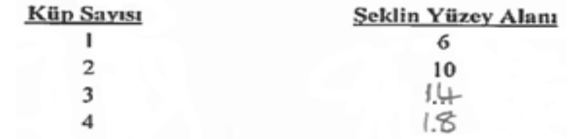


Figure 1b: Shapes drawn by FAS students for W_3S_1

Code 2: Correctly Finding what is Asked for Special Conditions: This code was related to answering questions taking two special conditions into account and following a systematic path, therefore associated with W_1S_1, W_2S_1, W_3S_1, W_1S_5, W_2S_5, and W_3S_5. It was found that the students correctly found all of what was asked from them. Examples from answers given by the groups to W_2S_5 and W_3S_5 are given below:



Küp Sayısı	Şeklin Yüzey Alanı
1	6
2	10
3	14
4	18

Figure 2a: One of the answers given to W_2S_5 by FE students

Küp Sayısı	Bitişik Yüzey Sayısı
4	4
6	7
8	10
10	13

Figure 2b: One of the answers given to W_3S_5 by FAS students

The frequency of codes created for the specializing phase is shown in Table 1:

Table 1: The frequency of codes related to the specializing phase

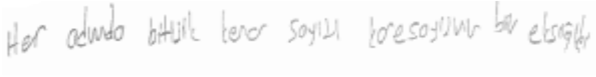
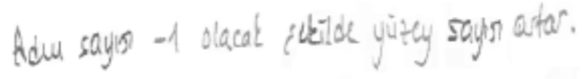
	Faculties	**W_1S_1**	**W_1S_5**	**W_2S_1**	**W_2S_5**	**W_3S_1**	**W_3S_5**	**Total**
Code 1	FE	18	0	15	0	16	0	49
	FAS	16	0	16	0	15	0	47
Code 2	FE	18	18	18	18	18	18	108
	FAS	18	18	18	18	18	18	108
Unanswered	FE	0	0	3	0	2	0	5
	FAS	2	0	2	0	3	0	7

Table 1 shows that all necessary operations related to the specializing phase were correctly performed by the students and the majority of students drew shapes perfectly. It was seen during the observations in the classroom environment that the groups answered questions related to the specializing phase in a short amount of time.

Generalizing

In the 2nd and 6th questions in the worksheets, students were asked to mathematically describe patterns in the number of adjacent edges in unit squares drawn side-by-side (W_1S_2); the perimeter of shapes composed of unit squares drawn side-by-side (W_1S_6); the number of adjacent surfaces in shapes composed of unit cubes drawn side-by-side (W_2S_2); the surface area of shapes composed of unit cubes drawn side-by-side (W_2S_6); the number of junction points in shapes composed of unit cubes drawn side-by-side (W_3S_2); the number of adjacent surfaces in shapes composed of unit cubes drawn side-by-side (W_3S_6). The codes created in relation to the generalizing phase are briefly explained and examples from student answers are given below:

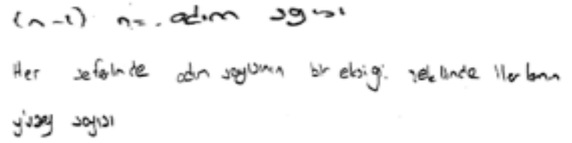
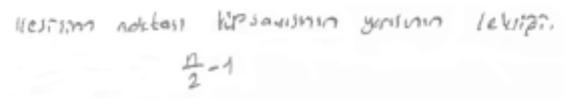
Code 1: Making Verbal Generalizations: This code was related to the students' ability to verbally describe relations between numbers or variables and relevant questions were answered correctly by some of the students. Two examples from answers given by the students to W_1S_2 and W_2S_2 are given below:

 Her adımda büyük kare sayısı karesayısının bir eksiğidir	 Adım sayısı -1 olacak şekilde yüzey sayısı artar.
Figure 3a: One of the correct verbal generalizations made for W_1S_2 by FE students	**Figure 3b:** One of the incorrect verbal generalizations made for W_2S_2 by FAS students

Code 2: Making Mathematical Generalizations: This code was related to the students' ability to mathematically describe relations between numbers or variables and relevant questions were answered correctly and incorrectly by the students. Correct and incorrect answers given to W_3S_2 are given below:

 $1 \quad 2 \quad 3 \quad --- \quad n = \frac{n.(n+1)}{2}$	 $n=4$ için 1 $n=6$ için 2 $n=k$ için $\frac{k}{2}-1$
Figure 4a: One of the incorrect mathematical generalizations made for W_3S_2 by FE students	**Figure 4b:** One of the correct mathematical generalizations made for W_3S_2 by FAS students

Code 3: Making Verbal and Mathematical Generalizations: This code was related to the students' ability to verbally and mathematically describe relations between numbers or variables and relevant questions were answered correctly by all groups. Some examples from answers given by FE and FAS students to W_2S_2 and W_3S_2 are given below:

 $(n-1)$ n=. adım sayısı Her sefesinde adım sayısının bir eksiği şeklinde ilerleyen yüzey sayısı	 Kesişim noktası kirişsayısının yarısının 1 eksiği. $\frac{n}{2}-1$
Figure 5a: One of the verbal and mathematical generalizations made for W_2S_2 by FE students	**Figure 5b:** One of the verbal and mathematical generalizations made for W_3S_2 by FAS students

The frequency of codes created for the generalizing phase is shown in Table 2:

Table 2: The frequency of codes related to the generalizing phase

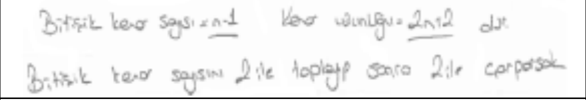
	Faculties	W_1S_2	W_1S_6	W_2S_2	W_2S_6	W_3S_2	W_3S_6	Total
Code 1	FE	4	1	1	0	1	3	10
	FAS	4	2	4	0	2	2	14
Code 2	FE	13	16	16	16	13	12	86
	FAS	13	10	13	11	14	11	72
Code 3	FE	1	1	1	2	4	3	12
	FAS	1	2	1	2	2	2	10
Unanswered	FE	0	0	0	0	0	0	0
	FAS	0	4	0	5	0	3	12

Table 2 shows that FE and FAS students mostly preferred to express relations between numbers or variables mathematically. It was seen in observations made in the classroom environment that the students did not have difficulties in terms of making mathematical generalizations. However, some students were not able to find the patterns asked in W_3S_2 and W_3S_6 and asked for help.

Conjecturing

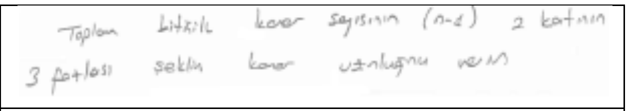
In the 3rd, 7th, and 9th questions in the worksheets, students were asked to mathematically describe relations between numbers of adjacent edges in unit squares drawn side-by-side (W_1S_3); perimeters of shapes composed of unit squares drawn side-by-side (W_1S_7); numbers of adjacent surfaces in cubes drawn side-by-side (W_2S_3); surface areas of shapes composed of unit cubes drawn side-by-side (W_2S_7); numbers of junction points in unit cubes drawn side-by-side (W_3S_3); numbers of adjacent surfaces in shapes composed of unit cubes drawn side-by-side (W_3S_7); numbers of adjacent edges in unit squares drawn side-by-side and perimeters of shapes (W_1S_9); numbers of adjacent surfaces and surface areas of shapes composed of drawn side-by-side (W_2S_9); numbers of conjunction points and numbers of adjacent surfaces of shapes composed of unit cubes drawn side-by-side (W_3S_9). Codes created for the conjecturing phase and answers given by the groups related to these codes are shown below:

Code 1: Making Verbal Conjectures: This code was related to expression of conjectures verbally and it was found that students made correct and incorrect conjectures. Examples from correct and incorrect verbal conjectures made by the students for W_1S_9 are given below:



Bitişik kare sayısı = n-1 Kare uzunluğu = 2n+2 dır.
Bitişik kare sayısını 2 ile toplayıp sonra 2 ile çarparsak

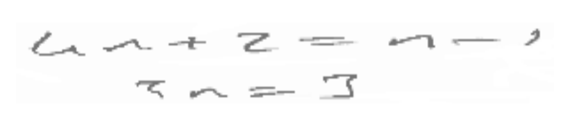
Figure 6a: One of the correct verbal conjectures made for W_1S_9 by FE students



Toplam bitişik kare sayısının (n-1) 2 katının
3 fazlası şeklin kare uzunluğunu verir

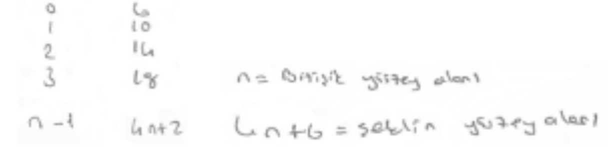
Figure 6b: One of the incorrect verbal conjectures made for W_1S_9 by FAS students

Code 2: Making Mathematical Conjectures: This code was related to describing conjectures mathematically. It was found that the students made mathematically correct or incorrect conjectures related to this code. Some of the answers given to W_2S_9 are shown below:



$4n + 2 = n - 1$
$3n = -3$

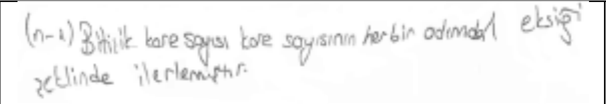
Figure 7a: One of the incorrect mathematical conjectures made for W_2S_9 by FE students



0 6
1 10
2 14
3 18 n = bitişik yüzey alanı
n-1 4n+2 4n+6 = şeklin yüzey alanı

Figure 7b: One of the correct mathematical conjectures made for W_2S_9 by FAS students

Code 3: Making Verbal and Mathematical Conjectures: This code was related to the students' ability to verbally and mathematically describe relations between numbers or variables and relevant questions were answered incorrectly by some students. Two examples from answers given to W_1S_7 and W_3S_7 are given below:



(n-1) Bitişik kare sayısı kare sayısının her bir adımda 1 eksiği
şeklinde ilerlemiştir.

Figure 8a: One of the correct verbal and mathematical conjectures made for W_1S_7 by FE students

2+2n. Her adımın 2 katının 2 fazlasıdır.

Figure 8b: One of the incorrect verbal and mathematical conjectures made for W_3S_7 by FAS students

The frequency of codes created for the conjecturing phase is shown in Table 3:

Table 3: The frequency of codes related to the conjecturing phase

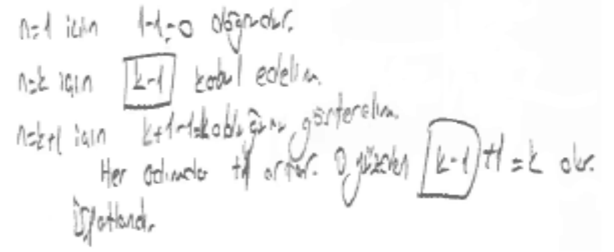
	Faculties	W_1S_3	W_1S_7	W_1S_9	W_2S_3	W_2S_7	W_2S_9	W_3S_3	W_3S_7	W_3S_9	Total
Code 1	FE	8	8	8	11	11	7	11	11	6	81
	FAS	5	4	6	4	5	5	6	5	1	41
Code 2	FE	4	5	4	5	6	6	3	5	5	43
	FAS	12	13	5	13	12	5	12	12	4	88
Code 3	FE	5	5	2	2	1	1	3	2	0	21
	FAS	0	1	1	1	1	5	0	1	4	14
Unanswered	FE	1	0	4	0	0	4	1	0	7	17
	FAS	1	0	6	0	0	3	0	0	9	19

Table 3 shows that the students made verbal, mathematical or verbal and mathematical conjectures as in the generalizing phase. Also, it was observed that FAS students preferred mathematical conjectures, whereas FE students preferred verbal conjectures. Observations showed that most groups had difficulties with the 9th question of each worksheet, which were related to the conjecturing phase. When asked about why they could not answer these questions, the students gave answers such as, "*We are having difficulties with making associations. What should we do*?" or "*They do not have a relation.*"

Proving

4th and 8th questions in the worksheets were related to the proving phase. In this context, the students were asked to calculate and prove the number of adjacent edges at the nth step of a pattern created by drawing unit squares side-by-side and the perimeter of the shape in W_1S_4 and W_1S_8 respectively and calculate and prove the number of adjacent surfaces at the nth step of a pattern created by drawing unit cubes side-by-side and the surface area of the shape in W_2S_4 and W_2S_8 respectively. Also, the students were asked "What would be the number of conjunction points in at the nth step of a pattern created by drawing unit cubes side-by-side?" in W_3S_4 and "What would be the number of adjacent surfaces at the nth step of a pattern created by drawing unit cubes side-by-side?" in W_3S_8. Codes created for the proving phase and student answers related to these codes are given below:

Code 1: Proving Algebraically: This code was more significant for FE students and related to proving a mathematical expression by induction. The students proved mathematical expressions either completely correctly, partially correctly or completely incorrectly. Also, the number of students who proved mathematical expressions completely correctly was quite low. Examples from answers given to W_2S_4 by the students are shown below:



$n=1$ için $1-1=0$ olacaktır.

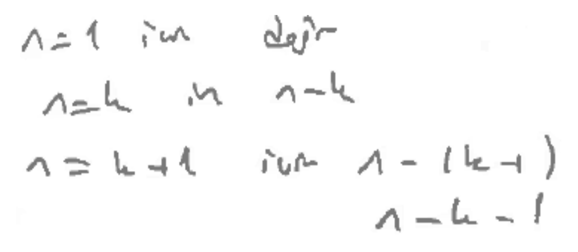
$n=k$ için $\boxed{k-1}$ kabul edelim.

$n=k+1$ için $k+1-1=k$ olduğunu gösterelim.

Her adımda +1 artar. O yüzden $\boxed{k-1}+1=k$ olur.

İspatlandı.

Figure 9a: One of the algebraically correct proofs for W_2S_4 by FE students



$n=1$ için değer

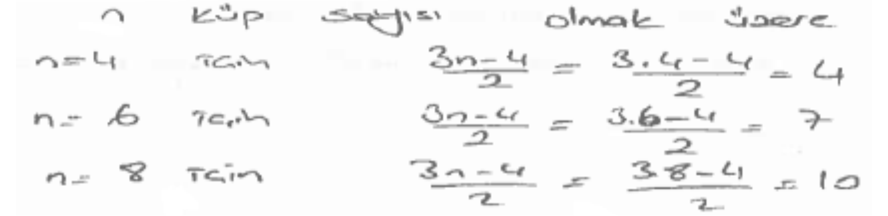
$n=k$ in $n-k$

$n=k+1$ için $n-(k+1)$

$n-k-1$

Figure 9b: One of the algebraically incorrect proofs for W_2S_4 by FE students

Code 2: Proving Arithmetically: This code was more significant for FAS students and related to proving a mathematical expression by giving values to variables. The answer given by one of the groups to W_3S_8 is shown below:



n küp sayısı olmak üzere

$n=4$ için $\frac{3n-4}{2}=\frac{3.4-4}{2}=4$

$n=6$ için $\frac{3n-4}{2}=\frac{3.6-4}{2}=7$

$n=8$ için $\frac{3n-4}{2}=\frac{38-4}{2}=10$

Figure 10: One of the arithmetic proofs for W_3S_8 by FAS students

The frequency of codes created for the proving phase is shown in Table 4:

Table 4: The frequency of codes related to the proving phase

	Faculties	W_1S_4	W_1S_8	W_2S_4	W_2S_8	W_3S_4	W_3S_8	Total
Code 1	FE	18	18	18	18	16	13	101
	FAS	3	2	2	3	2	1	13
Code 2	FE	0	0	0	0	0	0	0
	FAS	15	16	16	15	13	17	92
Unanswered	FE	0	0	0	0	2	5	7
	FAS	0	0	0	0	3	0	3

Table 4 indicates that the students algebraically and arithmetically proved their conjectures. Observations showed that most FAS students attempted to prove mathematical expressions arithmetically in the 4th and 8th questions by giving values to variables and explained this as "*Since we do not know which proving method to use, we tried to prove through trial and error.*" or "*We took the more convenient road and tried to prove expressions by giving values, since we have insufficiencies in terms of proving by induction.*" It was found that all FE students used algebraic proving with induction in the 4th and 8th questions and the students explained this as "*Our teachers emphasized how to prove expressions with induction especially in the general mathematics and the abstract mathematics classes*." Also, it was observed that most groups performed algebraic proving incorrectly or could not complete the proof correctly.

DISCUSSION

It was found that FE and FAS students answered a considerable portion of questions related to the specializing phase perfectly. The fact that the students did not experience any problems when answering questions related to the specializing phase shows that operational knowledge is given importance in mathematics courses. This is mentioned in some studies in the literature as well (Arslan & Yıldız, 2010; Keskin et al., 2013; Uğurel & Moralı, 2010). In terms of generalizing, it was seen that FE and FAS students mostly expressed relations between numbers or variables mathematically. In addition, it was observed that the students did not have difficulties in expressing these relations with mathematical symbols. The finding that the students did not have problems with making mathematical generalizations is not consistent with studies conducted by Arslan and Yıldız (2010), Keskin et al. (2013), Özmantar, Bingölbali, and Akkoç (2008) and Tall (2008). It was observed that FAS students preferred mathematical conjectures, whereas FE students preferred verbal conjectures, which shows that FAS students were more successful in terms of expressing relations between numbers or variables mathematically compared to FE students. The fact that students have difficulties related to conjecturing is mentioned in the literature as well (Arslan & Yıldız, 2010; Keskin et al., 2013). However, FE and FAS students are expected to conjecture, test conjectures, and express conjectures with mathematical symbols and notations. In this context, it should be remembered that creating an environment for students using in-class activities where they can make conjectures is important for the improvement of their MT skills.

Although FAS students developed a formula through trial and error, they were not able to produce valid arguments related to proving the accuracy of these formulas. Said answers were mostly numerical, but not in the form of algebraic representations. The fact that FAS students attempted to prove expressions experimentally by giving values to variables shows that they performed specializing instead of proving. Students were found to attempt to prove mathematical expressions experimentally and this attempt was found to be their dominant strategy in some studies in the literature (Almeida, 2001; Arslan & Yıldız, 2010; Çelik, Güler, Bülbül, & Özmen, 2015; Özer & Arıkan, 2002). FE students, on the other hand, developed valid formulas, but they produced partially correct arguments related to the accuracy of these formulas. All these answers utilized induction and were in the form of algebraic representations. An important part of FE students found the answer for "n=k+1" incorrectly when proving with induction. It was reported in some studies in the literature (Baker, 1996; Movshovitz-Hadar, 1993; Stylianides, Stylianides, & Philippou, 2007) that students had difficulties related to proving with induction. In conclusion, it was understood that FE and FAS students had insufficiencies in terms of proving.

Finally, FAS students correctly answered 95.7%, 86.1%, 81.5%, and 6.5% of questions related to specializing, generalizing, conjecturing, and proving phases respectively. Finally, FAS students correctly answered 96.9%, 95.4%, 82.7%, and 25% of questions related to specializing, generalizing, conjecturing, and proving phases respectively. It seems that the success rate of students from both faculties decreased toward the proving phase, FAS students in particular.

CONCLUSIONS and RECOMMENDATIONS

It was found that FE and FAS students answered a considerable portion of questions related to the specializing phase perfectly and showed a high success rate in the specializing phase. Therefore, it is understood that FE and FAS students were competent in specializing. In this context, it is recommended that conceptual questions are given importance as well as operational questions in primary, middle, secondary, and undergraduate levels. In terms of generalizing, it was seen that FE and FAS students mostly expressed relations between numbers or variables mathematically. A similar result was found for FAS students in the conjecturing phase as well. FE students, on the other hand, mostly used verbal conjectures in the conjecturing phase. This shows that FE students were not as successful as FAS students in terms of making mathematical conjectures. For this reason, it is necessary for faculty members to express relations between numbers and variables using more mathematical symbols and notations and allow students to use the daily and mathematical language in an efficient manner. The fact that some questions were left unanswered, answered incorrectly or partially correctly in the proving phase shows that FE and FAS students had more difficulties in the proving phase compared to other components of MT. In order to improve students' skills related to proving, faculty members should mention the importance of MT phases and proving methods and allow students to work on different proofs of problems. Finally, it was found that the success rate of FE and FAS students decreased when transitioning from one phase of MT to another. It is recommended that proving and proving methods are emphasized more in FE and FAS and worksheets related to proving are added to undergraduate level textbooks.

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Comparison Of The Trends In Higher Education In The Czech Republic, Slovakia And Austria

Martina KUNCOVA
College of Polytechnics Jihlava, Czech Republic
martina.kuncova@vspj.cz

Petr MULAC
College of Polytechnics Jihlava, Czech Republic
martina.kuncova@vspj.cz; petr.mulac@vspj.cz

ABSTRACT

The situation in the tertiary education sector is changing every year according to many factors and conditions. The economic situation influenced by the financial crisis has had the negative impact on the public expenditures including public spending on education. Higher education institutions (HEIs) across Europe face today a threat of critical underfunding and dependence on public sources. As the trends are not similar in all countries we have selected three of them for the comparison. This paper is aimed at the description of the higher education systems in the selected countries (Czech Republic, Slovakia, Austria) and afterwards the comparison of the trends of various factors during last several years is added. The studied factors are percentage of GDP from public sources spent on higher education, private spending on education, % of population studied at HEIs, expenditures per student as % of GDP, school enrolment in tertiary education etc. For the comparison the regression analyses was used.

INTRODUCTION

Today's economic circumstances and financial crisis have resulted into restrictions on public expenditures, which have many impacts into several areas, among others into education. The key problem is to find a way how to arrange that education system can continue to fulfil its role with limited sources. Higher education institutions across Europe face today a threat of critical underfunding which could result into decrease of quality in teaching and also in other educational and research activities. There is a need for finding more effectiveness in setting the system and in running each organisation as well. That is the reason why traditional models of funding have been transformed and continue to evolve. Public sources become more demanding and competitive. In many countries the crisis has intensified public debate about private sources coming from student financial contributions. These discussions tend to focus on the introduction or increase of tuition fees which would help institutions to diversify their income sources and contribute to their overall financial sustainability.

The dependence on the public sources seems to be a problem and so the discussion about the private sources and tuition fees is more important than before. European higher education institutions (HEIs) can be academically or professionally oriented and usually are separated according to the main funding sources as public and private ones. Academic higher education is traditionally offered by universities whereas professional higher education is offered by non-university institutions - universities of applied sciences, university colleges, polytechnics, institutes of technology, Fachhochschulen, hogescholen. Terminology in higher professional education is based on national concepts and is generally a product of historical tradition and background. The problem is that there is no clear and internationally shared definition for the two types of higher education (Camilleri et al., 2013). Professional higher education is a specific form of higher education that offers a particularly intense integration with the world of work in all its aspects (including teaching, learning, research and governance). Its' function is to focus especially on application of learning. This means the combination of study and work processes and the cooperation with employers about the use of practice-relevant knowledge (Camilleri et al., 2013). In some European countries the distinction of the academic/professional higher education was influenced by the Bologna process that started the reform of higher education in the sense of the separation of the system into two cycles, undergraduate (usually three year study bachelor degree) and graduate (Bologna declaration, 1999). According to these changes more non-university institutions practically oriented started to grow. As Kyvik (2004) mentioned, “the main purpose of the non-university institutions was to offer a wide spectrum of vocational education, either to qualify for a specific occupation or to prepare for a profession." Following these assumptions we can suppose that the professional higher education is connected with non-university sector. But the problem is that the boundaries between universities and non-university institutions started to blur (Witte et al., 2008). More about the professional higher education in selected European countries was presented in Kuncova, Mulac (2015).

Education expenditure is financed by two distinct types of funding: public funding and private funding. Public expenditure includes all direct funding of education by the public sector, whereas private expenditure includes the payment of tuition fees and all other payments primarily by households (i.e. students and their families), businesses and non-profit associations. Blankenau et al. (2007) found a positive relationship between public education expenditures and long-term growth but the relationship is also influenced by the level of government spending, the tax structure and the parameters of production technologies. As it is not easy to control all these parameters the idea of private funding seems to be logical step.

MATERIALS AND METHODS

Higher education in Europe faces a lot of problems connected mainly with the underfunding from public sources, uneasy ways of private funding or the demographic decrease. The financial crisis in 2008 and the consequent economic downturn have had a huge impact on public finances in EU countries and also it had influenced the worse position of the higher education among the publicly financed sectors and from the government interest point of view. The need for the government to limit the increasing higher education expenditures is guided by the intention that public resources should be allocated in a transparent way while at the same time offering specific performance incentives (OECD 2010).

The analysis is aimed at the 3 European Union countries that have common history – Czech Republic, Slovakia and Austria. The closest common history dates back to the times of the Austria-Hungary Empire (1867-1918) followed by the Czechoslovakia (1918-1992) with its different political organisation before and after the Second World War and before and after the socialist era. According to these facts the systems of education and higher education as well are similar. As the Czech Republic and Slovakia were for a long time under the influence of the Soviet Union the differences between western European countries (including Austria) and eastern ones (included the Czech Republic and Slovakia) raised.

The qualitative and quantitative data including literature findings and statistical data as well as information gained from interviews with representatives of higher education institutions in each country studied were used in this paper to compare the trends in higher education. The studied factors are percentage of GDP from public sources spent on higher education, private spending on education, % of population studied at public and private HEIs (part time and full time), expenditures per student as % of GDP, school enrolment in tertiary education and the main fields of study. Indicators were then transformed and adjusted using basic mathematical operations into to the desired form of tables. If necessary the regression and correlation analyses were used for the comparison. Before the data comparison the basic description of each country and its higher educational system is presented.

Higher Education in the Czech Republic

Higher education in the Czech Republic is realised at higher education institutions and consists of three cycles: bachelor's, master's and doctoral degree programme. Regarding the system of funding and ownership higher education institutions can be public institutions (legally established), private institutions, existing on the basis of the state approval or state-run institutions (only in the case of military and police academies), legally established under the control of the relevant ministries.

In 2016 higher education in the Czech Republic is provided by 26 public higher education institutions, 2 state higher education institutions and 42 private higher education institutions Under the Higher Education Act, they are classified as university type (24 public, 2 state and 3 private) which offer study programmes at all three levels of higher education and non-university type (2 public and 39 private) which offer mainly bachelor's programmes but may also provide Master's programmes. (MSMT, 2016).

Public higher education institutions are established by law and have the status of a legal entity. They are self-governing organisations and own a property passed on them by the state. State higher education institutions are also established by law and governed by the relevant ministries as organisational units of the state. Private higher education institutions are relatively new elements in the system, their foundation was made possible by the 1998 Higher Education Act. Prior to the establishment, the legal entity that establishes a private education institution is required to have an approval from the Ministry of Education, Youth and Sports. Conditions for its bestowment are clearly set by the law. Public and state higher education institutions are funded from the state budget, private higher education institutions receive funds from other sources. They can receive a subsidy from the Ministry of Education, Youth and Sports only if they have the status of a public benefit corporation (Eurydice-CR, 2016).

Study programmes that can be divided into branches are subject to accreditation awarded by the Ministry of Education, Youth and Sports on the basis of the Accreditation Commission standpoint. In April 2016 the amendment to Higher Education Act was approved. One of the main issues is e.g. new rules for accreditation, including establishment of independent Accreditation Office, and a new system of quality evaluation of higher education institutions.

Universities may offer all three types of study programmes and carry out scientific, research, developmental, artistic or other creative activities connected with these. Almost all public higher education institutions with the exception of two are the university type of institutions and both state higher education institutions are universities too. Higher education institutions of the non-university type offer mainly bachelor’s degree programmes include a period of practical training and carry out research, art and other creative activities connected to the programme. They can also offer master’s degree programmes, if they receive accreditation for them. Two public higher education institutions of the non-university type are transformed from previous tertiary professional schools. The first higher education institution of the non-university type was established in September 2004 – the College of Polytechnics Jihlava. Since 2006, the second public institution, the Institute of Technology and Business in České Budějovice, has also been in operation. All private higher education institutions started as institutions of the non-university type, only three of them became universities lately. (Eurydice-CR, 2016)

In the Czech Republic there is the same system for financing public universities and non-university type of higher education institutions and also the criteria for evaluation of institutions are common for both segments. But the portfolio of the criteria is quite wide, which creates space for some specialization of each organisation. Until 2009 the formula of contribution allocation was depended only on quantity of students. As a result of financial and demographical situation, it has been decided to introduce a new mechanism of performance based funding encompassing the whole range of activities HEIs could perform. Three measures have been taken. First, the Performance Based Funding was introduced only in certain parts of the budget allocated to Public HEIs and its proportion has been gradually increasing. Second, further expansion of the sector has been capped by limiting the number of new students that would be funded by the state. And third, both measures were linked together – for each HEI the number of students funded by the state would depend on performance indicators attained. It is thus clear that the choice of performance indicators is very sensitive as it would significantly affect the behaviour of HEIs and their further development (Koucky, 2012). The Performance Based Funding for 2015 is based on 10 indicators and their weights. The most important is the performance in research activities represented by so-called RIV points with the weight 34.3% followed by the employability of graduates with 16% weight and students mobility incoming and outgoing, each with 14.5% weight (MSMT, 2015).

Study fees are related only to admission procedures and need to be paid once per cycle. No tuition fees are paid by 'typical' higher public education students, provided that they complete their study programme in the regular timeframe. Students who study in second or further degree programmes have to pay fees (maximum CZK 2,819/academic year). Students of study programmes in a foreign language also have to pay tuition fees and no maximum limit is set by law. Tuition fees and other fees connected with the study at a private higher education institution fees are set out in its internal regulations. (EC, 2015)

Higher education in Slovakia

Higher education in the Slovak Republic (SR) is provided by higher educational institutions that have an exclusive right granted by law to provide and organise higher education. Fulfilment of accreditation conditions is assessed by the Accreditation Commission. Accreditation is granted by the minister of education based on the Accreditation Commission’s statement. Higher education institutions may ask for study programme accreditation in any field of study. The Act on Higher Education distinguishes different types of higher education institutions. Regarding the system of funding and ownership, they are divided into public, state owned and private higher educational institutions. In addition, higher education may be also provided by foreign higher education institutions. In 2016 higher education in the Slovak Republic is provided by 20 public higher education institutions, 3 state higher education institutions, 12 private higher education institutions and 5 foreign higher education institutions (MŠVVŠ SR, 2016).

Public HEI is an autonomous institution that establishes and repeals the law. The state-owned higher education institutions are police, military and healthcare higher education institutions. The private higher education institutions are non-profit-making organisations offering generally useful services or limited liable companies which were founded with the purpose of providing education and research. The State consent for operation as a private higher education institution is granted by the Government of the SR. The Accreditation Commission pronounces on the request for giving the consent. Foreign higher education institutions provide higher education in the Slovak Republic in compliance with the legislature of their home country based on the authorisation granted by the Ministry of Education, Science, Research and Sport of the Slovak Republic. Rights and obligations of a foreign higher education institution's students are not governed by the Act on higher education but by the legislature of the institution's home country (Eurydice-SR, 2016).

In agreement with the Higher Education Act all higher education institutions provide the Bachelor study programmes. The professional higher education institutions provide the Bachelor's study programmes only. The professional higher education institutions are oriented particularly on the applied research. In case of university higher education institutions the primary orientation is at basic research and emphasis is laid on doctoral study programmes (Eurydice-SR, 2016)

The main sources of funding for public and state higher education institutions are subsidies from the state budget, subject to a special regulation. A public higher education institutions use also other sources to cover expenditure necessary for their activity. The ministry provides subsidies to a public higher education institution for the implementation of accredited study programmes, research, development or artistic activities, the development of higher education institutions and for the social support of students. The revenues of a public higher education institution include a subsidy from the state budget, tuition fees, charges associated with the study, revenues from further education, proceeds of the property and of the intellectual property, revenues from gifts from natural persons and legal entities and proceeds of the business activity and other revenues, if permitted by the law.

Private higher education institutions secure financing for their educational, research, development, artistic and other creative activities themselves. The ministry provides private higher education institutions with subsidies for social support of students. The private higher education institutions may be also granted a subsidy for its activity from the state budget but actually they receive only the funds for covering statutory claims of the students.

Students in the Slovak Republic pay certain fees and tuition in the cases defined by law. A public higher education institution may require candidates for study to pay fees for the material provision for the admission procedure. All students pay registration fees (from 10 to 100 Euros per academic year) and administrative operations fees. Full-time students of a public higher education institution that have not exceeded the standard length of study, as prescribed for a study programme, do not pay tuition fees. Students who simultaneously study two or more study programmes or who exceed the standard length of a public higher education institution study programme have to pay the annual tuition fees. Tuition can be a maximum of 1,650 EUR per academic year. Part-time higher education students have to pay annual tuition fees for every year of their study. Tuition fees and fees connected with the study at a private higher education institution are defined by the private higher education institution in its internal regulations.

Higher education in Austria

The system of higher education in Austria consists of universities, which represent traditional and the largest sector, universities of applied sciences (Fachhochschulen, FH) introduced in 1994 and university colleges of teacher education (Pädagogische Hochschulen) introduced in 2007. Higher education in Austria is provided by 22 public and 12 private universities, 21 universities of applied sciences, 14 university colleges of teacher education and three private teacher training courses. (BMWFW, 2016).

Universities are state-maintained higher-education institutions at the highest academic or artistic level which run bachelor's, master's, diploma and doctoral programs. Universities are tasked with promoting academic research and teaching, as well as the advancement and appreciation of the arts. These educational institutions under public law serve the acquisition of scientific and artistic abilities and qualifications.

Universities of applied sciences are entrusted with the task of offering study courses at university level which provide a scientifically founded professional and vocational education. They are to ensure practice-oriented education on the basis of the respective professional field, taking account of professional flexibility. They are provided as bachelor programs, master programs, as well as diploma programs, and include a period of practical training. Universities of Applied Sciences degree programs may be provided by the federal authorities and other legal entities under public and private law. The programmes are offered on a broader regional basis than the university programmes. Programmes include: Arts and Design; Business; Cultural Studies and Social Sciences; Police and Military Studies; Health Studies; Natural Sciences; and Engineering. (Eurydice, 2015).

The public universities are funded by the federation by global budgets that are fixed for three years in advance. The global budget consists of the basic budget and the higher education area structural funds. The basic budget is to be negotiated under the performance agreements concluded between the individual university and the Federal Ministry of Science, Research and Economy. The distribution of the higher education area structural funds is based on quality, quantity and performance-related indicators. The indicators take account of teaching, research and development, the advancement and appreciation of arts and social objectives. The main part of the higher education area structural funds is allotted on the basis of numbers of exam-based programs/active students and degrees conferred.

Universities of applied sciences are institutions under private law. For the whole sector, a development and funding plan is decided upon between the Austrian federation, states and the Fachhochschul Council. The negotiations are based on calculated student places. The public funding is limited to 90% of the full cost; the remaining part is to be covered by local authorities and business sponsors. This system of mixed funding is based on the standard cost system. The Federal Government bears the costs per study place, provided that the catalogue of established criteria is complied with. The Austrian Science Council (Österreichischer Wissenschaftsrat) (2012) lists four groups of courses and unit costs per student place where the costs are between 6,510 and 7,940 EUR for admitted student. Costs for buildings, investments and a part of the running costs are borne by the provider of the Universities of Applied Sciences degree programme (usually the governments of the federal provinces, regional and supra-regional territorial authorities or other public and private institutions assume part of the costs). The professional higher education sector is also predominantly government-funded - this part varies between 60 and 70 % of the total expenditure, regional sources vary between 22 and 36 % of the total expenditure. Each federal province (Land) or regional authority use different funding system – global funding independent of the number of students (eg. Upper Austria - Oberösterreich) or on the contrary, funding according the number of students (eg. Wien, Lower Austria and Tyrol). (BMWFW, 2015).

There are no tuition fees for university students in Austria but providers of universities of applied sciences are entitled to charge fees up to the maximum amount of EUR 363.36 per semester.

RESULTS AND DISCUSSION

The situation in higher education sector can be viewed and compared according to the various aspects. In this article the comparison based on the statistical data was selected. As it was written before all three countries has similar historical base that influence also the development of the higher education system. When talking about the number of HEIs in the Czech Republic in connection with the state budget it is sometimes said that the number of these institutions is very high. But when we take into account the number of inhabitants and compare it with other countries it is not possible to say that the number of the HEIs in the Czech Republic exceeds the usual average. 70 HEIs per 10.5 million of inhabitants in the Czech Republic mean 150 thousands of inhabitants per 1 HEI on average. In Slovakia the average is 135 thousands of inhabitants (40 HEIs per 5.4 millions of inhabitants) and in Austria it is about 118 thousands of inhabitants per 1 HEI (72 HEIs per 8.5 millions of inhabitants). On the other hand the higher education is important for the development of the country – and from this point of view we may conclude that the highest percentage of population studied at HEIs was (in 2014) in Austria (Table 1). Next big difference is in the separation between the public and private HEIs. In all three countries the number of public institutions outweighs the number of the private ones but the percentage of the students studied at the public HEIs in the Czech Republic is the highest although the number of public HEIs represents nearly half of the number of the private ones in this country. The reason lies in the tuition fees paid at the private HEIs and also in the fact that the public HEIs have higher credit and trust than the public ones. Other big difference can be seen in the percentage of students studied full time or part time. According to the Eurostat (2014) there is no part time study in Austria and so all the students study full time. On the other hand nearly 1/3 of the students in tertiary education in Slovakia study part time in comparison with only 4% in the Czech Republic. The same trend we see in Table 2 in % of students at Bachelor and Master programmes of study studied part time. A detailed analysis of reasons for this difference will be the subject of another upcoming article.

The last column in Table 1 is connected with the academic staff. In the Czech Republic in relation to the expenditures on tertiary education we often hear that there is a lot of academicians at the Czech HEIs. Data taken from Eurostat (2014) do not confirm this speculation as in other two countries the number of academic staff is higher with respect to the number of students. Except of the differences in the full-time and part-time studies Table 2 shows the difference among the distribution of tertiary students into the different study levels. While in the Czech Republic and Slovakia most of the tertiary students study at the bachelor level (and usually only about half of them continue in the master study) the rate of the bachelor and master study in Austria is more balanced but in this country more students study other types of tertiary education (including training courses or doctoral study).

2014	students enrolled in tertiary education							
	number of students	% of population	% of active popul.	% at public HEIs	% at private HEIs	% part time	% full time	number of students per member of academic staff
Austria	421225	**4.94**	**7.33**	83.54	**16.46**	0.00	**100.00**	15
Czech Republic	418624	3.90	5.77	**87.72**	12.28	4.08	95.92	**21.9**
Slovakia	197854	3.63	5.09	83.05	**16.95**	**28.88**	71.12	13.8

Table 1: Comparison of percentages of students enrolled in tertiary education in selected countries. Source: Eurostat 2014

2014	students enrolled in tertiary education							
	% Bc	% Bc public	% Bc private	% Bc part time public	% Master	% Master public	% Master private	% Master part time public
Austria	42.59	78.42	21.58	**0.00**	33.16	87.95	12.05	**0.00**
Czech Republic	**61.23**	84.92	15.08	**96.41**	32.54	90.83	9.17	**95.71**
Slovakia	**57.19**	81.92	18,08	**51.10**	36.25	83.78	16.22	**60.04**

Table 2: Comparison of percentages of students enrolled in tertiary education in Bc. or Master type of study in selected countries. Source: Eurostat 2014

The situation with the expenditures on education was completely different during the years 2001-2004 (Figure 1) when the % of total government expenditures on education went down in Austria, up in Slovakia and up and down in the Czech Republic. Since that the trends in all three countries are similar. When the linear regression line is used to fit the trend the slope for Austria and for the Czech Republic is positive (Austria 0.02, CR 0.09) but in Slovakia it is nearly fixed (-0.001) for the period 2001-2012. The government expenditures on education as % of GDP have the similar trends in all three countries. Although nearly all years the percentage goes down in Austria the linear regression line has positive slope (0.015) but it is smaller than the one for the Czech Republic (0.038). The fall during the period 2003-2008 in Slovakia causes that the trend for the whole selected period in this country is negative (slope -0.013). The data show that the changes in expenditures on education are not influences so much by the economic crisis but more by the policy of every government. The situation seems to be better in Austria where the percentage is the highest.

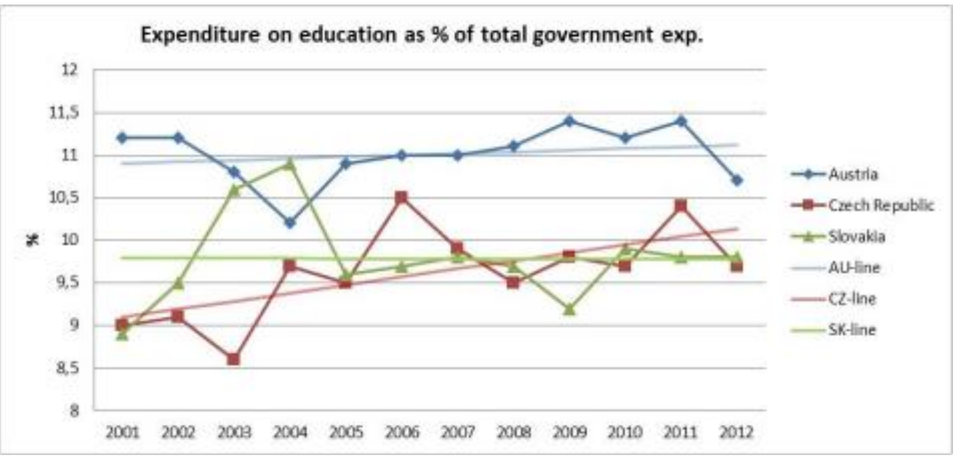

Figure 1 – Trends of the expenditures on education as % of total government expenditures (Source: Worldbank, 2014)

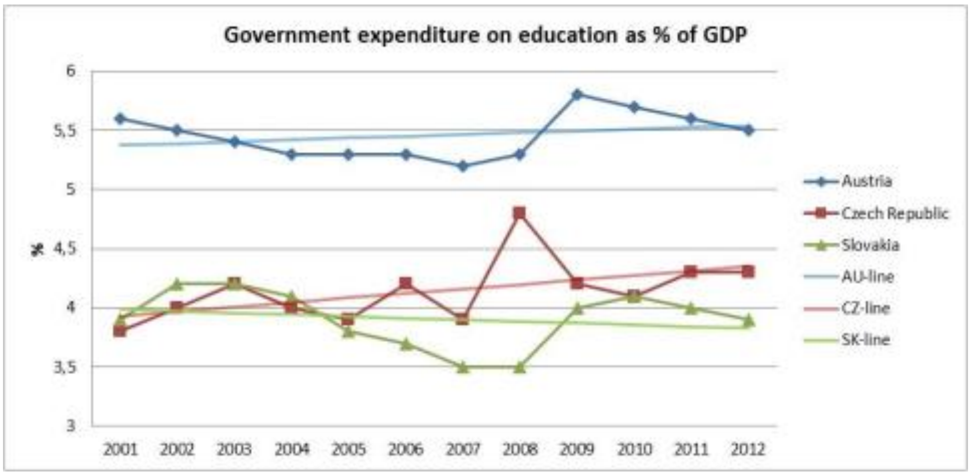

Figure 2 – Trends of the government expenditures on education as % of GDP (Source: Worldbank, 2014)

The description is completely different when we see the trends of the government expenditures per tertiary student as % of GDP per capita (Figure 3). In all three countries the linear regression lines have negative slopes. The main reason for this was probably the rising number of students in the tertiary education. Again the best values were reached in Austria. All these data show us that especially in the Czech Republic and Slovakia the situation with the expenditures on education was improving during the years but still it did not reach the Austrian levels. Although all governments usually said that education belongs to the main priorities, data about the expenditures on education and tertiary education did not confirm these declarations.

The last comparison is aimed at the distribution of tertiary students by field of study (Figure 4). In all three countries one third of students was aimed at the social sciences, business and law. The second place was different – whereas in Austria and in the Czech Republic the second biggest group of tertiary students studied in the field of engineering, manufacturing and construction (in Austria nearly 19 % of students, in CR almost 13 %), in Slovakia the second largest field of study was health and welfare (almost 19 % of tertiary students). This is also very interesting fact that cannot be easily explained without knowledge about the Slovak conditions and it should be a part of another study.

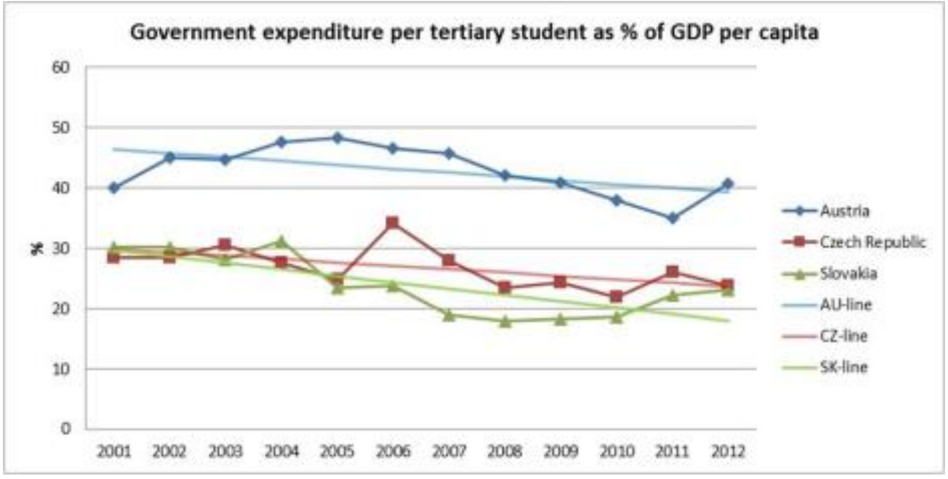

Figure 3 – Trends of the government expenditures per tertiary student as % of GDP per capita (Source: Worldbank, 2014)

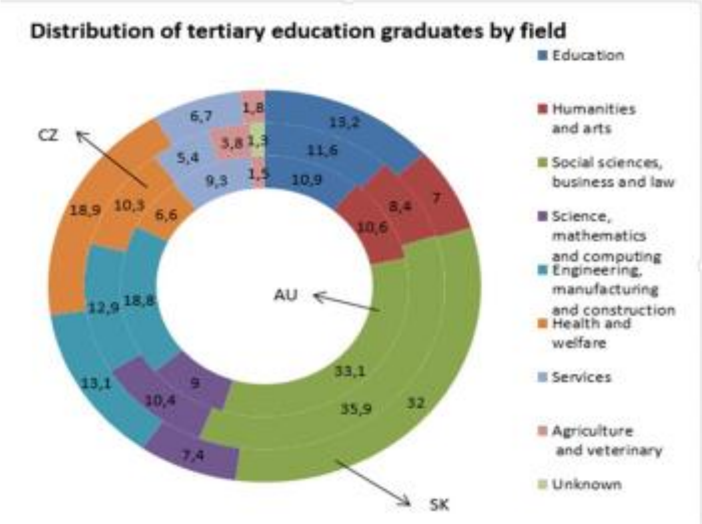

Figure 4 – Distribution of tertiary education by field of study (Source: Eurostat, 2014)

CONCLUSION

The main aim of this paper was the comparison of higher education in the Czech Republic, Slovakia and Austria. Each country has its own specific rules and different conditions connected with the tertiary education. The main differences can be summarized by these facts:

- Expenditures on education were rising more in the Czech Republic but they are still lower than in Austria.
- Expenditures per tertiary student were falling down in all countries.
- Austria had the highest % of population at HEIs and no part-time study.
- Czech Republic had the highest % of students at public HEIs and high number of students per 1 academician.
- Slovakia had the highest % of part time students at private HEIs and the highest % of students studied health and welfare.

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Comparison On The Perception On The Direction Of Education Communities In Korea According To Factors Related To Special Educators

Soonyoung HWANG
Pusan National University
special-hsy@pusan.ac.kr

Eunhwa LEE
Silla University

Hoohee LEE
Pusan National University

ABSTRACT

The objectives of this research are significant in that this research derives the perception of special educators on the direction that education communities must prioritize in order to form warm education communities. In order to achieve this, a survey was conducted against a total of 312 special educators that works as teachers at special education schools and teachers that worked in the special education departments of general schools on 5 types of directions that education communities must implement in order to form warm education communities. IBM SPSS Statistics 23 was used to analyze the collected data. First, in order to examine the demographic characteristics of the educators surveyed, frequency analysis was conducted. Second, the analysis on the direction of education communities that special education teachers considered to be most important to form a warm education communities was conducted by teacher experience and type of education institute they worked for. The results of the research confirm that for all factors related to educator experience and school affiliation, the direction of education communities perceived by special educators considered the pairs of objectives vs methods, group oriented-ness vs individual oriented-ness, social community vs individual freedom, care vs practicality and humanity vs work oriented-ness to be equally important. Through this it can be considered that in order to form warm education communities, instead of leaning towards a particular direction, the management of classes and all general tasks of a school must be conducted while balancing each of the factors to be appropriate for the given time and situation.

INTRODUCTION

Within the school, educators must take on the role of an educator, a teacher of curriculum, a leader of personality education and manager of education curriculum etc.(Chung Chung-Chin, 2002). and also serve the critical role in establishing favorable relationships between the school and the student's families, fluid communication with the administrative department and even conducting general affairs etc. It is also reported that as the main agent in education communities, the educator must have the highest level of perception in regards to communities and also related abilities.(Won Deok-Jae, 2015).

Recently there has been abundant research in the area of examining the concepts and influencing factors needed to form warm education communities against the main stakeholders of education communities, which include general educators, special educators and students etc. (Cho Yoon-Jung, 2015; Hwang Soon-Young et al., 2015; Lee Sang-Soo et al., 2015; Park Han-Sook et al., 2015; Park Han-Sook, Song Yeon-Joo & Lee Sang-Soo, 2015). But in order for these influencing factors to operate in the same direction for each of the education community stakeholders, there is a need to examine the current direction that an education community is headed in. Therefore through questions that examine the direction of education communities, this research attempted to derive the perceptions according to the factors related to special educators.

METHOD

Subject of study

The research subjects were special educators affiliated with special education schools or special education programs of general education schools in the Seoul, Busan, Ulsan and South Gyeongsang regions. A total of 350 special educators responded to the survey, and excluding 38 surveys that were filled out incompletely or inappropriately, a total of 312 surveys were reflected in the final analysis. The detailed demographical characteristics of special educators that participated in this research are shown in <Table 1>.

Table 1: Characteristics of the special teachers surveyed

Division		N	%
Career of teachers	0-10 years	208	66.7
	11-20 years	65	20.8
	over 21 years	39	12.5
Affiliated school	special schools	229	73.4
	special classes	83	26.6
Total		312	100

A research tool

By analyzing previous research on education communities, this research developed survey questions with the objective of deducing the 5 types of directions of education communities. During the development of the survey, 10 education and special education experts validated and verified the appropriateness of the survey design. The survey included indicating the teaching experience and school affiliation of the special educator and choosing an appropriate direction for education communities to take. The 5 direction pairs of objectives vs methods, group oriented-ness vs individual oriented-ness, social community vs individual freedom, care vs practicality and humanity vs work oriented-ness were derived.

Data analysis

IBM SPSS Statistics 23 was used to analyze the collected data. First, in oder to examine the demographic characteristics of the educators surveyed, frequency analysis was conducted. Second, the analysis on the direction of education communities that special education teachers considered to be most important to form a warm education communities was conducted by teacher experience and type of education institute they worked for.

RESULTS

Table 2: The direction of education communities according to teacher career

Factors	No.	0-10 years		11-20 years		over 21 years		Total	
		N	%	N	%	N	%	N	%
objectives vs methods	objective	37	17.8	13	20.0	5	12.8	55	17.6
	methods	43	20.7	11	16.9	5	12.8	59	18.9
	Equality	128	61.5	41	63.1	29	74.4	198	63.5
group oriented-ness vs individual oriented-ness	group oriented-ness	33	15.9	12	18.5	8	20.5	53	17.0
	individual oriented-ness	37	17.8	6	9.2	6	15.4	49	15.7
	Equality	138	66.3	47	72.3	25	64.1	210	67.3
social community vs individual freedom	social community	43	20.7	15	23.1	11	28.2	69	22.1
	individual freedom	44	21.2	8	12.3	5	12.8	57	18.3
	Equality	121	58.2	42	64.6	23	59.0	186	59.6
care VS practicality	care	44	21.2	15	23.1	8	20.5	67	21.5
	practicality	61	29.3	21	32.3	11	28.2	93	29.8
	Equality	103	49.5	29	44.6	20	51.3	152	48.7
humanity vs work oriented-ness	humanity	62	29.8	17	26.2	15	38.5	94	30.1
	work oriented-ness	25	12.0	8	12.3	1	2.6	34	10.9
	Equality	121	58.2	40	61.5	23	59.0	184	59.0
Total		208	100	65	100	39	100	312	100

Table 3: The direction of education communities according to affiliated school

Factors	No.	Special schools		Special classes		Total	
		N	%	N	%	N	%
objectives vs methods	objective	38	16.6	17	20.5	55	17.6
	methods	48	21.0	11	13.3	59	18.9
	Equality	143	62.4	55	66.3	198	63.5
group oriented-ness vs individual oriented-ness	group oriented-ness	39	17.0	14	16.9	53	17.0
	individual oriented-ness	41	17.9	8	9.6	49	15.7
	Equality	149	65.1	61	73.5	210	67.3
social community vs individual freedom	social community	54	23.6	15	18.1	69	22.1
	individual freedom	43	18.8	14	16.9	57	18.3
	Equality	132	57.6	54	65.1	186	59.6
care VS practicality	care	48	21.0	19	22.9	67	21.5
	practicality	80	34.9	13	15.7	93	29.8
	Equality	101	44.1	51	61.4	152	48.7
humanity vs work oriented-ness	humanity	74	32.3	20	24.1	94	30.1
	work oriented-ness	28	12.2	6	7.5	34	10.9
	Equality	127	55.5	57	68.7	184	59.0
Total		229	100	83	100	312	100

CONCLUSIONS

The results of the research confirm that for all factors related to educator experience and school affiliation, the direction of education communities perceived by special educators considered the pairs of objectives vs methods, group oriented-ness vs individual oriented-ness, social community vs individual freedom, care vs practicality and humanity vs work oriented-ness to be equally important. Through this it can be considered that in order to form warm education communities, instead of leaning towards a particular direction, the management of classes and all general tasks of a school must be conducted while balancing each of the factors to be appropriate for the given time and situation.

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Computer Science Students' Attitudes

Piroska BIRÓ
Faculty of Informatics
University of Debrecen, Hungary
biro.piroska@inf.unideb.hu

Mária CSERNOCH
Faculty of Informatics
University of Debrecen, Hungary
csernoch.maria@inf.unideb.hu

ABSTRACT

The high attrition rate in informatics is alarming. We tested first year students and found that they start their tertiary studies with a low level of computational thinking. We provide details of the attitudes of students towards informatics and their expectations as regards computer education. We found that a very low number of students recognized that computer sciences require high level algorithmic skills and select informatics as their major to learn programming. Consequently, the students' attitudes and their expectations from previous studies and their previous environment explain, in part, the high attrition rate experienced in these subjects.

INTRODUCTION

It is well-known that tertiary studies and courses in informatics experience an extremely high attrition rate. To find some explanation for this failure we have launched the Testing Algorithmic and Application Skills project (TAaAS). First year students of informatics have been tested within the framework of this project in a test which focuses on the students' algorithmic skills, and their ability to transfer knowledge between different computer problem solving environments immediately after leaving secondary education.

In our previous analyses, we have found that students of informatics start their tertiary education with a low level of computational thinking (Csernoch et al. 2015; Csernoch & Biró 2016), most of them not being able to recognize algorithms in different environments (Csernoch 2011, 2014, 2015; Biró et al, 2015a, 2015b, 2016), and generally preferring low mathability problem solving approaches (Baranyi & Gilányi, 2013; Biró & Csernoch, 2013, 2015a, 2015b).

To find an explanation for students' underperformance, we have hypothesized that the self-assessment and attitude section of the TAaAS project would provide additional useful information. Among various questions dealing with students' computer activities, we collected (S1) their results in the school leaving exams (SLE), if these were available, and (S2) their self-assessment values when answering the question "How do you evaluate your knowledge in programming? (0%=I do not know it at all, 100%=I know it very well)". In the attitude section, the students were asked (A1) about their selection of, and motivation towards, their major subject, (A2) about their future plans, (A3) about what expectations they have of the university/college, and (A4) about what informatics means for them.

In the present paper we provide the details regarding students at the Faculty of Informatics of the University of Debrecen, Hungary who started their studies in the 2014/2015 academic year. The faculty runs three major courses in informatics:

- Software Engineering (SOE),
- System Engineering (SYE),
- Business Information Management (BIM)

In Hungary, students are accepted into tertiary education based on their high school and/or school leaving exam results at intermediate and/or advanced level. Without going into any further details of the method of acceptance (SLE, 2016), we must note that it is not compulsory for tertiary studies in informatics to take the school leaving exam in informatics [Table 1, columns No data]. On the other hand, from our point of view the fact that at intermediate level only application tasks are presented, while at advanced level more demanding application tasks along with a complex programming task have to be solved, plays a crucial role. Taking the school leaving exam in mathematics is compulsory, but again, students have a choice when selecting the level of the exam [Table 2].

SCHOOL LEAVING EXAMS (SLE)

In spite of the fact that informatics is not a compulsory subject in the school leaving exams, most of the students at the faculty have taken it. In terms of the number of students participating in the informatics SLE there is not much difference between the three groups at intermediate level. However, at advanced level, where a programming task is included, 40%, 17%, and 6% of the SOE, SYE, and BIM students took the exam, respectively [Table 1, columns N(%)]. Furthermore, a significant difference was found in the three groups between those students who took the SLE in informatics at intermediate and at advanced level ($p<0.001$, Pearson's χ^2 test).

Informatics		Intermediate level			Advanced level			No data	
Course	Students	N	N (%)	AR	N	N (%)	AR	N	N (%)
SOE	117	65	56%	80%	47	40%	67%	5	4%
SYE	89	62	70%	78%	15	17%	65%	12	13%
BIM	86	56	65%	74%	6	7%	54%	24	28%

Table 1: The number of students taking the school leaving exams in informatics and their average results (AR)

In mathematics, which is a compulsory subject, most of the students took the intermediate exam with similar results in the three groups, and both at intermediate and advanced levels significant differences were found among the results [Table 2, columns AR] achieved by the three groups ($p=0.001$, $p=0.040$). At an advanced level, the small number of students does not allow us to draw consequences, but the tendency is similar in the two subjects, considering the number of students, while the results of the SOE students are much higher than those of the other two groups [Table 2].

Mathematics		Intermediate level		Advanced level		No data
Course	Students	N	AR	N	AR	N
SOE	117	104	76%	9	83%	4
SYE	89	78	70%	6	67%	5
BIM	86	77	68%	6	61%	3

Table 2: The number of students taking the school leaving exams in mathematics and their average results (AR)

RESULTS

Self-assessment

In the self-assessment section of the TAaAS project the students were asked the question "How do you evaluate your knowledge in programming? (0%=I do not know it at all, 100%=I know it very well)". In the informatics section of the TAaAS project these self-assessment values were compared to their results in elementary algorithms presented in different traditional and non-traditional programming environments (Csernoch & Biró, 2015a, 2015b, 2015c, 2015d, 2015e).

	<50%		≥50%		No data
Course	N	%	N	%	N
SOE	53	45%	63	54%	1
SYE	51	57%	31	35%	7
BIM	70	81%	15	17%	1

Table 3: The students' self-assessment of their programming knowledge

The students' self-assessment values of their knowledge in programming provide us some guidance in terms of their awareness of the subject. However, we must note here that our previous analyses revealed that these self-assessment values show a high level of overconfidence (Biró & Csernoch, 2013, 2014; Csernoch & Biró, 2013, 2014a, 2014b; Csernoch et al. 2015). The comparison of the number of students who took the advanced level SLE in informatics and their self-assessment values further strengthen this discrepancy. However, the analyses of these values are beyond the scope of this paper, and similar to Eurostat (Eurostat, 2016), we accept them as they are for our immediate purposes.

Being aware of the possible discrepancy between self-assessment values and the real knowledge, Table 3 and Fig. 1 clearly show that students start their studies in informatics with a low level of programming knowledge. Even on the most programming-oriented course (SOE), around 50% of the students declared that their knowledge was below 60%. The extremely high number of students in the BIM group who do not have any programming knowledge is alarming [Table 3 and Fig. 1].

These self-assessment values clearly show that even though informatics is a compulsory subject in elementary and secondary education (Curricula, 2013), even those students who selected informatics as their major are not sure of their programming knowledge. Our previous results showed that students generally use low mathability problem solving approaches which allow them to achieve high scores in the intermediate school leaving exam but do not lead to procedural problem solving (Pólya, 1954; Knuth, 1997, 2012). This is despite the fact that in the last two decades several non-traditional programming tools have appeared which serve different interest groups (Soloway, 1993; Csernoch & Biró, 2015b, 2015c).

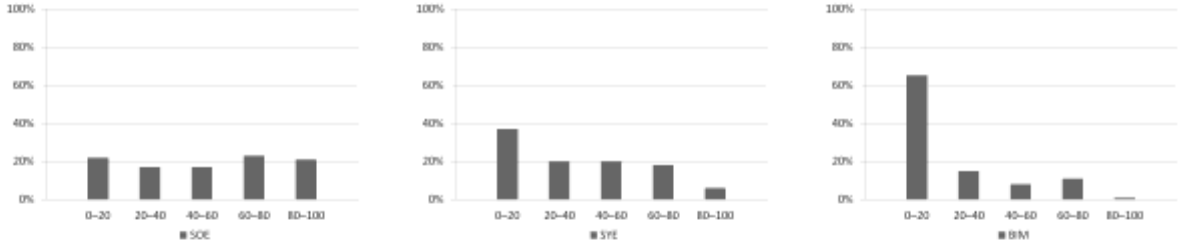

Fig. 1: The relative frequency of students' self-assessment values

In the next phase of the TAaAS test we were interested to see the students' motivation for selecting informatics as their major by asking the question "Why did you choose this course?" The following options were offered for the students to select:

- I decided on my own, because I like Informatics and I plan to use my qualification (MOD = "my own decision").
- On the advice of friends and family (F&F = "friend and family").
- I was not good enough for any other courses (NGE = "not good enough").
- Other.

Most of the students selected informatics on their own, regardless of their self-assessment programming values. What could be their expectations and their motivation, if they are not aware that informatics requires high level computational thinking, algorithmic, and programming skills?

	MOD		F&F		NGE	
	N	%	N	%	N	%
SOE	108	92%	7	6%	0	0%
SYE	85	96%	8	9%	1	1%
BIM	57	66%	21	24%	2	2%

Table 4: The students' motivation for selecting informatics as their major

Further analysis revealed that significant differences were found ($p<0.001$, Pearson's χ^2 test) between the three groups in their motivation for selecting informatics as their major. Most of the SOE and SYE students decided on their own (MOD), while 24.4% of the BIM students declared that they started their course in informatics, because friends and family (F&F) advised them to do so. Only a very low percentage of students declared (without any significant difference between the groups, $p=0.266$) that they started their studies in informatics because they were not accepted on any other courses [Table 4 and Fig. 2].

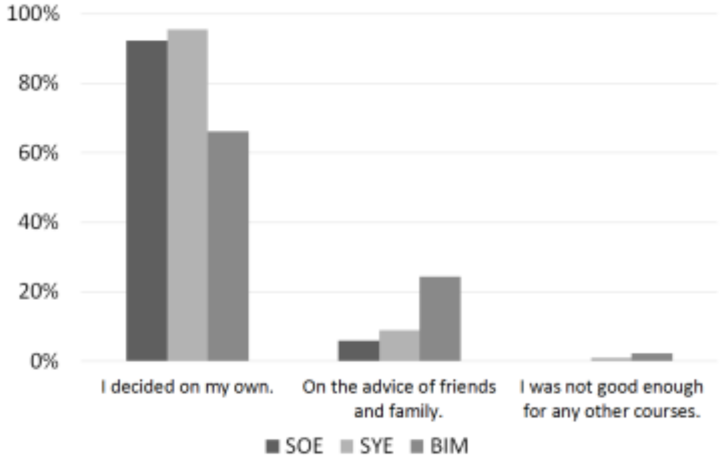

Fig. 2: The students' motivation in selecting informatics as their major

With the question “Which specialties of Informatics would you choose after finishing your tertiary education?”, we intended to test the students’ choice of career path within informatics if they finished their tertiary studies (Fig. 3). In this respect, significant differences were found between the groups in the following job opportunities ($p<0.001$): programmer, researcher, database administrator, building/maintaining networks, supervisor, database management, and data mining, while there was no difference found between becoming a teacher and a web developer ($p=0.388$). The SOE students clearly declared their intention/dream of becoming software developers, programmers. In the other two groups a relatively low number of students start their studies with this intention. In the SYE group students prefer jobs involving building and maintaining networks and web development (Fig. 3). In the BIM group jobs related to data management are the most popular. These selections are echoed in the students’ choice of courses and special subjects within informatics.

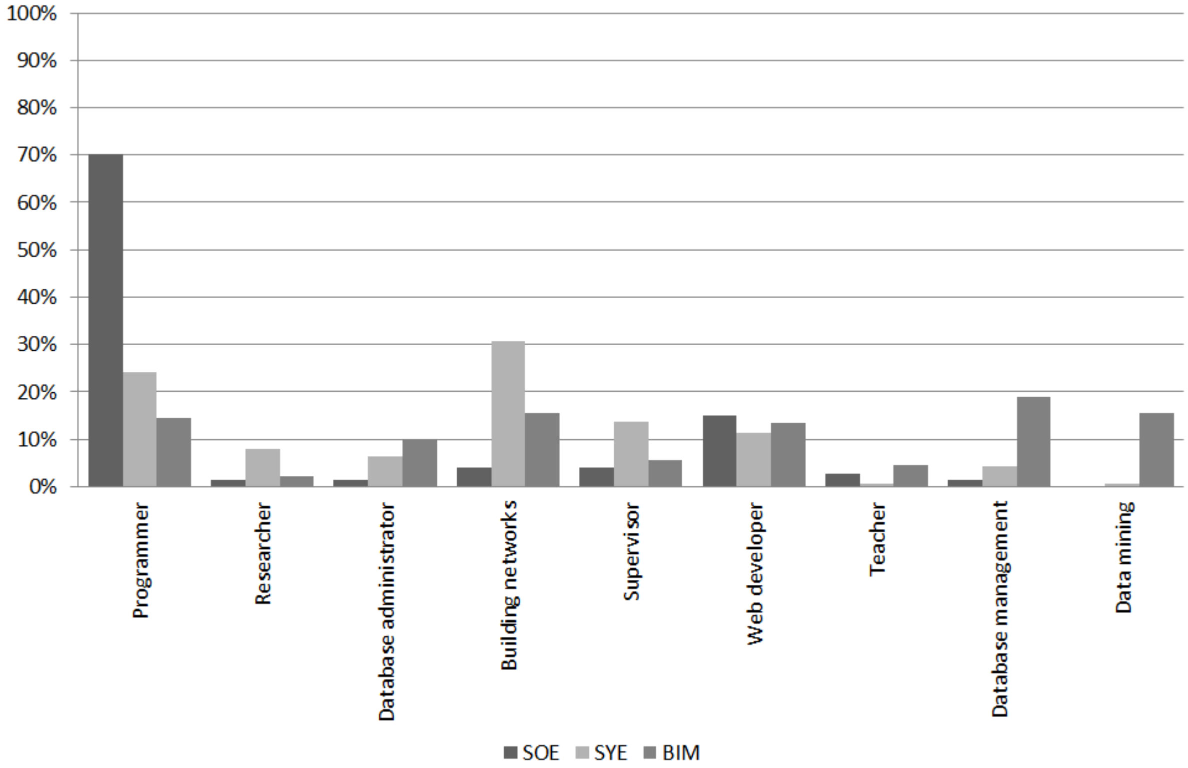

Fig. 3: Students’ career path intentions at the beginning of their studies in informatics

It was also found that there is a significant difference between those students whose self-assessment values in programming were high and low – regardless of their courses – when selecting jobs in programming (programmer) (Fig. 1 and Fig. 3). Those students who started their tertiary education with some knowledge of programming wanted to become a programmer, unlike those who arrived without any background knowledge in the field. In this case, it was not the chosen special course within informatics, but the students’ programming knowledge which guided them in their choice.

With the question “What expectations do you have of the university/college?” our purpose was to clarify the students’ expectations of their tertiary studies/institutes/courses. We wanted to see the difference between the three courses in terms of whether the students claimed that they were good/not good in programming. In this question multiple answers were accepted, so the number of responses (163, 133, and 125 in the SOE, SYE, and BIM groups, respectively) is higher than the number of participating students [Table 1].

Among the students’ answers the most popular were good jobs – usually with a high salary –, gaining knowledge, an acceptable basic course, and getting a degree.

In comparing the three groups, we found significant differences in terms of knowledge, job, and course. For the SOE students the most important thing was a job and gaining knowledge in their basic course, while for the BIM students gaining knowledge had the priority and a job and basic course were ranked equal second. The SYE students’ selections fall between the other two groups in these categories. A high quality course is also mentioned by some of the SOE students, along with learning opportunities, but neither the SYE nor the BIM students find these two aspects important. Consequently, the BIM students wanted to gain knowledge without learning too much, while 10% of the SOE responses showed that they are ready to study. We must also draw attention to those students who have no expectations (9%, 8%, and 3% in the SOE, SYE, and BIM groups, respectively).

Only a very few students mentioned that programming and developing their algorithmic skills were expected in their courses [Table 5]. Students, in general, do not expect tertiary informatics courses to teach them programming. The question, therefore, is why programming and developing algorithmic skills do not have a high priority.

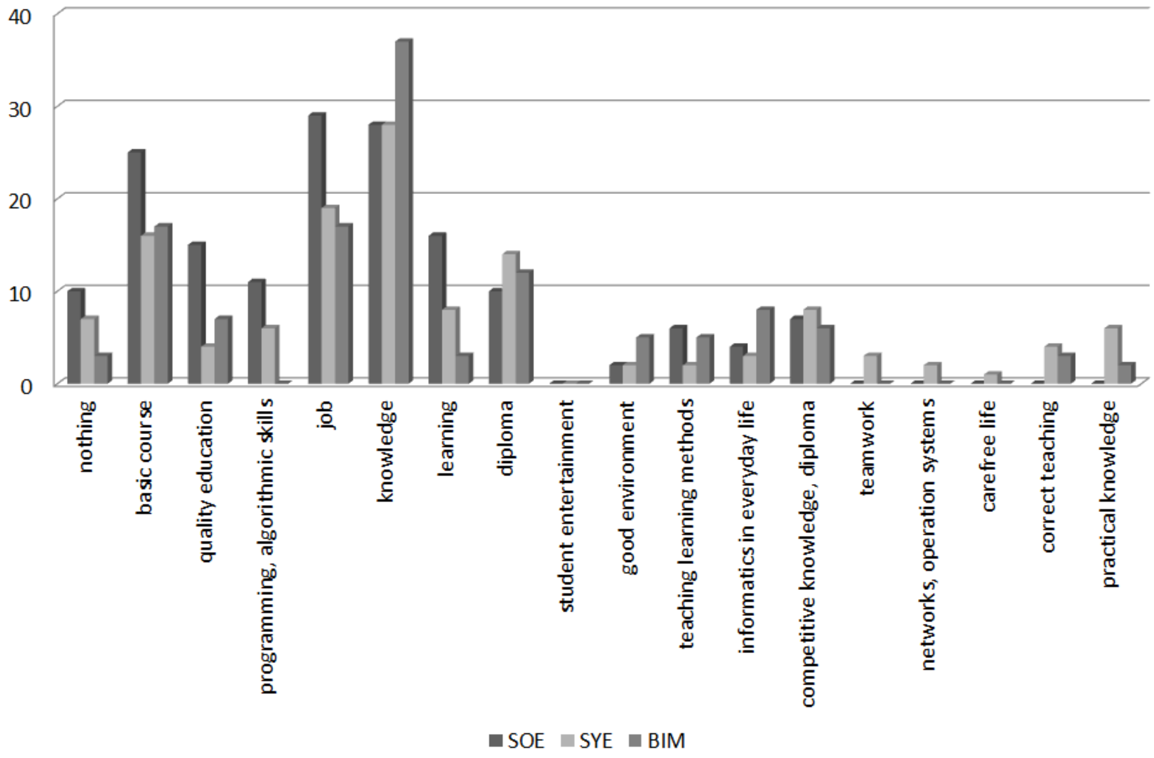

Fig. 4: The number of students answering the question "What expectations do you have of the university/college?"

	Programming			Gaining knowledge		
	N	<50%	≥50%	N	<50%	≥50%
SOE	11	4	7	28	15	13
SYE	6	2	4	28	12	16
BIM	0	0	0	37	30	7

Table 5: The number of students who mentioned programming, developing algorithmic skills and gaining knowledge among their expectations

To find some explanation for the students' expectations, we analyzed their answers to the question "What does Informatics mean for you?" Again, multiple answers were accepted, and the numbers of answers were 147, 118, and 106 in the SOE, SYE, and BIM groups, respectively. Similar to their expectations, most of the students declared that for them informatics represents a job and a future – set {job, future}. The second largest group is made up of those for whom it is a hobby, an entertainment and is interesting; I am interested, I like it – set {hobby, entertainment}.

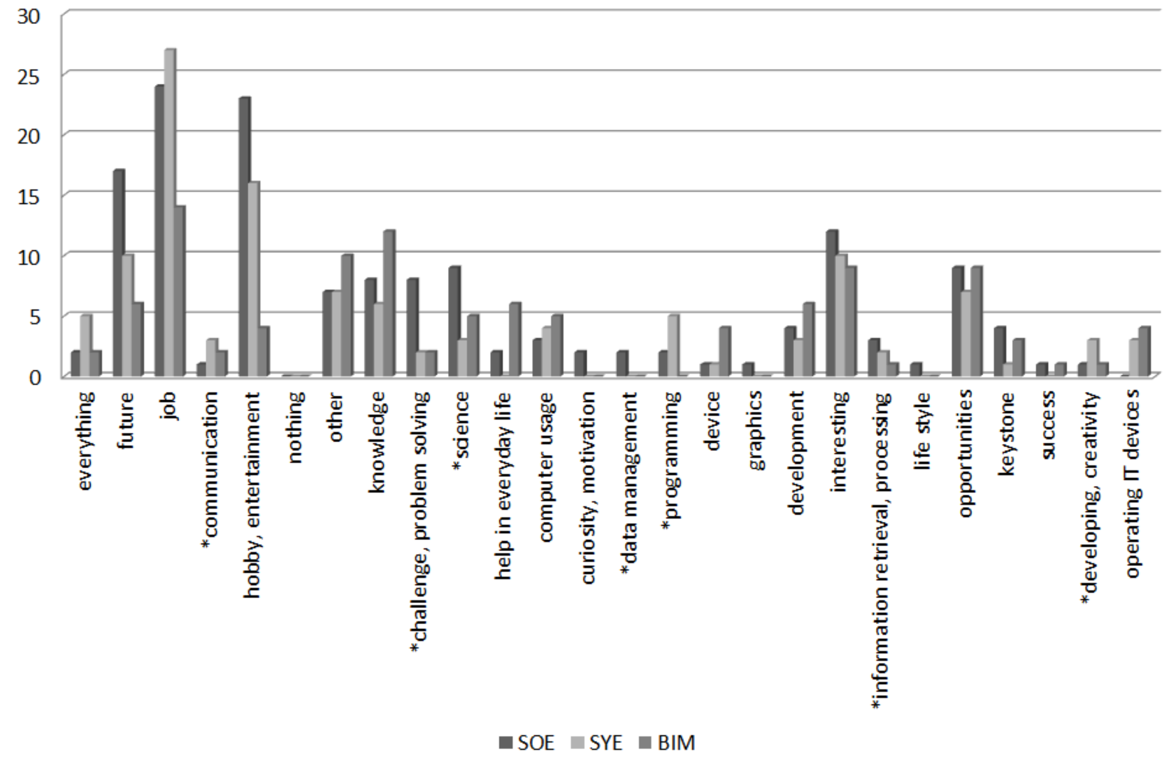

Fig. 5: The number of students answering the question "What does Informatics mean for you?"

When comparing the three groups, we found that there is significant difference between them in only two sets; the set {hobby, entertainment} and the set {informatics make life easier, more convenient} categories (p=0.007, p=0.012, respectively). The {hobby, entertainment} is a robust set compared to the {informatics make life easier, more convenient} but the differences noticeable among them clearly show the students' orientation. The SOE students consider informatics as {hobby, entertainment} more than the other groups, while the BIM students see informatics from a practical point of view. In the other categories there was no difference found between the three groups. There is no direct link between the special subjects offered on the courses and the students' view of informatics. Consequently, the self-assessment programming values – programming knowledge –, which were the highest in the SOE group and lowest in the BIM group [Table 3 and Fig. 1], do not have much influence on the students' views. We can form several hypotheses from these figures: (1) programming does not shape the students' way of thinking, (2) the students' programming skills are not necessarily related to high level computational thinking, which relies heavily on the concepts fundamental to computer science (Wing, 2006) (3) the self-assessment values do not represent the students' real level of programming knowledge and require a second investigation, etc. Beyond this, we found that the students used so many categories that this could mislead us in our conclusions.

Because of the great number of categories named by the students, we used Hromkovič's definition of informatics to form two groups of these minor categories: (1) according to the definition (D, marked by * in Fig. 5) and (2) not matching the definition (ND).

In his definition, Hromkovič answers the question "Was ist Informatik?" Informatik ist die Wissenschaft der algorithmischen Darstellung, Verarbeitung, Speicherung und Übertragung von Information. (Hromkovič, 2009, 2014)

Computer science is the science of algorithmic representation, processing, storage and transmission of information.

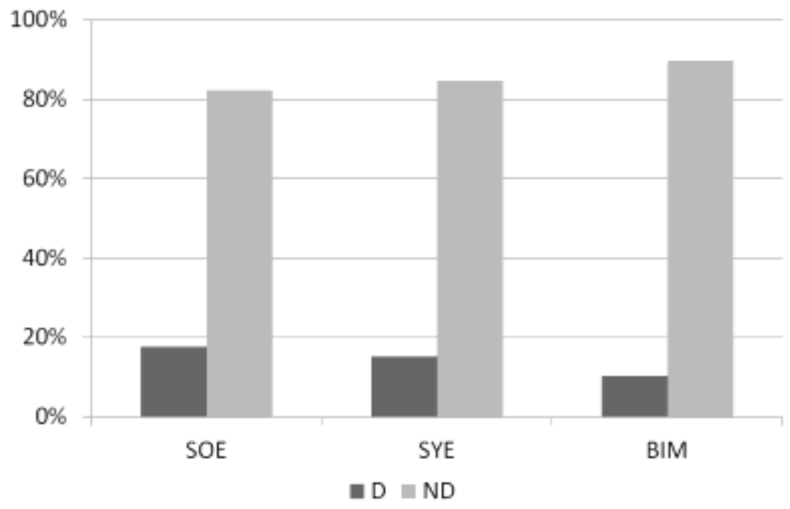

Fig. 6: Answers to the question "What does Informatics mean for you?" matching / not matching the definition (D/ND)

The two groups – matching and not matching the definition – clearly show that the first year students of informatics have a different image of informatics than the wildly accepted one. The students do not know, or are not able to express, what informatics is. Based on this survey, for most of the students studying informatics the subject is governed by unrecognized forces, and they do not realize that officially it is they who should do the governing.

CONCLUSIONS

The self-assessment and attitude tests of the Testing Algorithmic and Application Skills project revealed that the IT experts of the not too far distant future start their studies at the faculty of informatics with a high score achieved in the intermediate level of the school leaving exam in informatics. However, they arrive at the institute with a much lower level of programming skills, which is expressed in the self-assessment values, but further emphasized in their choice of the advanced level school leaving exam. Except for the SOE students, only a very low percentage of students select programming as their school leaving subject, and their results are not high enough to explain their choice of courses.

Further analyzing the students' test results, it was found that they do not really know what informatics is, and realizing this, it is not surprising that their expectations of the institute do not match the institute's expectations as regards them. The attitude test of the TAaAS project revealed that the students' misconception is one of the sources of the high attrition rate experienced on the informatics courses.

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Computerized Assessment Of The Annual Grade Points Of Secondary School Seventh Grade Students In The Course Of Algebra

Novruz BASHIROV
Van Vocational School of Health Services
Yuzuncu Yil University, Turkey
novruzb@yahoo.com

Ali Riza KUL
Van Vocational School of Health Services
Yuzuncu Yil University, Turkey
alirizakul@yyu.edu.tr

Aynura ALEKBEROVA
QAFQAZ University, Azerbaijan
aynurka@inbox.ru

Azadxan ADIGOZELOV
Azerbaijan State Pedagogic University, Azerbaijan
aazadxan@yahoo.com

ABSTRACT

Development of a computerized assessment program of the annual grade points of secondary school 7th grade students at Azerbaijan in the course of algebra was considered within the scope of this study. This computer program was developed in order to prevent the occurrence of iniquities during the calculation of year-end grade point averages of all students of all grades. The program was written in the programming language of Microsoft Visual Basic 6.0. The questions presented to students by this computer program were selected from their Algebra 7 textbook which they had used along the year. By this computer program, questions from among the questions of algebra course -that would determine the knowledge level of 7th grade students- were selected and they were asked to students again within the program, and the annual grade point averages of students could be clearly calculated by high precision as per the provided answers.

Key Words: computer program, algebra, education, student.

INTRODUCTION

The use of computers in education provides advantages for both the students and the teachers. As the use and management of computer is completely student based, it provides opportunities for the implementation of modern education model. By means of special education methods and techniques designed for the students, the students are entering the work environment in a short while through exercises, implementations, calculations and reviews, and instant feedback is able to received when required. And computers are providing significant ease for obtaining plans and programs required for the teachers. The visuals, presentations and documentaries –prepared to attract the attention of students during in class activities- are being prepared much more easily under computer environment, and they arouse the interest of the students much more. Computer has a very big role in preparing strong educational material that has a sense of humor to help students better understand the material and increase their performances during the lesson. And computers also contribute in gathering and relating the associated subjects under different disciplines (mathematics, science, social etc). The technical equipments required in measuring and assessing the knowledge of students are significantly being met by means of the computers [1].

As per the researches performed by Alisah Hizal (1989), it is being accepted by 89.3% of the teachers from all branches that the most significant effect of the Computer-Aided Education (CAE) on the students may be contribution in the improvement of their researching skills [2].

Asan (2002) had examined the attitudes of teacher candidates studying in science and social fields towards computer. The findings of the research had generally revealed that the teacher candidates deem the computer as positive and that they feel comfortable before the computer. While the attitudes of science teaching students –who had not got computer course before- were more positive compared to Social Studies students, it was revealed that the department had no significant effect among students getting computer course. Gender difference was not observed in attitudes towards computer. The results had revealed that the computer experience positively effects the attitude score [3].

Celik and Bindak (2005) had examined the attitudes of teachers –working at elementary schools- towards computer as per various variables. As the result of the practice, it was determined that the attitudes of teachers towards computer don't show difference as per gender, branch and settlement where it is being worked. In addition, it was determined that the positive attitudes towards computer of teachers having a computer are significantly higher compared to teachers not having a computer. Moreover, positive and significant relations were found among computer self-sufficiency and computer usage frequency and positive attitudes towards computer [4].

CAE is a teaching method in which computer is being used as an environment where education occurs, that strengthens the teaching process and motivation of the student, that can be used by the student as per his learning speed and that is formed by the combination of self learning principles with computer technology [5].

CAE can be defined as activities in which the students interact with the courses being programmed on the computer during the education process and in which the teacher undertakes the role of guide and the computer undertakes the role of environment. According to another definition, the communication of educational contents or activities through computer is called "Computer-Aided Education" [6].

Erkan (2004) had examined the attitudes of 164 pre-school education teachers towards computer. As the result of the study, it was observed that the attitudes of kindergarten teachers towards computer is positive, that the young teachers have more positive attitudes compared to old teachers, that the ones having computer experience has more positive attitude, and that there is no difference in respect of attitude among the ones who have a computer at home and the ones who don't have one [7].
Feurzeig and Lawler (1987) had also specified that mini worlds are educationally beneficial environments due to covering understandable examples and due to having a good potential for creativeness [8, 9]. By the use of computer in education environment, students' more time consumption with the computer intended for education carries many costly experiments and observations etc to the class by low costs. Computer, that also ensures motivation of the students for the course, should be available at all our classrooms as an attractive material [10, 11].

Kilicoglu and Altun (2002) had developed a scale in order to determine the attitudes of secondary school students towards computer-aided education. The reliability of the scale –which had been applied on 1303 students in total- was found as 0.92. As the result of the factor analysis of scale, adoption, bias and resistance dimensions were revealed. The scale was prepared in the form of 5 point Likert [12]. In most of the studies on CAE, it is being observed that there are no large differences in between traditional education method and CAE method [13]. According to Paper (1993), computers are perfect tools for creating mini worlds, and this fact may assist in transforming the complex education process to a more natural process [14].

The animations that make the modern computer applications more valuable improve the data sets and assist them to be better examined and understood [15]. When compared with limited number of static pictures presented by the textbooks, the animations are able to make the information patterns, their variables and objects more interesting for the student. The animations are able to be very successful in attracting the attention of the student, in directing his interest to the subject and in motivating for studying [16].

Traditional management and games being played are being transmitted to computer environment and being put into the service of individuals. By the opportunities of animation and simulation, new games also take place as a sub-branch in the field of computer. Thus, the properties and requirements of simulations are also valid for the games. As new information can be learned by the computer games, reinforcing the learned subjects through entertaining mechanisms or exercises is also possible. As in the other CAE software, educational computer games may be used in order to reach the objectives included in the curriculum of the course [17].

Now, the use of computers at any place and time is in subject. Computer related teaching materials and resources will continue to be powerful. On this subject, the cost of communication and access to internet is gradually decreasing. Thus, larger masses will find the opportunity to benefit from more CAE [18, 19]. As the result of the literature review made, the use of computer mostly for the education of students was revealed. In this study, the use of computer in assessing the knowledge level of students in a precise and clear manner was intended.

MATERIALS AND METHODS

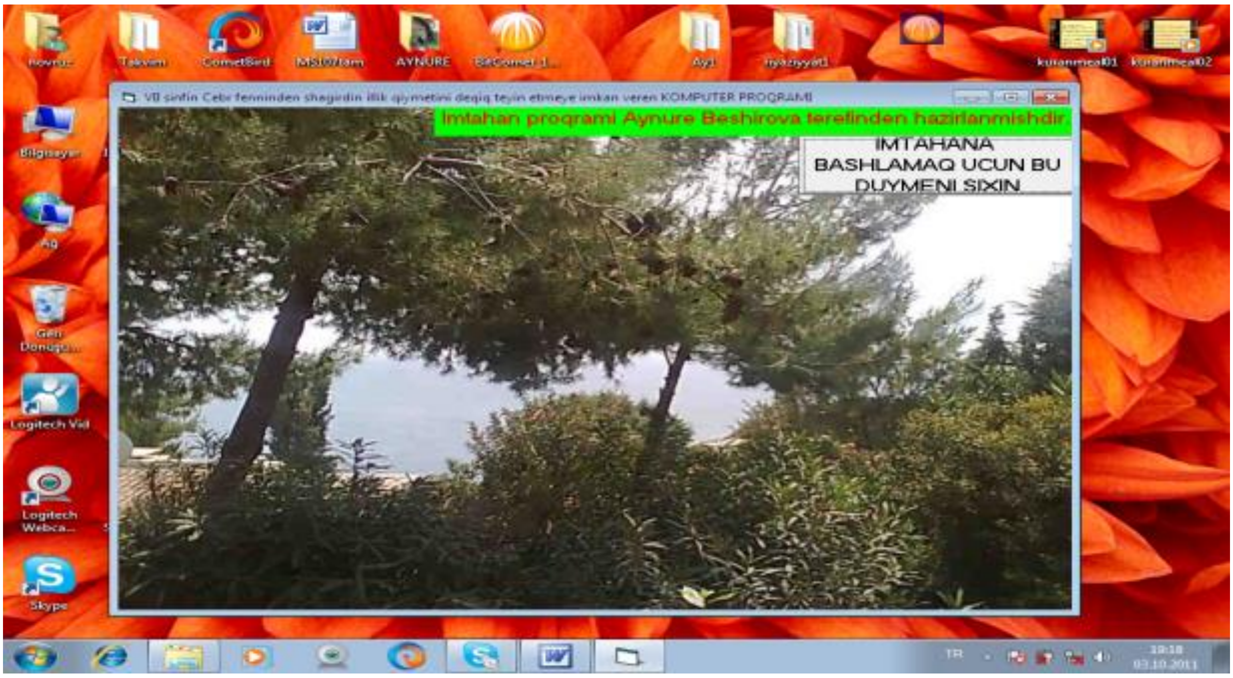
Computer programs that are developed for education are resources which can be benefited easily in subjects that cannot be understood, in practical studies, implementations, calculations, course reviews and presentations, and by which instant feedback can be received [20, 21].

The students may use either alone or in groups the search engines and virtual libraries on the internet in developing projects and in making researches. In such studies, the students can also contact not just with ones within their own class but with the students in other schools, and they may develop projects together. The students may send the products they prepare to each other as files, and they may perform discussions [22, 23, 24].

In secondary school, it is required to determine the year-end grade point averages of students by the end of each academic year. During determination of year-end grade point averages of students, loss of right is possible to occur. This program was developed in order to calculate more precisely the year-end grade point averages of students. This program was realized under Visual BASIC 6 programming system, the students were again subject to a short examination and their year-end grade point averages were determined.

The questions included in the examination of the program were selected from the subjects discussed by the students within the year. 12 questions in total were selected in order to not to make the students tired. The questions were numbered from one to twelve, and the points of the questions within the textbook were indicated within a parenthesis near the numbers. i.e. (D-60, D-81). The letter D represent the first letter of the textbook, and the numbers 60 and 81 represent the question numbers in the Algebra 7 textbook. In the computer program, no information was provided to the students on this issue. In case objection of the students, the required explanation was being provided and it is informed to them that they could control the questions.

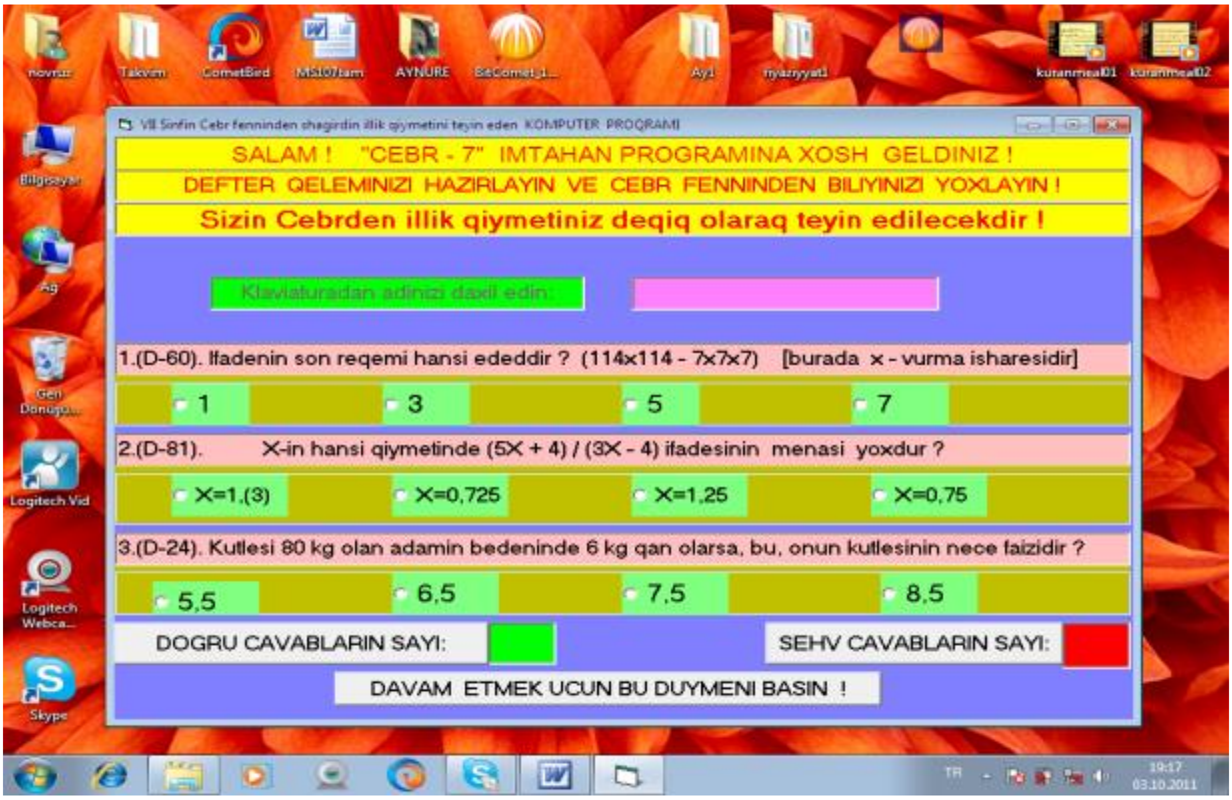
If the grade points that the students got in the fall and spring periods are in the form of 3 and 4 or 4 and 5 respectively on the 5 point system, then the teachers are able to assign the grade of fall term or spring term as the year-end grade. As there are no fractional grade points in the system, the teacher is obliged to prefer the grade point one of these two terms. While the provision of high grade point is in favor of the student, provision of low grade point will be against the student.



VII sinfin Cebr fenninden shagirdin illik qiymetini deqiq teyin etmeye imkan veren KOMPUTER PROQRAMI

Imtahan proqrami Aynure Beshirova terefinden hazirlanmishdir

Figure 1. First page of “Algebra 7” program



VII Sinfin Cebr fenninden shagirdin illik qiymetini teyin eden KOMPUTER PROQRAMI

SALAM ! "CEBR - 7" IMTAHAN PROGRAMINA XOSH GELDINIZ !

DEFTER QELEMINIZI HAZIRLAYIN VE CEBR FENNINDEN BILIYINIZI YOXLAYIN !

Sizin Cebrden illik qiymetiniz deqiq olaraq teyin edilecekdir !

Klaviaturadan adinizi daxil edin:

1.(D-60). Ifadenin son reqemi hansi ededdir ? (114x114 - 7x7x7) [burada x - vurma isharesidir]

○ 1 ○ 3 ○ 5 ○ 7

2.(D-81). X-in hansi qiymetinde (5X + 4) / (3X - 4) ifadesinin menasi yoxdur ?

○ X=1,(3) ○ X=0,725 ○ X=1,25 ○ X=0,75

3.(D-24). Kutlesi 80 kg olan adamin bedeninde 6 kg qan olarsa, bu, onun kutlesinin nece faizidir ?

○ 5,5 ○ 6,5 ○ 7,5 ○ 8,5

DOGRU CAVABLARIN SAYI: 🟩

SEHV CAVABLARIN SAYI: 🟥

DAVAM ETMEK UCUN BU DUYMENI BASIN !

Figure 2. Second page of "Algebra 7" program

The thing intended by this program is provision of the year-end grade point of the student as per his real level. When this "Algebra-7" named program is opened, the view of the first page is as in Figure 1. The name of the program is written in Azerbaijani on the top of the page. The names of the programmers are included in the following line. There is the start to examination box (symbol) in the right hand corner below that column. When it is clicked on start to examination box, the second page shown in Figure 2 is opened.

VII Sinfin Cebr fenninden shagirdin illik qiymetini teyin eden KOMPUTER PROQRAMI

SALAM ! "CEBR - 7" IMTAHAN PROGRAMINA XOSH GELDINIZ !

DEFTER QELEMINIZI HAZIRLAYIN VE CEBR FENNINDEN BILIYINIZI YOXLAYIN !

Sizin Cebrden illik qiymetiniz deqiq olaraq teyin edilecekdir !

Klaviaturadan adinizi daxil edin: Abbasov Adil

1.(D-60). Ifadenin son reqemi hansi ededdir ? (114x114 - 7x7x7) [burada x - vurma isharesidir]

● 3

2.(D-81). X-in hansi qiymetinde (5X + 4) / (3X - 4) ifadesinin menasi yoxdur ?

● X=0,75

3.(D-24). Kutlesi 80 kg olan adamin bedeninde 6 kg qan olarsa, bu, onun kutlesinin nece faizidir ?

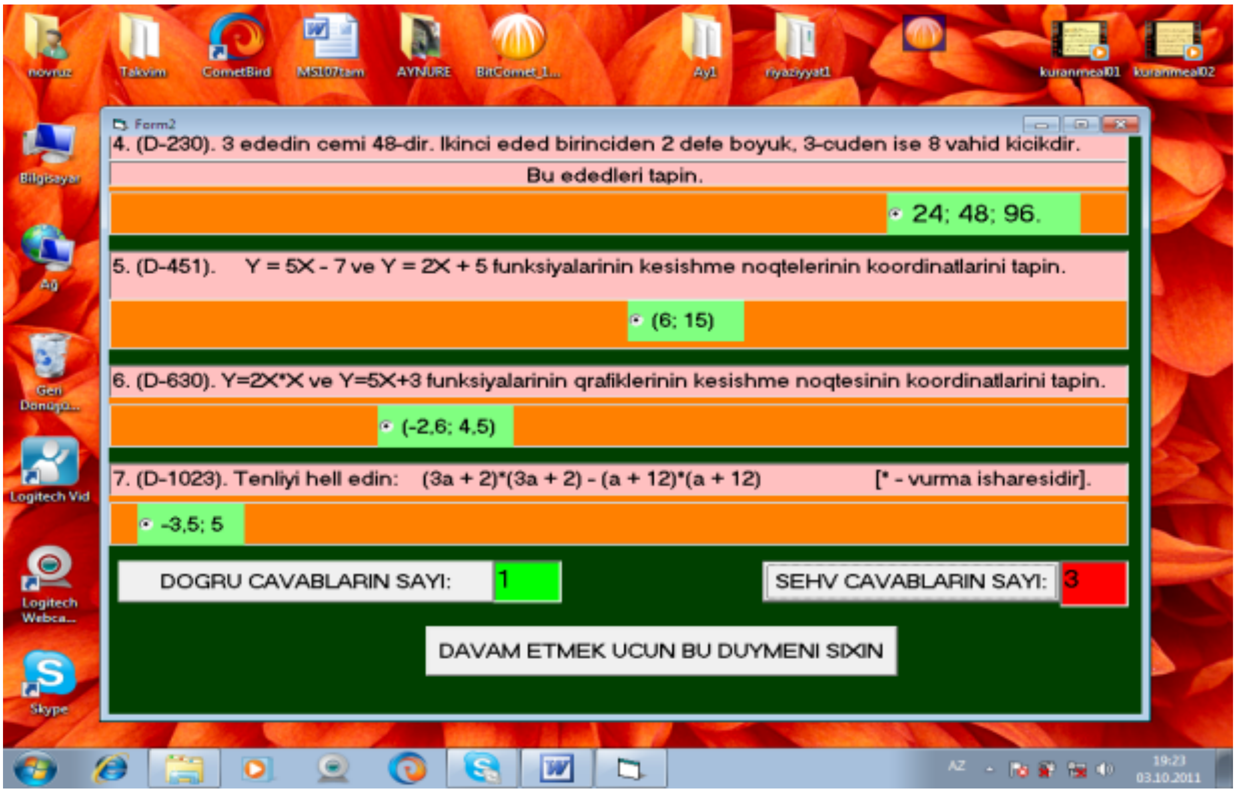
● 5,5

DOGRU CAVABLARIN SAYI: 1

SEHV CAVABLARIN SAYI: 2

DAVAM ETMEK UCUN BU DUYMENI BASIN !

Figure 3. The answers -for the first 3 questions- of Abbasov Adil who is being examined by the "Algebra 7" program



Form2

4. (D-230). 3 ededin cemi 48-dir. Ikinci eded birinciden 2 defe boyuk, 3-cuden ise 8 vahid kicikdir.
Bu ededleri tapin.
● 24; 48; 96.

5. (D-451). Y = 5X - 7 ve Y = 2X + 5 funksiyalarinin kesishme noqtelerinin koordinatlarini tapin.
● (6; 15)

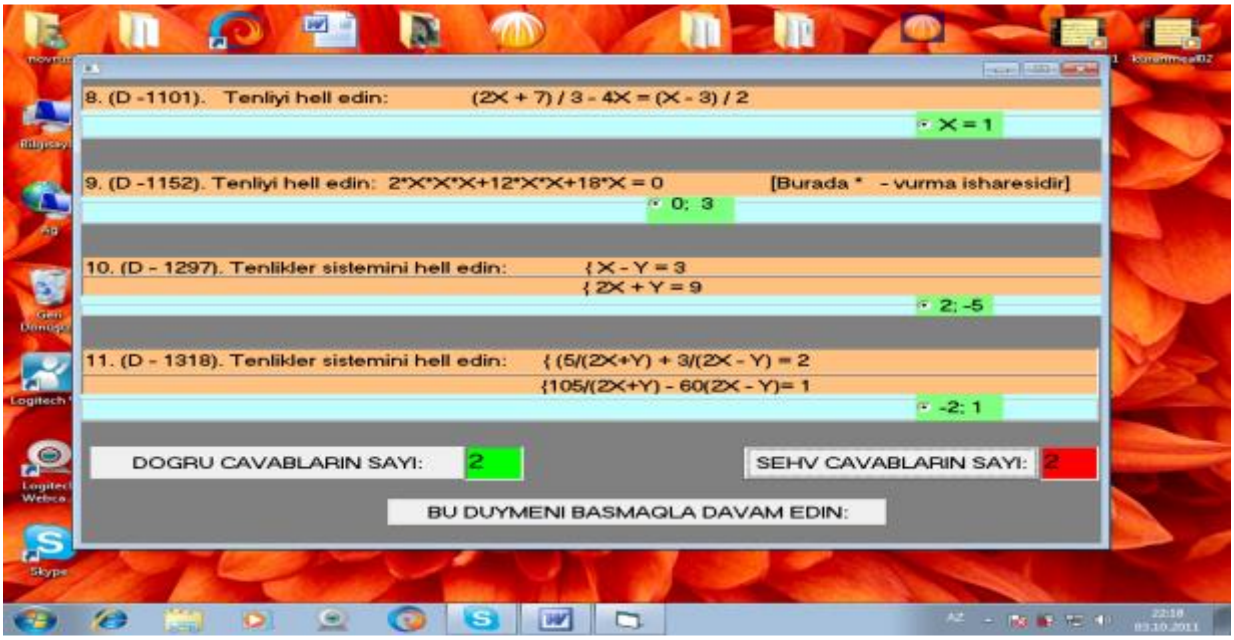
6. (D-630). Y=2X*X ve Y=5X+3 funksiyalarinin qrafiklerinin kesishme noqtesinin koordinatlarini tapin.
● (-2,6; 4,5)

7. (D-1023). Tenliyi hell edin: (3a + 2)*(3a + 2) - (a + 12)*(a + 12) [* - vurma isharesidir].
● -3,5; 5

DOGRU CAVABLARIN SAYI: 1
SEHV CAVABLARIN SAYI: 3

Figure 4. Fourth page of "Algebra 7" program

This page welcomes the students to be subjected to examination by the message of "Welcome". It tells him to enter his ID information in relevant fields and to prepare his paper and pencil. And then the first question is displayed by the code 1.(D-60). After solving the question, it is requested for him to mark the correct choice. After the student marks the choice that he thinks to be true, the remaining choices are removed from the screen. Thus, the opportunity to mark a second choice is not provided. And then it is passed on to answering the 2nd and 3rd questions. After the 3rd question, the student may learn how many questions he had answered correct for the first three questions by clicking on the number of true and false answer boxes.



8. (D -1101). Tenliyi hell edin: (2X + 7) / 3 - 4X = (X - 3) / 2
● X = 1

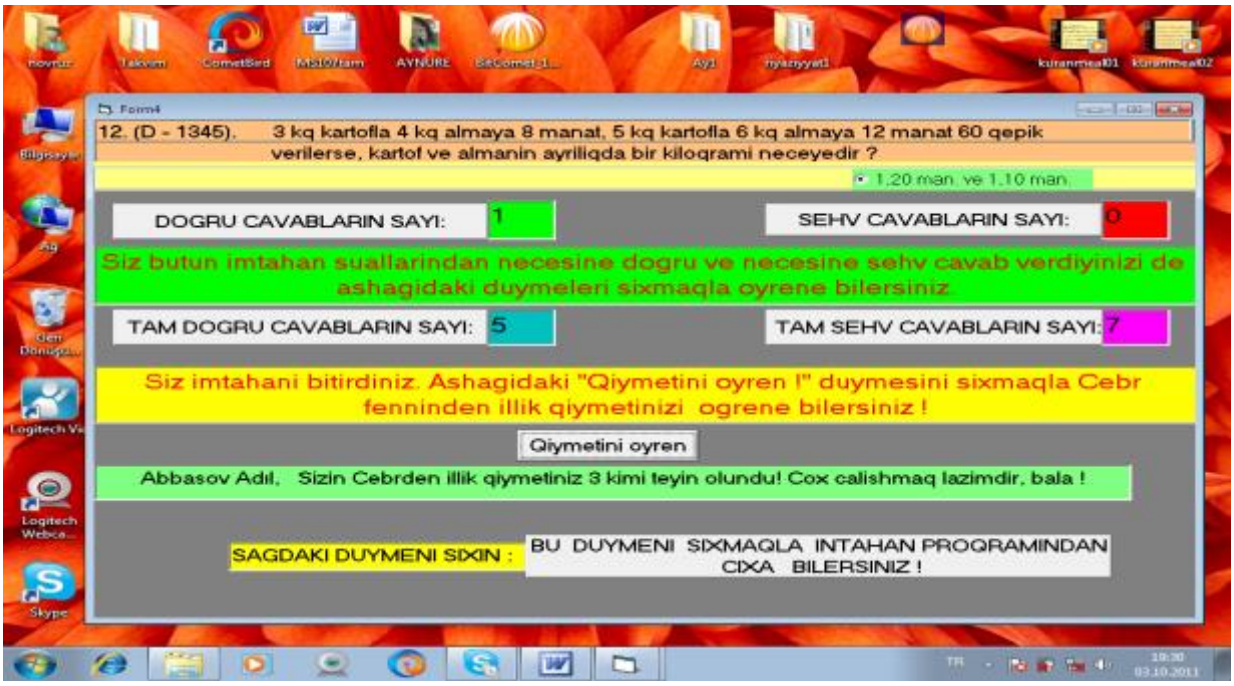
9. (D -1152). Tenliyi hell edin: 2*X*X*X+12*X*X+18*X = 0 [Burada * - vurma isharesidir]
● 0; 3

10. (D - 1297). Tenlikler sistemini hell edin: { X - Y = 3
{ 2X + Y = 9
● 2; -5

11. (D - 1318). Tenlikler sistemini hell edin: { (5/(2X+Y) + 3/(2X - Y) = 2
{105/(2X+Y) - 60(2X - Y)= 1
● -2; 1

DOGRU CAVABLARIN SAYI: 2
SEHV CAVABLARIN SAYI: 2

Figure 5. Fifth page of "Algebra 7" program



12. (D - 1345). 3 kq kartofla 4 kq almaya 8 manat, 5 kq kartofla 6 kq almaya 12 manat 60 qepik verilerse, kartof ve almanin ayriliqda bir kiloqrami neceyedir ?

● 1,20 man. ve 1,10 man.

DOGRU CAVABLARIN SAYI: 1

SEHV CAVABLARIN SAYI: 0

Siz butun imtahan suallarindan necesine dogru ve necesine sehv cavab verdiyinizi de ashagidaki duymeleri sixmaqla oyrene bilersiniz

TAM DOGRU CAVABLARIN SAYI: 5

TAM SEHV CAVABLARIN SAYI: 7

Siz imtahani bitirdiniz. Ashagidaki "Qiymetini oyren !" duymesini sixmaqla Cebr fenninden illik qiymetinizi ogrene bilersiniz !

Abbasov Adıl, Sizin Cebrden illik qiymetiniz 3 kimi teyin olundu! Cox calishmaq lazimdir, bala !

SAGDAKI DUYMENI SIXIN : BU DUYMENI SIXMAQLA INTAHAN PROQRAMINDAN CIXA BILERSINIZ !

Figure 6. Last page of "Algebra 7" program

The transformation of the 2nd page of the program is shown in Figure 2. As seen in Figure 3, the student named Abbasov Adil had marked the choice "3" for question 1", "X=0.75"for question 2 and "5.5" for question 3. As the result of the assessment, it was observed that the number of correct answers was 1 and of false answers was 2.

And then the student may continue with the examination by clicking on the long box at the end of the page. If the student wants to continue the examination, the fourth page of the program is displayed (Figure 4). The 4., 5., 6. and 7. questions of the exam are displayed on this page. The student, after answering the questions on that page, continues with the exam by clicking on the box at the end of the page. The 8., 9., 10. and 11. questions are available on the newly opened page (Figure 5). And after also answering these questions, the student passes on to the next page by clicking on the box at the end of the page (Figure 6). Just the question 12 is available on this page. After answering that question, the student may see whether he had answered the question correct or false (the answers provided for the questions can not be changed later on).
By clicking on the box below, the student may see the number of correct and false answers for the whole exam, and he can see the year-end grade point average by clicking on the next box.

If the student had answered more than fifty percent of the questions as correct, the program determines the grade point of the student as the higher grade point. If the student had answered less than fifty percent of the questions as correct, the program determines the grade point of the student as the lower grade point.
And then, the student closes the program by clicking on the box at the end of the page.
The questions in the program are being changed for each grade and in each year.

RESULTS AND DISCUSSION

For the operation of the program that is written in any programming language, it is required for the interpreter of the program to be uploaded on the computer in advance. Besides, it is possible to compile and use on the computer the programs that had been prepared in new programming systems. For this, after the least variant of the newly prepared computer program becomes ready, it is required to install its package. During compilation of package, all commands in the program that are formed and all modules set to the program combine, and automatically collected in a file. The Setup program of these is also automatically included in the file. By the assistance of this, this package may be installed and operated on the required computer and operating system.

As the aforementioned facilities are under VISUAL BASIC 6.0, its package form is taken after formation of the last version of Algebra 7 program. It is possible to run this package form at required communication system on which the VISUAL BASIC 6.0 programming system is not written in advance. Thus, this package may be carried to required communication system as being copied on disc or flash card.

The developed computer program had enabled the well studying of seventh grade students and fair calculation of their grade points in algebra. While there were 10-12 unsuccessful students in each classroom before the use of this program, this number had decreased to 2-3 in each classroom after the usage of "Algebra 7" program in secondary schools. The students, who saw that they had no other change than studying, had worked well along the year, and had been successful in the examinations. After the exams, the "Algebra 7" program was copied on CDs and sent to all the secondary schools of Azerbaijan.

CONCLUSION

Many problems had been removed automatically as the result of running this program at secondary schools of Azerbaijan. The students, who were always studying but always getting low grade points, had gained their higher grade points by the assistance of this program. And also the student, who had got high grade points due to being the relative of the teacher, had got lower grade points after being tested by this computer program. Now this program is being used at secondary schools of Azerbaijan in order to clearly determine the annual grade points of students in the course of algebra. All students had informed their satisfaction about this program.

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Confirmatory Factor Analysis Of The Ka-Si Empathic Tendency Scale Adolescent Form In Religious High School Students

Ertuğrul ŞAHİN
Amasya University Education Faculty, Educational Sciences
ertugrulsahn@gmail.com

Nursel TOPKAYA
Samsun Ondokuz Mayıs University Education Faculty, Educational Sciences
nursel.topkaya@omu.edu.tr

ABSTRACT

The KA-SI empathic tendency scale adolescent form (Kaya & Siyez, 2010) was developed to evaluate the emotional and cognitive empathic tendency levels of adolescents in the context of Turkish culture. Although frequently used to measure empathic tendency in Turkey, the factor structure of this scale and competing models are rarely examined in specific populations, such as religious high school students. Thus, the purpose of this study was to examine the structural validity of this scale in Imam and Preacher Training high school students using confirmatory factor analysis (CFA). Participants included 268 (156 males, 112 females) students who completed this instrument as part of a study related to the correlates of empathic tendency. Students' responses to the KA-SI empathic tendency scale adolescent form were subjected to CFA using Mplus. Three competing models were tested in this study: the one factor model, two orthogonal factor model, and theoretically suggested two correlated factor model. Taking into account the ordinal nature of scale, mean, and variance, the adjusted weighted least squares (WLSMV) method was used to estimate model. CFA results showed that the two correlated factor model showed excellent fit to data (Root Mean Square Error of Approximation (RMSEA): .047, Comparative Fit Index (CFI): .976, Tucker-Lewis Index (TLI): .972, Weighted Root Mean Square Residual (WRMR): .840). Thus, the KA-SI empathic tendency scale adolescent form may be used to investigate the empathic tendency of religious high school students. Future studies should examine the convergent, divergent, and predictive validity of this scale in different samples.

INTRODUCTION

The KA-SI empathic tendency scale adolescent form (KA-SIA) is one of the most widely used adolescents' individual difference measures of empathic ability in Turkish psychology literature (Kaya & Siyez, 2010). However, since its development, its factor structure has rarely been examined in different adolescent populations, such as religious high school students. This is concerning because the proposed factor structure may not be the same in different schools, and comparing the KA-SIA scores in different schools may lead to erroneous conclusions without having consistent relationships between observed KA-SIA items and related latent variables (Horn & Mcardle, 1992).

The KA-SI empathic tendency scale consists of two separate scales to measure empathic ability in children and adolescents. While the KA-SI empathic tendency scale for children consists of 13 items, the KA-SIA consists of 17 items. Both scales for children and adolescents measure empathic ability in terms of cognitive and emotional dimensions. The cognitive dimension measures to what extent a person is able to understand another's feelings either through complex perception processes or simple observations. The affective dimension measures the extent of a person's ability to vicariously experience another's emotions (Kaya & Siyez, 2010). In the initial development of the scales, researchers examined their factor structure using exploratory and confirmatory factor analysis and reported evidence for the scales' construct validity and reliability. Specifically, KA-SIA demonstrated a two factor structure using exploratory factor analysis (EFA) in an adolescent student sample from grade 6 to 12. The emotional empathy subscale was composed of 10 items and explained total variance was 33.23%. The emotional empathy subscale factor loadings based on EFA ranged between .49 and .66. On the other hand, the cognitive empathy subscale consisted of 7 items, the explained total variance was 10.35%, and factor loadings based on EFA ranged between .56 and .76. Confirmatory factor analysis (CFA) using maximum likelihood estimate also supported the two correlated factor structure in a cross-validation sample (χ^2 /df: 2.12 RMSEA: .02, CFA: .96, SRMR: .03). Cronbach alpha internal consistency reliability estimates for KA-SIA were also good: .82 for the cognitive and emotional empathy subscales, and .87 for the total scale in this adolescent sample. The one week stability coefficient or test-retest reliability was also good ranging from .69 (cognitive empathy scores) to .75 (total scale scores).

Although the researchers found evidence for construct validity for KA-SIA, they did not examine alternative models or compare its relative fit to competing models. CFA is a multivariate statistical analysis in which researchers specify a hypothesized model and examine its ability based on a hypothesized model's fit to the data (Brown, 2015). In a typical CFA, firstly, researchers construct a measurement model, which associates observed variables with latent factors that is specified and estimated. Secondly, the measurement model's ability to observe data is evaluated with goodness of fit indexes. Thus, CFA is an appropriate tool for comparing values obtained from competing models. Furthermore, data employed in normal theory estimators, such as maximum likelihood estimate as used by KA-SIA developers (Kaya & Siyez, 2010), requires two obvious assumptions. Firstly, data must include continuous variables. Although this assumption is obviously violated when using ordered-categorical Likert-type response scales (Finney & DiStefano, 2013), the treating of categorical Likert-type response scale items as continuous is usually not problematic when the response categories have at least five response options (Beauducel & Herzberg, 2006; Rhemtulla et al., 2012). However, this is not the case for KA-SIA as it only contains four response categories. Moreover, evidence suggests that the application of such an estimation method for categorical data, especially when the response categories have fewer than five responses, as in the case of KA-SIA, will give biased, inaccurate, and poorer parameter estimates (Beauducel & Herzberg, 2006; Finney &DiStefano, 2013; Rhemtulla et al., 2012). Secondly, the use of normal theory estimators, such as maximum likelihood estimate, also requires data come from a multivariate normal distribution (Finney & DiStefano, 2013). However, data in the social sciences do not often follow a multivariate normal distribution (Finney & DiStefano, 2013). Thus, using the mean and variance adjusted weighted least squares (WLSMV) estimation method may be more realistic in this case. The purpose of this study was to examine the factor structure of KA-SIA in Imam and Preacher Training high school students using confirmatory factor analysis. It was hypothesized that when models estimated taking into account the use of ordered-categorical variables, KA-SIA will have a good fit to two oblique factor model as suggested by Kaya and Siyez (2010) in this religious high school student sample.

METHOD

Participants

Data come from a previously published study that examined the sociodemographic differences in empathic tendency in religious high school students in Turkey (Şahin, Ersanlı, Kumcağız, Barut, & Ak, 2014). Participants included 268 (156 males, 112 females) religious high school students selected using convenience sampling. There were 113 (42%) students in freshmen year, 63 (24%) in sophomore year, 33 (12%) in junior year, and 59(22%) in senior year. More detailed information about the sociodemographic characteristics of the students are found in Table 1 in the original study (Şahin et al., 2014).

Measures

Demographics. A personal information form was used to collect information about the students' backgrounds in the original study. They answered questions about their sex, grade level, perceived happiness level, and most lived place.
KA-SI Empathic Tendency Scale Adolescent Form (KA-SIA). Participants' empathic ability was measured by KA-SIA in the original study. More detailed information about the psychometric characteristics of KA-SIA are given in the Introduction. Participants provided their answers on a four-point scale ranging from *Totally disagree* (1) to *Totally agree* (4). Scores ranged from 10 to 40 on the emotional empathy subscale, 7 to 28 on the cognitive empathy subscale, and 17 to 68 on KA-SIA. Higher scores reflect a higher level of empathic tendency. The reported internal consistency coefficient in the original study (Şahin et al., 2014) was.82 for cognitive empathy scores, .83 for emotional empathy scores, and .89 for total scores. A typical sample item from the cognitive empathy subscale is "I can carefully listen to people for a long time in front of me." A typical sample item from the emotional empathy scale is "When I see someone suffering in front of me, I feel the same pain."

Procedure

After the consent of Merzifon Imam and Preacher Training High School administration, students completed this instrument, in the presence of a school teacher during their regular class hours. Written informed consent was also obtained from students, who received information about voluntary participation, confidentiality, and the right of withdrawal in the original study. Students completed the questionnaire in approximately 25 minutes (Şahin et al., 2014).

Statistical Analysis

The main purpose of this article was to examine the fit to alternative models using responses of religious high school students on KA-SIA. Thus, a series of CFAs were conducted to determine alternative models' fit to the observed data. All CFAs were estimated with Mplus 7.0 (Muthén & Muthén, 2012) using WLSMV estimator, taking into account the use of ordered-categorical variables, especially involving fewer than five response categories (e.g. Likert-type scales) in this study (Beauducel & Herzberg, 2006; Rhemtulla, Brosseau-Liard, & Savalei, 2012). Three competing models were tested using the WLSMV estimation method and the input was a polychoric correlation matrix pertaining to KA-SIA items. The three models tested were the one factor model (Model 1: All cognitive and emotional empathy subscale items loaded on a single latent factor), two orthogonal factor model (Model 2: Cognitive and emotional empathy subscale items loaded on corresponding subscales, but the correlation between the two latent factors was fixed at zero), two oblique factor model (Model 3: Cognitive and emotional empathy subscale items loaded on corresponding subscales and correlation between the two latent factors was permitted). The two oblique factor model was also suggested by Kaya and Siyez (2010).

Assessments of model fit were based on multiple goodness of fit statistics (Hu & Bentler, 1999; Marsh, Balla, & McDonald, 1988): the adjusted Chi-Square (χ^2 /df), Root Mean Square Error of Approximation (RMSEA), the 90% confidence interval of the RMSEA, Comparative Fit Index (CFI), Tucker-Lewis Index, Weighted Root Mean Square Residual (WRMR). Values lower than 5 but higher than 3 indicate adequate model fit for χ^2 /df and values smaller than 3 typically indicate excellent fit. Values smaller than .08 or .06 for the RMSEA respectively indicate adequate and excellent model fit. Values greater than .90 and .95 for the CFI and TLI indicate adequate and excellent model fit respectively. Lastly, values lower than.90 indicate excellent model fit for WRMR and close to 1 represent adequate model fit (Byrne, 2013; Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999; Marsh et al., 1988; McDonald & Marsh, 1990; Schreiber, Nora, Stage, Barlow, & King, 2006).

RESULTS

A series of CFA were conducted to examine competing models' fit to responses to KA-SIA items. Goodness of fit indices for competing models is shown in Table 1.

Table 1: Goodness of fit indices for competing models

Model	χ^2	*df*	χ^2/df	**CFI**	**TLI**	**RMSEA**	**90 % CI**	**WRMR**
Model 1	285.165	119	2.39	.942	.933	.072	.061-.083	1.086
Model 2	1527.547	119	12.84	.505	.435	.210	.201-.220	3.467
Model 3	186.512	118	1.58	.976	.972	.047	.033-.059	.84

As seen in Table 1, the goodness of fit values for two orthogonal factor models (Model 2)were χ^2 (df = 119) = 1527.547, *p*< .001; RMSEA = .21090% CI [.201-220]; CFI = .505;TLI: .435, and WRMR: 3.467. For the one factor model (Model 1), the fit indices were χ^2 (df = 119) = 285.165, *p*< .001; RMSEA = .072 90% CI [.061-.083]; CFI = .942; TLI: .933, and WRMR: 1.086. For the two correlated factor model (Model 3), the fit indices were χ^2 (df = 118) = 118.512, *p*< .001; RMSEA = .047 90% CI [.033-.059]; CFI = .976; TLI: .972, and WRMR: .84. These finding indicate poor support for the two orthogonal factor model, adequate support for the one factor model, except for WRMR, and excellent support for the theoretically suggested two correlated factor model. Figure 1 shows factor loadings and latent factor correlations in the KA-SIA scale.

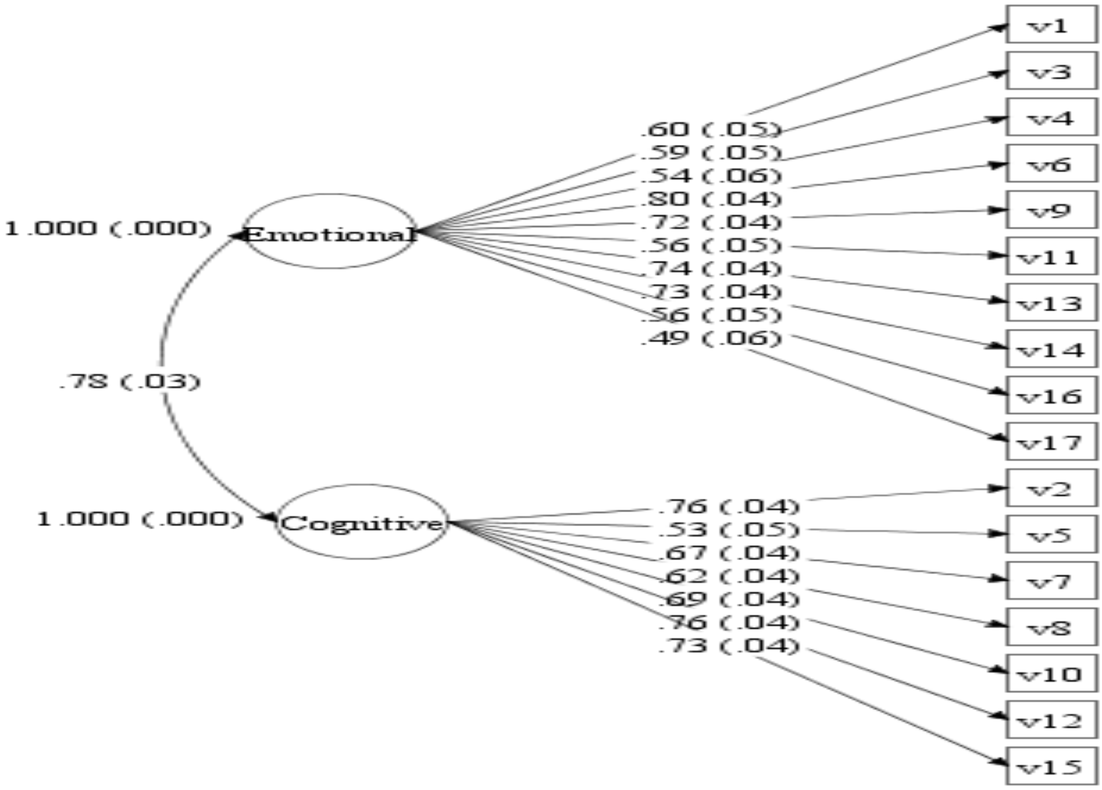

Figure 1: Two correlated factor model

As seen in Figure 1, emotional empathy subscale factor loadings based on CFA ranged from .49 to .80; whereas cognitive empathy subscale factor loadings ranged from .53 to .76. The correlation with the latent factor was also very high (*r*= .78) indicating a general second order empathic ability latent variable.

DISCUSSION

This study examined the three competing models (one general factor model, two orthogonal factor model, and two correlated factor model) to test the underlying factor structure for KA-SIA items. The results of this study indicated no support for the two orthogonal factor model. There was adequate support for the one factor model, and excellent support for the two correlated factor model. In the two correlated factor model, all items with salient loadings ranged from .49 to .80. While the results have shown that the KA-SIA two correlated factor model is better than the one general factor model, it has also been revealed that either the total scores or subscale scores for KA-SIA can be used for practical purposes, such as determining adolescents' empathic ability. Because, study results have also shown adequate fit for the one factor model.

The study results are in line with a previous study using KASIA items as a continuous scale and performing appropriate statistical analysis using EFA and CFA (Kaya & Siyez, 2010). However, unlike previous studies that treated KASIA items as continuous and applied an estimation procedure suitable to such scores, this study treated KASIA items as ordinal and estimated model parameters appropriate for ordinal items as previous studies have shown biased and poorer parameter estimates when response categories fewer than five (Beauducel & Herzberg, 2006; Finney & DiStefano, 2013; Rhemtulla et al., 2012). However, consistent with previous research (Kaya & Siyez, 2010), this study also found support for the two correlated factor model.

There are some limitations in this study. Firstly, this study used a limited number of religious high school students to test the factor structure of KA-SIA. Thus, it is uncertain if the findings can be generalized to other high school students. Future studies should examine a more representative sample of high school students. Secondly, this study only examined the construct validity of the KA-SIA scale. Future studies should examine the convergent, divergent, and predictive validity of this scale in different samples. Consequently, the KA-SI empathic tendency scale adolescent form may be used to investigate the empathic tendency of religious high school students.

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Contextualized Science Teaching: The Contribution Of Photographs Included In School Science Textbooks

Laurinda LEITE
University of Minho, Portugal
lleite@ie.uminho.pt

Sofia MORGADO
University of Minho, Portugal
sofiamorgado@ie.uminho.pt

Luis DOURADO
University of Minho, Portugal
ldourado@ie.uminho.pt

ABSTRACT

Contextualized science teaching has to do with approaching themes from everyday settings that are relevant to students and making explicit the interrelationship between science and everyday life. Textbooks play an important role in the teaching and learning processes because they are a major source of information in teaching a particular subject. Therefore, textbooks should give a meaningful contribution to contextualized teaching, namely through good quality visual information (including photographs and photograph related visual tools), adapted to the target students' characteristics. Thus, the objective of this paper is to compare photographs included in 8th and 11th grade textbooks, by three different publishers, between them and in terms of their potential to contribute to contextualized science teaching. Results indicate that the use of photographs is hardly guided by context-based science teaching principles and does not differ too much between the two grade levels. Therefore, teachers should carefully analyse textbooks before selecting the ones to be assigned in their school and when using a textbook they should explicitly deal with the possible weaknesses and the benefits of the visual material as well as with the way it is or can be used for the sake of contextualized science teaching.

INTRODUCTION

Contextualized science teaching

Nowadays, it is a matter of general consensus that science is to be taught in schools, to every student, at least for a few years (Holbrook, 2010; European Commission, 2015). This may be seen as a way of democratizing science because it enables students' access to scientific know ledge whatever the students' economics, social and cultural status. However, to acknowledge democracy in schools does not mean to teach the same content to everybody through the same approach. Rather, it requires teaching it differently to match different interests and competences so that every student can perceive the usefulness of the content and grasp it at a good level of understanding.

Besides, it is commonly agreed that science education should train students to be active and responsible citizens, able to take decisions about socio-scientific issues that emerge in their actual (Martins, 2011) or future environments. However, students' interest towards science is not only low (Gilbert, 2006; Fensham, 2009), but it also decreases throughout school levels (Osborne, Simon, & Collins, 2003; Jenkins & Nelson, 2005; Gilbert, 2006; Rannikmäe, Teppo, & Holbrook, 2010). This may be partly explained by the fact that science is shown as a collection of independent and decontextualized facts without any relationship with students' everyday life (Gilbert, 2006). To counteract this, science teachers' actions should be guided by the relevance of science knowledge principles both when they select what to teach and when they choose the best approaches to teach it. Hence, as all students are obliged to learn science for a few years in school, then teachers' biggest challenge is to make students perceive the relevance of science for modern society's daily life as well as for professional science and technology careers (Holbrook, 2010; European Commission, 2015).

It has been argued (Fensham, 2009; Lavonen & Laaksonen, 2009; King, 2012) that teaching contextualized science may promote students' interest towards science as it is a way of making the relevance of scientific knowledge explicit for the students. Although some research studies seem to lack methodological rigour (Taasoobshirazi & Carr, 2008), there is some evidence that contextualized science teaching may favour students' learning of science (Bennett & Lubben, 2006; Bellocchi, King, & Ritchie, 2016). However, it should be stressed that there are several possible ways of putting contextualized teaching into practice (De Jong, 2006; Gilbert, 2006) and that research studies hardly describe the pedagogical model that was used (Ültay & Ültay, 2014). Nevertheless, theoretical models as well as approaches used to contextualize science teaching acknowledge the establishment of a link between science and daily life environments.

Gilbert (2006) argues for contextualized teaching but he states that it is not easy to define the concept of context. Thus, he acknowledges Duranti and Goodwin's idea of context as a focal event embedded in its cultural setting. De Jong (2006) adds that contexts can be described as practices that help students to give meaning to activities and that they can be classified by looking at the domain of origin. Therefore,

> "a context-based approach is when the 'context' or 'application of the chemistry to a real-world situation' is central to the teaching of the chemistry. In such a way, the chemical concepts are taught on a 'need-to-know' basis; that is, when the students require the concepts to understand further the real-world application." (King, 2012, p.53).

According to De Jong (2006), contexts can be taken from several domains, having diverse educational advantages, as follows: the personal domain: contributes to the personal development of students by connecting science with their personal lives; the social and society domain: contributes to prepare students for their roles as responsible citizens by clarifying science and its role in social issues; the professional practice domain: prepares students for their coming role as professional workers in public or private areas; the scientific and technological: contributes to the development of scientific and technological literacy of students.

Hence, an educational valuable context should fit the following criteria: capture students' interest even though it can be real or simulated; foster the student-teacher interaction as this is required to promote learning; be appropriate to introducing the language and concepts to be learned as this is the goal of science teaching; promote the use of students' previous knowledge (Gilbert, 2006) so that it can be reconstructed if required or developed and integrated into meaningful conceptual networks. As De Jong (2006) points out, concepts are related to contexts in a one to one way and also in multiple ways, as a context relates to many concepts but a concept meaning may vary from one context to the other. Thus, contexts interfere with the language as they determine the meaning of concept labels that is, the meaning of words (Gilbert, 2006; King, 2012).

Besides, the relationship between contexts and concepts has implications on their presentation on teaching (De Jong, 2006) and on the level of activity it require from students. In fact, contexts can be used in a somehow traditional way or within the scope of a modern approach. The former happens if contexts are presented: as illustrations of concepts that already have been taught; to offer the possibility to students of applying their knowledge of a concept. According to the author, "this can lead to the transformation of the existing meaning of a concept or to the addition of a new meaning to the concept." (De Jong, 2006, p.217). The latter (modern approaches) includes cases in which: contexts are presented as the starting point or rationale for teaching concepts; contexts not only have an orienting function, but can also enhance motivation for learning new concepts. Combinations of traditional and modern ways of using contexts are also possible.

There is a point that is worth emphasizing that is that context-based science should begin with a real-world application for which the scientific explanations are provided (King, 2012) so that students can understand real-world contexts that are relevant to their lives and perceive the relevance of science (Roberts, 2007). Thus, as King (2012) argues, context-based science brings close together two worlds - the students' community world and the science world – whose borders may be vanished if a sociocultural approach to classroom science teaching is acknowledged. However, if contexts are to successfully help bridging the gap between meanings of topics in a context setting and meanings in a science setting, an important condition has to be fulfilled that is a careful selection of contexts (De Jong, 2006). A consequence of this is that if science textbooks are to adopt a contextualized approach and to facilitate teachers' challenging task of helping students' to bridge the two worlds referred to above, then they should select, introduce and use contexts with a lot of care.

Textbook Photographs as facilitators of contextualized science learning

School textbooks are primarily targeted to students and they should be designed to support students' learning as prescribed into the official curriculum. This may be the reason why there are no specific guidelines for science textbook authors of any European country (Eurydice, 2011). Thus, school textbook authors should appropriately reinterpret the curriculum so that they can write textbooks that contribute to minimizing the usual expected gap between the prescribed and the implemented curriculum. However, as textbooks are human enterprises they should not be expected to be perfect (Leite, 2002a) and therefore the existence of an assigned textbook does not release teachers from making their own interpretation of the curriculum and confronting it with the one assumed by textbook authors, in order to find out whether or not a given textbook fully follows the curriculum or to identify which parts of it need special attention.

Research focusing on textbooks has reported several problems that concur towards limited textbook quality. In fact, there is some evidence that textbooks are very conservative (Bungum, 2013) with regard to both the content presented and the teaching approach they adopt to approach it. As a matter of fact, they hardly follow curriculum changes (Moreira, 2003; Valanides, Papageorgiou, & Rigas, 2013), especially when the new curriculum recommendations are innovative. Besides, textbooks may either promote or impair students' learning, depending on their scientific, pedagogical and language quality. Unfortunately, research dealing with several countries textbooks has highlighted some scientific (Leite, 1999; Çobanoglu, Sahin, & Karakaya, 2009; King, 2013; Dourado & Matos, 2014; Marques, 2014) and historical (Leite, 2002b; Antunes, 2012; Tavares, 2012; Niaz & Costu, 2013) inaccuracies, some inappropriate learning activities (Leite, 2006; Morris, Masnick, Baker, & Junglen, 2015; Aldahmash, Mansour, Alshamrani, & Almohi, 2016) and several problems related to language, including readability (Muspratt & Freebody, 2013; Morgado, Otero, Vaz-Rebelo, Sanjosé, & Caldeira, 2014), questioning (Park, 2005; Leite et al., 2013; Skoumios & Diakos, 2015) analogical reasoning (Orgill & Bodner, 2006; Orgill, 2013) and visual aids (Leite & Afonso, 2000; Cook, 2006; Kapıcı & Savascı-Açıkalınb, 2015; Dourado, Morgado, & Leite, 2015) among others.

Although textbooks are targeted to students, research has shown that they also influence teachers' teaching practices (Valanides, Papageorgiou, & Rigas, 2013) and therefore it can be argued that they have a double influence on students' learning. In fact, many teachers tend to ignore the curriculum and to replace it by the textbook. Then, if the textbook is not up to date, teachers' practices will not be consistent with the prescribed curriculum and/or with the state of the art of the subject they teach. This may happen with regard to context-based approaches, which may be fostered or impaired by the way textbooks reinterpret the curriculum. These approaches may be based on verbal and numerical text as well as on visual information (Anagnostopoulou, Hatzinikita, & Christidou, 2012) that facilitate the presentation of abstract concepts with concrete depictions and help to link science and everyday life.

It seems that teachers prefer high visual-content books to traditionally formatted textbooks (Slough & McTigue, 2013). This preference may have to do with the fact that visual information may inspire students' curiosity (Tufekcic, 2012) and promote science learning (Cook, 2008) especially when abstract concepts are at stake (De Jong, 2006) and students are young. Besides, in the modern pedagogical educational reality, textbooks have to compete with strong rivals, with high levels of visual, dynamics and interactive information, like the internet and e-books. Even though students seem to prefer printed textbooks (Woody, Daniel, & Baker, 2010), in an attempt to capture their attention to textbooks, textbooks authors and publishers launch on the market colourful and beautiful visual aids often at the expense of an accurate explanation of the central ideas of the content under question (Koppal & Caldwell, 2004; Lee, 2010). However, "The illustrations should additionally enrich the textual parts of a textbook, which is only possible when they are designed to emphasise something and not inserted just for the sake of being there [because] proper illustration is one of the key factors having the students accept/reject a textbook." (Tufekcic, 2012, p.121). Unfortunately, this is not always the case (Lee, 2010).

In most educational systems (including the Portuguese one) teachers can choose the textbook to be assigned from an approved list drawn up by the ministry of education (Eurydice, 2011) and they may tend to overvalue the visual content over the other textbook selection criteria. The result of this action may be an undesirable one, unless teachers have visual training in the subject area they teach and textbook authors use good quality visual material with parsimony and accuracy.

Textbooks may include several types of visual aids including photographs, drawings, textboxes, flow charts, tables, and other (Slough & McTigue, 2013) even though photographs seem to be the most frequent (Pozzer & Roth, 2003; Lee, 2010; Kim, Kong, & Lim, 2011). Photographs or drawings like photographs offer realistic representations (Lee, 2010; Devetak & Vogrinc, 2013) that may facilitate the connection between King's (2012) two worlds: the science world and the students' community everyday world, which includes other components (e.g.: social) behind the physical and natural ones. They may invite the learner into sciences by exhibiting how modern scientists work and by referring to the relevance of science (Bungum, 2013). However, the students' ability to interpret visual material depends on their prior experiences (Kearsey & Turner, 1999; Lee, 2010; Pozzer & Roth, 2005) with the content under question.

In some contexts a real photograph may be better than a thousand words; in other context they may be less useful or even confusing as they simultaneously "lack determinacy and exhibit an excess of meaning." (Pozzer & Roth, 2005, p.219). Thus, students may interpret the photograph based on what they think is there rather than on what is really there. "Photographs are culturally situated and consequently convey different meanings to different viewers based on personal life experiences, knowledge, and perspectives. Photographs, like words, are both encoded and decoded with meaning." (Moran & Tegano, 2005, p.3). Hence, it should be noted that the photograph background may allow the reader to distinguish the relevant details in the photographs (Pozzer & Roth, 2005). The point is that some textbooks include photographs with decontextualized entities (Dourado, Morgado, & Leite, 2015) which may hardly be interpreted according to textbook authors' intention. The printing quality of the photograph, its (in)compatibility with the text elements, and the captions that accompany it may also diminish photographs educational value (Çobanoglua, Sahinb, & Karakaya, 2009).

Also, photographs are instantaneous and therefore they can hardly show dynamic processes. However, there is some empirical evidence that readers make inferences based on their previous experience and knowledge and therefore do not differentiate between what they can see and what they may think, have heard, or believe (Pozzer, & Roth, 2005), they can see the "right" process in a photograph if they are used to it. Otherwise, they can activate inappropriate ideas and interpret photographs in unanticipated ways. Given that students react to different pictures in different ways, it is important that textbook writers and science teachers are aware of how different kinds of images can invite students into science by addressing their various roles (Bungum, 2013) and possible interpretations.

OBJECTIVE

Textbooks play an important role in the teaching and learning processes because they are still being used as a major source of information in teaching a particular subject (Khine, 2013). Therefore, the quality and accuracy of their content is crucial for their educational effectiveness. Thus, they should give a meaningful contribution to contextualized teaching, namely through visual information (including photographs and photograph related visual tools), adapted to the target students' characteristics. Thus, the objective of this paper is to compare photographs included in 8th and 11th grade textbooks between them and in terms of their potential to contribute to contextualized science teaching. The findings will give insights on whether "photographs are planned to enrich the textual parts of a textbook or whether they were inserted just for the sake of being there." (Tufekcic, 2012, p.121) for decorative purposes.

THE STUDY

To attain the objectives of this study, three 8th grade Physical Sciences textbooks (TB1 to TB3) and three 11th grade Physics and Chemistry textbooks (TB4 to TB6) were content analysed. These textbooks form three pairs, based on the publisher, as there is a book by each publisher in each grade level. It should be noted that these grade levels belong to different school levels as follows: 8th grade belongs to the third cycle which is the final cycle of basic education where science is taught to all students; 11th grade belongs to secondary school level, which is compulsory even though students can choose to take science or not. Thus, TB1 and TB4 are by the one publisher (P1), TB2 and TB5 are by another publisher (P2) and TB3 and TB6 are by a third publisher (P3). A sample with these characteristics enables comparisons to be made between editors and between the two school levels in order to find out whether or not publishers deal with photographs differently in the two school levels. The textbooks analysed were assigned in Portuguese schools in the academic year of 2015/16.

The analysis concentrated on the teaching units that are related to Chemical Reactions, as this is an issue that has a strong relationship with the daily life settings which may facilitate the job to those that want to use a contextualization approach. Thus the teaching units are: Chemical reactions – 8th grade; Chemistry and industry and From Atmosphere to Ocean – 11th grade. They include not only the concept and ways of representing of Chemical Reactions but also themes like acid-base reactions, precipitation reactions, redox reactions and chemical kinetics.

Photographs, realistic schemes (drawings that look like photographs) and photographs combined with other elements (e.g.: graphs) that are included in the teaching units referred to above were selected and analysed. Despite their differences, all of these graphical elements will be addressed from now on as photographs, as it was done in a previous study (Dourado, Morgado, & Leite, 2015),

The analysis concentrated on several dimensions previously identified by Devetak and Vogrinc (2013) and partly used in Dourado, Morgado, and Leite (2015). These dimensions are the following: number of photographs; types of photographs; location of the photographs; role of the photographs; caption of the photographs; relationship of the photographs integrated along the text with the text itself, contextualization of the entities photographed.

For each dimension of analysis, a set of categories based on the one used by Dourado, Morgado, and Leite (2015) was adopted. The categories will be introduced in the next section. To improve reliability of the analysis, photographs were classified on this set of dimensions and respective categories by two of the authors separately. The provisional results obtained were compared and discrepant results were discussed by the three authors so that a consensual classification was reached.

FINDINGS

Number and type of photographs

Results indicate that the absolute number of photographs diminishes from 8th to 11th grade in all textbooks but those by P2 (that is TB2 and TB5) and that the number of photographs per page diminishes from 8th to 11th grade whatever the publisher and textbook. Textbooks by P2 are those that have fewer photographs per page in the 8th grade and more photographs per page in the 11th grade (table 1). Even though this result may seem a bit surprising, there is also a reduction in the number of photographs per page from 8th to 11th grade. Thus, even though all publishers reduce the number of photographs per page, from 8th to 11th grade, the publishers whose textbooks have larger absolute numbers of photographs are the ones that reduce most the number of photographs per page, from 8th to 11th grade. Anyway, these results suggest that all the textbook publishers follow a similar pattern that may be due to a conscious and planed editorial option that is: as the grade level increases, the number of photographs per page should decrease because students get older and do not need too much extrinsic motivation or too many facilitating elements.

Table 1: Number of photographs per textbook and page

Grade Level	Textbook	Number of Photographs	Number of Pages	Photos/Page
8th	TB1	292	106	2,75
	TB2	194	88	2,2
	TB3	254	86	2,95
11th	TB4	195	239	0,81
	TB5	265	184	1,44
	TB6	121	202	0,60

The large number of photographs per page included in 8th grade textbooks is consistent with the results obtained in other studies (Dimopaulos, Koulaidis, & Sklaveniti, 2003; Pozzer & Roth, 2003; Kim, Kong, & Lim, 2011; Kapıcı & Savascı-Açıkalınb, 2015) dealing with textbooks from diverse countries and school levels. However, López-Manjón and Postigo (2014) found that Spanish primary school Biology textbooks include fewer photographs per page (around 1,4) which is a result that compares better to the number of photographs per page obtained with 11th grade textbooks. Besides, the number of photographs per page in lower than the one obtained for Portuguese 8th grade textbooks on the theme 'Resources Sustainable Management' (Dourado, Morgado, & Leite, 2015) probably because the latter theme focuses more on nature and daily and professional life. Nevertheless, it should be noted that using many photographs is not necessarily a good thing. In fact too many photographs per page may not only conflict with scientific accuracy (Lee, 2010), make the page too colourful and confusing for the students, and increase the price and/or the length of the textbook, and make the non-interesting photographs to override the educationally valuable ones.

Excluding textbooks TB4 and TB6, all textbooks include the three types of photographs (table 2) considered for the purpose of this study and included them in the textbook sections selected to be analysed, as it was found in previous study (Dourado, Morgado, & Leite, 2015) focusing in 8th grade textbooks. However, drawing-like photographs (that is drawings that look like photographs) are the less frequent type of photographs in the 8th grade (excluding TB1) as well as in the 11th grade textbooks. Besides, the percentage of real photographs increases from 8th to 11th grade in textbooks by publishers P2 and P3 and it decreases a bit in textbooks by P1. An explanation for the result regarding P2 and P3 may be based on the idea that real photographs contain educationally relevant elements mixed with irrelevant ones and that the latter may make learning harder for young students. In fact, young students may find it difficult to separate the relevant from the irrelevant elements of a photograph (Pozzer & Roth, 2003) and if it is so, they consequently would hardly be able to take profit form the photograph.

Table 2: Types of photographs used by the textbooks when dealing with the theme (%)

Type of photographs	8th grade			11th grade		
	TB1 (n=292)	TB2 (n=194)	TB3 (n=254)	TB4 (n=195)	TB5 (n=265)	TB6 (n=121)
Real photographs	67,8	39,2	37,0	55,4	57,7	80,2
Drawing-like photographs	23,3	5,7	8,3	0,0	0,8	0,0
Photographs combined with other graphic and/or verbal elements	8,9	55,1	54,7	44,6	41,5	19,8

In addition, two publishers (P2 and P3) tend to use photographs combined with other graphical elements (e.g., graphs) in the lower school level more than they do in the higher one. One explanation for this result may be anchored on textbook authors' belief that by doing so they can foster the relationship between science knowledge, (represented, for example, by graphs), and everyday life (represented, for example, by photographs). Other authors (López-Manjón & Postigo, 2014) found photographs combined with other verbal and pictorial elements in percentages similar to those obtained in the present study. However, Dourado, Morgado, and Leite (2015) found percentages a bit lower with 8th grade textbooks even though in a different theme. The point that deserves attention is that some visual elements like graphic are very demanding for students and they may become even more demanding when combined with photographs.

Location of the photographs

Textbooks analysed include photographs in different places (table 3) but some of them do not include photographs in the all the places considered for the purpose of this analysis. Besides, excluding TB1 and TB5, more than half of the photographs are integrated into the text throughout the presentation of the content. Anyway, in those two textbooks, the percentages of photographs integrated into the text are about 45% of all the photographs they include in the units analysed. Hence, these results indicate that textbook authors worry about integrating illustrations of the content into the text, to make it either more understandable/easy to grasp for the students or more appealing to them.

Table 3: Location of the photographs used by the textbooks when dealing with the theme (%)

Location of the photographs	8th grade			11th grade		
	TB1 (n=292)	TB2 (n=194)	TB3 (n=254)	TB4 (n=195)	TB 5 (n=265)	TB6 (n=121)
Presented at the beginning of the chapter and sub-chapter	1,3	3,6	1,2	9,8	0,0	8,3
Integrated into the text that introduces the content	44,2	62,9	53,1	62,1	45,7	79,3
Integrated into the activities	15,1	20,6	45,7	19,0	44,9	0,0
Apart from the text, into Curiosity boxes	2,4	12,9	0,0	5,1	9,4	0,0
Presented at the end of the chapter	0,7	0,0	0,0	0,0	0,0	12,4
Used as a page background	36,3	0,0	0,0	4,0	0,0	0,0

In all but TB6 some photographs are associated to learning activities. Textbooks 3 and 5 are the ones that use larger percentages of photographs in this way. This way of using photographs suggests that textbook authors worry about making the activities easier to understand by the students.

Excluding TB5, all the textbooks analysed show photographs at the entrance page of the chapters or subchapters. However, the percentages of photographs are small when compared with the total number of photographs included in the teaching units analysed. Nevertheless, this result is not surprising because the number of sub-units dealing with issues considered in this paper is small and so is the number of entrance pages. Also, textbooks by all publishers but P3 show photographs in a small box placed at the margin of the page. This location of photographs seems to intend to call students' attention and raise their interest for additional information on the content developed in the main text of the page. As TB3 and TB6 do not use photographs in this way, it can be hypothesised that it is not due to a planned choice of the authors but rather to an editorial decision of the publisher. The use of photographs as a background of the page may also be an editorial decision of P1. Photographs used in this way are more frequent in the 8th (TB1) than in the 11th grade (TB4) probably because of a belief in that it is more important to try to catch more 8th graders' than 11th graders'' attention. Only two textbooks (TB1 and TB6) use photographs at the end of the chapter and the percentages of photographs used in this way is very low, especially in TB1.

In what concerns the two most frequent ways of using photographs, these results compare to those of a previous study (Dourado, Morgado, & Leite, 2015) even though photographs at the end of the chapter and as a page background had not been found in the former study. However, Pozzer and Roth (2003) also found that a small number of photographs that appeared at the beginning of a unit, chapter, or section of text without being explicitly related to it.

Role of the photographs

The analysis of the integration of the photographs in the textbooks suggests that they are intended to play diverse roles (table 4), ranging from students' motivation to learn, content illustration, and activities content complement/illustration to providing a background image to beautifying the textbook page. All the textbooks include photographs aiming at motivating students to learn. Those photographs are presented at the unit or sub-unit opening page (excluding TB5) or closing pages (only in TB1 and TB6).

The photographs that aim at complement and/or illustrate the text are included along it. From 8th to 11th grade, two publishers (P1 and P3) increase the number of photographs that seem to play this role. All textbooks but those by P3 include photos in small boxes aside the main text. These photographs aim at adding information to the main text usually with a non-compulsory or curiosity character. Some of them have to do with historical pictorial information (e.g.: scientists' photographs).

All but one textbook (TB6) integrate photographs in both laboratory activities and knowledge use (mainly paper and pencil exercises or problems) activities as a way of illustrating what is mentioned in the text of the activity (e.g., mentioning a burette, showing a burette) or of complementing it, either in the laboratory activities (e.g.: showing an *apparatus* necessary to carry out some laboratory procedure) or in the paper and pencil (e.g.: showing a photographs of what is mentioned in the exercise/problem to ask questions about it) context. However, the percentages of photographs used with these purposes are quite low except for textbooks by P3 that integrates over one third of their photographs in knowledge use activities. One of the publishers includes photographs as textbook page background even though the percentage of photographs in these conditions reduces from 8th to 11th grade.

Table 4: Role of the photographs used by the textbooks when dealing with the theme (%)

Role of the photographs		8th grade			11th grade		
		TB1 (n=292)	TB2 (n=194)	TB3 (n=254)	TB4 (n=195)	TB5 (n=265)	TB6 (n=121)
Motivation to learn		2,0	3,6	1,2	9,8	0,0	20,7
Curiosity towards content		2,4	12,9	0,0	5,1	9,4	0,0
Text content illustration		44,2	62,9	53,1	62,1	45,7	79,3
Activities content complement/illustration	laboratory activities	3,4	13,4	11,1	11,8	10,9	0,0
	knowledge use activities	11,7	7,2	34,6	7,2	34,0	0,0
Page background		36,3	0,0	0,0	4,0	0,0	0,0

These roles of photographs were found in previous studies carried ou with natural sciences (Dourado, Morgado, & Leite, 2015) as well as with Biology (Pozzer & Roth, 2003) textbooks even though in the latter case they were named differently.

Captions of the photographs

Data given in table 5 show that most of the photographs include in two (TB1 and TB3) of the three 8th grade textbooks do not have a caption. Also, more than 40% of the photographs included in two (TB4 and TB5) of the three 11th grade textbooks do not include captions either. The absence of a caption in photographs included in textbooks was found in previous studies (Dourado, Morgado, & Leite, 2015; Kapıcı & Savascı-Açıkalınb, 2015) and it could be argued that it may give students freedom to interpret the meaning of the photograph. However, it can also be argued that it may cause trouble to students (Kapıcı & Savascı-Açıkalınb, 2015), leading them to do unintended or unanticipated interpretations, especially in the lower school levels.

Table 5: Caption of the photographs used by the textbooks when dealing with the theme (%)

Caption of the photographs		8th grade			11th grade		
		TB1 (n=292)	TB2 (n=194)	TB3 (n=254)	TB4 (n=195)	TB5 (n=265)	TB6 (n=121)
Caption	Appropriately matches the content of the photo	2,1	38,1	5,9	7,7	25,7	52,1
	Makes some explanatory comments on what is shown in the photo	32,2	4,6	9,8	30,3	12,1	30,6
	Does not match the content of the photo	1,0	36,7	5,5	5,1	17,3	5,8
Replaced by an explanation focusing on page content and ignoring the photo content		2,4	1,0	2,8	14,3	0,4	2,4
No caption		62,3	19,6	76,0	42,6	44,5	9,1

Besides, when captions are provided, some of them do not give a contribution to make it explicit the content of the photograph. In fact, there are cases in which the caption presents comments related with elements that are shown in the photograph instead of comments to the photograph itself. This happens with about one third of the photographs included in TB1, TB4 and TB6. There are also cases in which the caption does not match the content of the photograph. This happens with about one third of the photographs included in TB2. These mismatches may make students feel confused and/or develop alternative conceptions (Devetak & Vogrinc, 2013). Finally, all the textbooks analysed included photographs in which the caption is replaced by an explanation. The number of photographs in this circumstances increases from 8th to 11th grade in textbooks by P1 and is kept approximately constant in the other textbooks. In the overall, the findings relative to captions compare to those obtained by Dourado, Morgado, and Leite (2015), with 8th grade Portuguese textbooks, and by Pozzer and Roth (2003), with Brazilian textbooks.

Exploration of the photographs integrated into the text

Photographs that are integrated along the text were analysed in order to find out whether or not they are explored with the aim of illustrating and complementing the content that is being presented. Table 6 shows that the majority of the photographs are related with the content being presented. However, textbooks by P3 are the only ones that make an explicit relationship between the text and the photographs, either in a considerable amount of (TB3) or in all the photographs (TB6) that they integrate into the text. The result obtained with TB3 compares to the one obtained by Kapıcı and Savascı-Açıkalınb (2015) with Turkish 8th grade chemistry textbooks. Pozzer and Roth (2005) stated that the main text is an important resource in helping readers to interpret photographs. Thus, a good relatedness of photograph's and text would make the task of interpreting photographs much easier and accurate for the reader, namely for the students.

Photographs that are not related to the content being presented seem to intend to add new (different) information or to provide a background of the page to beautify it. This way of using photographs, that was also found by Dourado, Morgado, and Leite (2015) and by Kapıcı and Savascı-Açıkalınb (2015), may have selling purposes (Cook, 2008) and are dispensable (Perales, 2008) from an educational point of view. In fact, they may hardly facilitate or enhance students' learning because, as Pozzer and Roth (2004) argue, it is difficult for students to correctly interpret them.

Table 6: Relationship of the photographs integrated along the text with the text itself (%)

Relationship of the photographs with the content		8th grade			11th grade		
		TB1 (n=129)	TB2 (n=122)	TB3 (n=135)	TB4 (n=121)	TB5 (n=121)	TB6 (n=96)
Related to the content presented	Explicitly mentioned	0,0	0,0	43,0	0,0	0,0	100,0
	Not explicitly mentioned	98,4	100,0	56,3	74,4	95,0	0,0
Not related to the content presented nor explicitly mentioned	Simply add new information	1,6	0,0	0,7	23,1	5,0	0,0
	Work as a background to beautify the page	0,0	0,0	0,0	2,5	0,0	0,0

Contextualization of the entities shown in the photographs

Table 7 shows that, whatever the textbook, very few photographs show entities in a context or background. In addition, when a background is provides, in a few photographs there are not enough data to identify the type of context even though some of those photographs contain elements that may be meaningful for people holding a certain kind of previous knowledge and experience. However, if photographs are to complete the text, then they should be self-meaningful so that they could be interpreted by the students in the way textbook authors want them to be, that is according to the intention underlying the choice of a given photograph and the decision on where to locate it in the page.

Table 7: Contextualization of the entities shown in the photographs used by textbooks when dealing with the theme (%)

Contextualization	8th grade			11th grade		
	TB1	TB2	TB3	TB4	TB5	TB6
	(n=292)	(n=194)	(n=254)	(n=195)	(n=265)	(n=121)
Yes	12,7	8,8	11,0	14,8	9,4	23,1
No	79,8	75,2	84,6	74,4	79,2	58,7
Not enough data	7,5	16,0	4,4	10,8	12,2	18,2

The large percentages of photographs with non-contextualized entities (between about 59% and 85%) identified in the textbooks analysed raise the question of how those photographs are interpreted and whether such kind of photographs may play their intended roles or not and if not, whether or not they interfere negatively with students learning. In a previous study (Dourado, Morgado, & Leite, 2015), larger percentages of photographs were assumed as being contextualized at least in part because the category "not enough data" was not considered and some photographs that the authors, as experts in the area, could anticipate to they were related to were classified as contextualized. The inclusion of this category was supported by Pozzer and Roth (2005) argument on that the background of the photograph is needed if the reader is expected to make appropriate sense of the picture relevant elements. Thus, for instance, photographs showing fireworks that occupy the whole photograph space or showing lab glass material supported by fingers wearing gloves were classified in the category "not enough data". In the former case, the image shown could represent something else than a firework, for instance an anemone; in the latter case, the fingers with gloves can make people think about a laboratory context but in fact only people with a science background (not beginning science students) know it. Bearing in mind Lee's (2010) and Pozzer and Roth's (2005) results, they each student could interpret these photographs in its own way and then the photograph would not fulfil the textbook's authors aims.

The contextualized entities focused on the photographs are concrete entities or processes (table 8). It should be noted that the photographs focusing on processes show only one take of the phenomena, that is they offer a static picture of it and therefore they are not elucidative about the dynamism of phenomenon which would be an important information for students that are not familiar with it. As it was mentioned above, people can see in the photographs what they want to see (Pozzer & Roth, 2005) but they will not probably be creative enough to correctly imagine how a new (to them) science phenomenon evolves unless they are already familiar with it. Then, this type of photographs has a limited illustrative value. From 8th to 11th grade, the percentage of photographs focusing on concrete objects decreases in textbooks by P1 and P3 but somehow surprisingly it increases in textbooks by P2. As it is widely accepted, as students get older they need less contact with concrete objects. Thus, P2 option seems to be consistent with Tufekcic's (2012) idea that photographs are included in the textbooks just to be there.

These results compare to those previously obtained with Portuguese 8th grade textbooks (Dourado, Morgado, & Leite, 2015) in which photographs showing contextualized concrete entities and processes were found. However, simply including photographs of entities or processes does not add to students' understanding of the science content that is being approached and does not play a meaningful role in students' interpretation of photographs. Therefore, most of them would be dispensable (Perales, 2008) even though they may be worked out in the classroom in a more interesting way.

Table 8: Nature of the entities that are contextualized (%)

Nature of the entities	8th grade			11th grade		
	TB1 (n=37)	TB2 (n=17)	TB3 (n=88)	TB4 (n=29)	TB5 (n=25)	TB6 (n=28)
Concrete entities	56,8	29,4	64,3	31,0	56,0	21,4
Processes	43,2	70,6	35,7	69,0	44,0	78,6

Photographs that show contextualized entities concentrate on people, objects, places and animals (table 9), being places and objects usually the most frequent, as expected based on Dourado, Morgado, and Leite (2015). From 8th to 11th grade, the percentages of photographs showing places (e.g., beach, mountain, etc.) increase in the textbooks by publishers P1 and P3. The opposite happen with P2 but this variation has to be interpreted with caution because the number of photographs showing contextualized entities is very low, especially in the 8th grade textbooks. text.

Table 9: Types of concrete entities that are contextualized (%)

Types of concrete entities	8th grade			11th grade		
	TB1 (n=21)	TB2 (n=5)	TB3 (n=18)	TB4 (n=9)	TB5 (n=14)	TB6 (n=6)
People	23,8	20,0	16,6	11,1	21,4	33,3
Objects	52,4	0,0	27,8	33,3	21,4	0,0
Places	23,8	60,0	55,6	55,6	50,0	66,7
Animals	0,0	20,0	0,0	0,0	7,1	0,0

Percentages of photographs showing animals in a background are very low probably due to the nature of the science content. Photographs that concentrate on people in a setting are more frequent then those with animals. This result may be to the fact that the theme under analysis has a rich history and that textbooks include pictures from several scientists when developing it. However, as it was discussed elsewhere (Leite, 2002), the content of such pictures may fulfil some students curiosity about how the scientists of the past were used to look like but it adds very little to the content presented in the

Even though the number of photographs showing contextualized processes relative to matter transformation is very low (table 8), table 10 indicates that in the 8th grade textbooks, most of these photographs show the transformation of substances in daily life settings (e.g., dynamite explosions, rockets launch, rust in gates, boats, etc.), statues corrosion, acid rain forest destruction, etc. These percentages decrease from 8th to 11th grade and, as a consequence of this, the percentages of photographs showing industry processes increase. This may be due to the nature of the content that textbooks are dealing with, as in 11th grade they have to approach, for instance, the industry process of ammoniac production. A few textbooks also include photographs that try to show processes associated with human basic needs fulfilment, like eating and drinking. However, showing a person drinking water or juice is not showing a transformation of matter process. In fact these will start after drinks or food are ingested, include a variety of transformations and cannot be seen at naked eye. Maybe authors just want them to serve as a basis for students to think about chemical reactions.

Table 10: Settings in which the processes that are contextualized take place (%)

Settings	8th grade			11 th grade		
	TB1	TB2	TB3	TB4	TB5	TB6
	(n=16)	(n=12)	(n=10)	(n=20)	(n=11)	(n=22)
Industry	18,8	25,0	20,0	50,0	45,5	45,5
Daily life	62,4	58,3	80,0	40,0	54,5	40,9
Personal needs	18,8	16,7	0,0	10,0	0,0	13,6

However, it should be noted that photographs that try to show a process are not dynamic and do not represent several phases/moments of the phenomenon; rather, they just show a take of it. Therefore, it may happen that photographs are more helpful for students to learn about labelling structures and describing the phases of a process, than to learn about the overall process as a whole (Cook, 2008).

As shown in table 11, few photographs show entities contextualized in indoor surroundings. These surroundings are home or (school, research or industry) laboratory environments. However, the content of the photographs and the background of the entities photographed do not contribute too much to help students to perceive, for instance, the domestic and the industrial applications of chemical reactions.

Table 11: Types of spaces surrounding the contextualized entities (%)

Types of spaces	8th grade			11th grade		
	TB1 (n=37)	TB2 (n=17)	TB3 (n=28)	TB4 (n=29)	TB5 (n=25)	TB6 (n=28)
Indoors	16,2	0,0	10,7	3,4	8,0	14,3
Outdoors	83,8	100,0	89,3	96,6	92,0	85,7

The outdoor surroundings used in the textbook photographs are quite diverse but in some cases they show open spaces that can hardly be characterized (table 12) because they either are quite narrow or are too homogeneous (e.g., a grass field) for the (geographic, geological, urbanistic, etc.) characteristics of the space that surrounds the entity to be identified. Textbooks by P2 are the ones that include more photographs in this category that adopt a way of contextualization which is poor.

There are many chemical reactions that take places in open spaces and many types of open spaces are considered by the textbooks. However, chemical reactions cannot be seen at naked eye. Only indirect evidences of a chemical reaction can be observed. Thus, the nature of the open spaces depends on the chemical reaction specific topic to be addressed, that is on the place a given chemical reaction occurs and the entities that are associated with it. For instance, a photograph of a beach relates to an open space where it is known that the sun fosters chemical reactions on people's bodies despite the fact that those reactions cannot be directly observed. Therefore, a question should be raised: what are the educational added value and the motivating power of such photograph? Does it really facilitate students' learning task or does it distract them? Does it show something that they do not know and that they are expected to know?

Table 12: Nature of the open spaces in which contextualized entities are shown (%)

Nature of the open spaces	8th grade			11th grade		
	TB1 (n=31)	TB2 (n=17)	TB3 (n=25)	TB4 (n=28)	TB5 (n=23)	TB6 (n=24)
Mountain	12,9	17,5	12,0	25,0	21,7	29,2
Field	3,2	11,8	8,0	3,6	8,7	16,6
Beach	16,1	5,9	0,0	3,6	8,7	8,3
River and Ocean	12,9	5,9	24,0	14,3	26,2	4,2
Sky	12,9	11,8	12,0	0,0	0,0	0,0
Caves	3,2	11,8	8,0	3,6	4,3	4,2
Roads	12,9	0,0	8,0	7,1	0,0	0,0
Urban areas	6,5	5,9	4,0	7,1	4,3	8,3
Ill-defined	19,4	29,4	24,0	35,7	26,1	29,2

CONCLUSIONS

The objective of this paper is to compare photographs included in 8th and 11th grade textbooks, by three different publishers, between them and in terms of their potential to contribute to contextualized science teaching. Three textbooks for each grade level and by three different publishers were analysed with regard to the way they deal with photographs (or photograph related visual material). Research findings seem to indicate that, in the overall, the use of photographs does not differ too much among textbooks and between grade levels and is hardly guided by context-based science teaching principles and that it does not differ too much between the two grade levels textbooks. In the overall, the results compare to those reported by other authors with regard to the use and inferred purpose of the photographs, as well as with the approach to contextualizing the entities that are photographed.

Some small differences were noted between publishers with P2 seeming to have less planned criteria to using photographs in the two school levels. However, this paper focuses on a part of the textbooks from which cannot be inferred the way photographs are used in the rest of the textbook. Therefore more research in needed in order to identify the features of photographs use in the different textbooks and by the diverse authors and publishers. This research that would require a interviews to be conducted with people in charge of publications as well with textbook author, would give some insight on the way photographs and other visual material are planned and used in science textbooks.

Even though further study is needed to address important issues related to the pedagogical potential of the photographs included in textbooks (Pozzer & Roth, 2003), the findings of the research reported in this paper have several educational implications, being the first of them for textbook authors and publishers: they should appropriately select and integrate the different visual tools in their textbooks so that those tools may in fact assist students in making sense of what they are expected to learn.

Besides, these findings put some pressure on teachers as they should be able to pay attention to the possible weaknesses and strengths of photographs (Kapıcı & Savascı-Açıkalınb, 2015) included in students' textbooks and to be sure that their students understand the 'codes of representation' (Gilbert & Afonso, 2014) that might be used in those photographs, in order to find the best ways to succeed in leading photographs to effectively become bridging tools between science content and everyday life. This bridge building process is at the heart of student-centred contextualized science education approaches.

However, the acknowledgment of this idea may raise another concern that has to do with teachers' training for contextualized science teaching approaches. As Ültay and Ültay (2014) pointed out, "because the teachers are the implementers of the approach, their views, perceptions and involvement should be regarded as important and their professional development should be examined. If needed, in-service education should be given." (p.215), especially if the more modern contextualizing approaches are to be adopted. These are more demanding for teachers as they may require many of them to move away from teacher- and canonical science- centred to student-centred and daily life-based approaches.

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Contribution Of Visual Thinking On Linear Development Of Preschool Children Group In Visual Arts Education Lessons

Vesile AYKAÇ
Marmara University
Atatürk Education Faculty
Istanbul - TURKEY
vaykac@marmara.edu.tr

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ABSTRACT

This research is prepared in order to uncover imagination and creativity of 5 years old children's art education, by creating their own thoughts through visual symbols. Describing the subject, children's visual, sensory, tactile sensations have been addressed and their identification with the issue has been provided by paying attention to children's intelligence types. By the methods used in the end, each child will be formed in the minds of different visual ideas from each other, it is provided for transferring the material to create their own icons.

This study was conducted with 15 randomly selected children who attend kindergarten from age 5 in the Münevver Şefik Fergar Primary School which located in Kadıköy district of Istanbul in the academic year 2014-2015. In the study; case study method of qualitative research methods and participating observation technique was applied. The study documented with photographs, notes were taken by making observations.

INTRUDUCTION

As the art is a means of self-expression, it is important for early childhood kids for self-knowledge, development of motor skills, socialization and expression of feelings. Child who deals with the whichever branch of the art, creative solution methods that he/she find in a freedom media are guide to self-recognition and gained sense of self-confidence is the starting point of communication with the environment. Arts events in which the child, create his/her thinking and self-description language. Artistic activities cause to gain experience for the child in the process. At the end of this experience, child starts pouring visual icons on to material by creating his/her own creative ideas. At that moment, the child was given the artistic product and was told himself/herself unconsciously putting out the specificity. Specific forms of expression that reveals a symbolic expression of children are the manifestation of their inner world. This symbolic expression occurs through our sense organs from external stimuli. These objects which perceived by our brain become meaningful by interpreting. Through psychological, sensual and knowledge, etc. effects in us, the meaningful things for us come to life and picturified in our mind. The meaningful objects which become as image evoke other free images which previously experienced subconsciously and examined by the rational mind. At the end of this examine, meet with other data created in the mind of the person. The resulting mental activity creates visual thinking; this thinking is different in everyone. They create their own visual icon which they create images in their minds, by mobilizing discovery starts with sense of seeing, touching, tasting, hearing and smelling and by pouring the material. Thus begins the creative thinking in children with visual thinking.

In preschool education various activities shall be involved to support the process which begins with the visual perception with the senses, then ongoing process of creative thinking with visual thinking. At the beginning of this event art activities shall be involved which will enrich visual perception. This study covers a sample of a qualitatively experimental research which has been done to reveal visual icons and creative thinking in the art training of pre-childhood period.

PROBLEM

The activities of pre-school education in Turkey aim at developing children's motor skills in early childhood. But this training program, is not enough for children to form their own visual symbols, is not supportive in the linear development. Therefore, the lack of activities for children to form their own visual icon and avoid creative thinking has been seen as problem.

AIM

It is aimed to make an experimental study example to create their own visual icons by visual thinking method in art education lessons of children in preschool and to reveal creative thinking.

SAMPLE AND LIMITATIONS

This study was conducted with 15 randomly selected children who attend kindergarten from age 5 in the Münevver Şefik Fergar Primary School which located in Kadıköy district of Istanbul in the academic year 2014-2015.

METHOD

In this study; case study method of qualitative research methods and participating observation technique was applied. This study was an experimental study. "Experimental methods are methods that will provide solutions to problems that might exist in the future." (Arıkan, 1995, p.83) The study documented with photographs, notes were taken by making observations. This observation technique is one of the technical features of the behavior of individuals used to investigate “within the natural if necessary environment” (Akgül, 2005). Participating in observation, observer, acts as one of them is associated with the observed; ideally, also is not known as its observer (Karasar, 2005). Case study is a research strategy rather than a method. This broad strategy and a lot of different methods used in research and order them or qualitative (words) or quantitative (numbers) or both. However, case studies are based on the more qualitative data. In this method, data collection methods can be observation, interviews and questionnaires. (Donusumkonagi.net 2014, 20 April). It is performed in a natural environment such as a classroom, a neighborhood, an organization and it is aimed at a holistic review of the work environment or the subject of the events (Yıldırım and Şimşek, 2005, 77). Therefore, it is one of the appropriate methods for related research with qualitative research methods aimed at detection and experimental visual art education.

Visual arts education consists of a process and resulting product at the end of this process. So the creative research process is important as a result. (Kırışoğlu, 2009: 154) This research was conducted in classes and garden setting. To inform visually video, photo used, provided permanence and interpretation of the information by using of the question and answer method is in the pre-test. It is provided that to tell the subject by body language by using drama method and empathize with the tree. By bringing a variety of tree branches into the classroom environment it is provided to touch and smell and discussed the differences between them. As final test, wearing leaves game to the tree is played by students, the information was repeated. By going out the school garden, the trees are examined and talk about them. After the children's mind fully formed concept of the tree, they was asked to work with different materials to create their own tree icon appeared on the cardboard and the tree forest was created by bringing together. All study prepared by assuming that limited attention periods limits for 20 minutes for 5 year old children and study is spread over a day. In the study of children's answers were recorded, practices were photographed.

FINDINGS AND COMMENTS

Rudolf Arnheim, "seeing and hearing is the perfect environment to use intelligence. Visual perception is essential to think of the mind. Thinking that occurs with seeing the first time, almost argue that thinking is structurally linked to our sense of sight to the extent pictorial"(Arnhem, 2015).

İnci San says that “The icons which are used in creation of children are signs that they are adopted what they see, hear, taste, know, touch, think and talk about. An icon is full of sensation, meanings and connotations for kids and it is important to think in terms of processes. Because symbols are the instruments representing the child's world as simple and straightforward.” (San, 1977, p.83)

For the formation of these icons, early childhood period was addressed in this study. To develop of children's creativity and to be able to create their own tree icon, the situation of gradually decreasing tree in the world were discussed in case study. How to grow the trees, affects of the seasons on trees affects of the changes of world on trees, tree species, changes of trees adhering to any specification and requirements of the tree were described by showing videos and photos. The following questions are asked verbally for pre-event test after the sample as perceived by the children selected the tree of life and the threats that face. Thus, children will create different visual in mind, by integrated the new image of the tree is created in the image of trees by past experiences in mind.

“How does tree come to the world?” First child replied “falling seeds from the trees grow into the soil, and there grow again” he replied. The second one said “they need land, water and sun to grow”. The third child replied “they cannot grow without eating like us teacher”. An important detail that they realize that trees are alive like us. Another child replied "trees need a long time to grow my teachers”.

Branches plucked from trees with flower, leaves and fruit are distributed to children. By the help of photos and examples the general image of broad-leaved and coniferous trees, stems, leaves and fruit structure features were introduced. In order to ensure that; children's perceptions of their past differences, touching and sniffing of these examples was asked. After this examination "What features do trees have, do you think?” one of the children replied to the question "roots, branches, leaves”. Other friends agreed to child. Another one replied “they have flowers, my teacher”. Then another child said that “There are some fruit trees, plum and cherry trees in the garden of my grandfather, we have plucked and eaten the fruit with my father”. By saying “Teacher, there is a tree without leaves, fruits and flowers in our site’s garden, only has branches” child pointed out a different side. Together discuss about why this tree doesn’t have leaves and fruits. It is tried to explain because of not feeding enough and deciduous according to season. Another child said that "the leaves of the trees are different, teacher, the leaves of the willow tree and pine leaves are different, I saw in the park", they realized trees might be different. Another child, " the color of the leaves of the trees in the pictures and we have seen now very dissimilar, teacher, there are yellow, red, green and coffee colored dried ones”; they realized that their colors not only green and vary according to the seasons. Characteristics of the tree with question-answer method were made taking into account the characteristics of their development. Children what they see in the pictures they studied, they kept their hands, and make comparisons between the tree branches in their hands, combining images taken their own lives. They distinguished plum, cherry trees due to fruits, the pine tree due to leaves, linden tree due to smell. They have difficulty in finding the linden trees, so they were allowed to remember the question and answer method.

For the question “What are the benefits of trees?” a few children answered as “they allows us and the world to take breath away” as they have watched in the video. A child replied “animals are used as homes, my teacher”, and the when asked “Which trees can house the animals?” a few children replied as “birds”. Another kid said that “I saw the cartoon, foxes have nest in the tree, my teacher” another one said that "squirrels and insects also live in the trees". When I repeat the question "Well, what else do the trees do?" they share what they see in the video, they answers as they protect from floods, landslides and the affects of the sun. A child in the world that provides water to the trees he avoids teacher drought, "he observed that children be recognized by the key points. A child said "the trees provide water to the world, my teacher, they prevent the drought" it is observed that children be recognized by the key points.

To the question "What do you think that cause danger to the trees?", they gave answers; made constructions, opened roads, air pollution, factories, extreme temperatures. By the effect of the watched video they comprehend how precious creatures. So it is emphasized that it is not just the trees, and other creatures about the tree will be in danger of their lives. These were allowed to 20-minutes for question and answer method.

To identify with the object tree, it was done a drama on the adventure of the tree in class. Children who establishing empathy with the tree in the drama obey to the instruction in the adventure of tree buds to tree. When they asked to be a tree with their bodies "which tree are you? question is asked. Some of them prefer to be pine doesn't defoliate, some of them chose to be tree of their favorite fruits. To feel that tree is alive, question asked appropriate to the season's characteristics, the drama continued guidelines.

Children were asked to answer the questions the way they feel. The student who becomes pine tree said that "my teacher, I feel lonely; I am only one who has leaves". The other one said that "teacher, I feel naked", and the other replied "because of I don't have leaves, no birds land on me". Kids said in summer usually "it is very hot, we are thirsty and sweating". One of them said, "I'm going to be shadow who escape from the sun, my teacher, now there are birds on my branches and ants on my body, I'm not alone, my teacher". They stated that, in autumn they are upset because of yellowing and defoliation and they are happy because of blooming and foliation of the branches. In drama, it has seen that children integrate the concept of tree and visual images about trees was occurred on the minds.

For fun in the classroom class was divided into two groups for "who wants to be a tree?" game. Prepared leaves shaped cardboards were distributed into two groups, children of two groups try to put the leaves on their friend who want to become tree and a final test is done with a sentence that said about the tree. The group who finished plugging the artificial leaves into their friend won the competition. Child who becomes tree created a beautiful image with colorful leaves, children, wanted to take pictures with him eagerly.

It has been observed that children enjoy activities such as drama, play, racing related to the theme and they have participated in activities competing with each other. In the following process they exited in the garden to examine the trees more closely and recognize touch. In the kindergarten garden it has been talked about trees with individual students. They enjoyed a lot in the garden; by sniffing trees and tapping trees to realize that there are different characteristics from each other and allowing them to verbal expression. Especially when they see ants browsing on trees, they carefully examined curiously observed the movements of ants.

Then, children gathered in the garden to make a picture of their tree. When the application is launched, the theme of which was seen easily grasp, thanks to their knowledge they were able to create their own tree image with materials of their own choice. They create a forest view by cutting their tree pictures with scissors, sticking on a large piece of paper. The children were very happy to work outdoors and have created a rich forest of tree species. After work each child joyfully told her/him friends her/him own tree image.

At the result of the lesson which is processed by methods that appeal to all the senses to create images in the minds of the children, children's visual, auditory and tactile senses have been addressed, it has been seen that imagination effects creative thinking.

Children created their own visual tree symbol successfully and were found to be different from all the trees of the icon. The sensations received through visual perception, when you meet with other data created in the mind of the person consists of mental activity, create visual thinking thoughts that are different in everyone. As a result of this study, it has been observed that reflection of visual ideas of developing visual instruments due to children's cognitive, physical, emotional development is returns to icons

CONCLUSIONS AND RECOMMENDATIONS

At the end of the study tree icons that reveal the children are different from each other. In this process, the transition from the tree symbol of their visual ideas, so that they enjoy the experience of learning through one to one, those who have learned it is more permanent. It has been seen that to appeal to the five senses is needed to create children's own icons in art education lessons. They can express acquired experience through art, it has been recognized that this study helps to develop self-confidence and creative thinking. To improve visual perception in children and to create visual ideas, starting in kindergarten, the methods should be used that will appeal to the five senses organ in art education classes. Teachers should guide the implementation process with children; children should be given the opportunity to express themselves in a free environment.

As a result, children learn perception of the surrounding trees by amusing with experimental approach by drama, play. The learning process has reached their goal and was able to express subjectively the children's creative attitude. Case study method can be used in all age groups; it is experimental and applicable in art education classes revealed for creativity and intellectual skills.

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Contributions Of Differential Calculus In The Understanding Of Financial Formulas Through An Interactive Learning Object

Juan, ARANGO
Instituto Tecnológico Metropolitano
Colombia
memo.arangoa@gmail.com

Diana, GAVIRIA Rodríguez
Instituto Tecnológico Metropolitano
Colombia
dianagaviria@itm.edu.co

Alejandro, VALENCIA Arias
Instituto Tecnológico Metropolitano
Colombia
jhoanyvalencia@itm.edu.co

Carlos, ORTEGA Rojas
Institución Universitaria Escolme
Colombia
cies@escolme.edu.co

ABSTRACT

The purpose of this article is to show through an interactive learning object (ILO) and the use of mathematical software GeoGebra how differential calculus can contribute as a principal basis for the understanding of financial formulas. To realize this, an ILO was developed, where the financial formulas are applied like: the present value, the net present value and the internal rate of return, used in the assessment of investment alternatives. These formulations are interpreted with the basis of differential calculus, where in a Cartesian plane are defined the variables and which parameters will be windows in the ILO.

Keywords: differential calculus, interactive usage of ICT, financial formulas, interactive learning objet, learning and teaching.

INTRODUCTION

Information and Communication Technologies (ICTs) are fundamental in knowledge transmission because promote the improvement of learning strategies of students, their skills by know-how learning. The virtual tools as software GeoGebra allow the interaction and exploration of users, and help teachers and students to understand and argue in a practical and constructive way the academic contents immerse in real problems.

The impacts for the use of ICTs and virtual tools on some undergraduate curses could be positive, facilitating the integration of theoretical knowledge and the practical use. An example of this, is the application on Differential Calculus subject, which contain a series of mathematical concepts which can be applied to understand and resolve real world problems as concept of derivative. The purpose of this paper is showing how through the use of derivative is possible to make management decisions.

The added value in this pedagogical strategy is when the parameters are varying, the graphic immediately change allowing new deductions, because when the student interacts with the graphic and the formulation, he will be conduce to understand new concepts in a logical way, building a significant learning from a financial theory and differential calculus basis and the proper interaction and understanding. Furthermore, with this methodology, the teacher will motivate to their students to correlate the differential calculus and financial mathematic concepts through the free software GeoGebra and reach a better teaching in this issue.

INTERACTIVE LEARNING OBJECT

With the technological advances, new learning virtual environments or on-line pedagogical environments have arisen, promoting the knowledge transmission tools development. These tools are named Learning Objects (LOs) (Poveda, 2011; Organista, 2010). The appearance of those objects through Internet as one of the pillars of knowledge (Roig, 2005) have significantly contributed to the evolution of knowledge transmission (Poveda, 2011). These new learning environments allow students assuming a more active role, since they are not just receptors of information as occur in traditional classes (Duran, Maside, Rodeiro & Cantorna, 2015). As well as, these environments allow in many educational situations the personal contact, the interchange and participation of members of a group (Macías, 2007).

Many authors have written about this issue and have tried to define the Learning Objects. However, there are not a general and specific definition about this term. A piece of interactive software as structure of three components is a proposal of original conception of learning objects, these components are: educational purpose, institutional subjects required for that purpose, and an assessment to identify the level of learners' progress who used the object (Barritt y Alderman, 2004).

Learning Object (LO) was defined by authors as Mason, Weller and Pegler (2003) as "a digital material piece of learning that addresses to a specific issue and has the potential of being reusable in different context". On the other hand, one of principal promoters of learning object concept was David Wiley (2000). He suggested that LO is "any digital resource that can be reusable as learning support" (Peñalosa & Landa, 2008). The definition given by Barritt and Alderman: "a learning object is an independent collection of content and media elements, a learning approach (interactivity, learning architecture, context) and meta-data (employers, storage and searching)" (Marzal, Calzada & Ruvalcaba, 2015). Other definition suggested by JORUM Project (2004): "a learning object is any resource that can be reusable to facilitate the learning and teaching, and has been described using meta-data" (Peñalosa & Landa, 2008).

It observes, there are many suggested definitions by different authors about Learning Object. However, they do not extract some of fundamental characteristics of LO concept, these characteristics of a learning object (LO) are: 1) has educational content which is more easy to teach, 2) meta-data are included, 3) uses a learning environment, 4) can have different levels of complexity and 5) has to be reusable (Peñalosa- & Landa, 2008). Regarding the LO properties, RAID acronym used (Reusability, Accessibility, Interoperability y Durability), in which didactic purpose or institutional design, digital and multimedia character and interactivity are added (Marzal, Calzada & Ruvalcaba, 2015).

That is how Interactive Learning Object can play an important role in virtual education, being a digital support resource, integrated into a HTLM web site of educational purpose that can be reusable in different learning sessions (Poveda, 2011). In this sense, the fundamental idea behind a learning object is that pedagogical designer can build little curricula components that can be reusable in other sessions with different learning context (Roig, 2005). These characteristics make diverse the ways to transmit knowledge and facilitate the educational process through text, video, images, animations, exercises and self-evaluation questionnaires, puzzle exercises, lab simulations, graphs, and others (Poveda, 2011).

It is important to denote that Learning Object is more than e-learning world. Developing educational contents based on LO bring a new way of learning, and allow the creation of on-line training programs with a high potential of flexibility and personalization, which make possible accomplishing more specific purposes and where participants' needs can be adapted. Those objects or units can be incorporated in any type of format (printed, web, media, word, etc.) according the class needs, and besides additional elements (González, 2005).

The learning theory was defined as a social construction process by the interaction between teacher, students, and the resources given by teacher in this process, all are fundamental to the content appropriation (Álvarez & Guasch, 2006). In this order of ideas, interactivity on the virtual object has been positioned as a relevant factor, since this make reference that a LO does not have only the content before exposed, but also has some type of element that allows register the progress and the different interactions made on concrete content unit by students. Interactivity can be defined from exercises, simulations, questionnaires, diagrams, graphics, slides, tables, exams, experiments, etc. development. In this case, it can be classified the following types of learning objects according the interactivity (González, 2005):

- Active: student interact sending data to a resource (example: test or exercises).
- Exposition: the resource sends student information (example: exposition of an issue)
- Mixed: combination of later ones.

Compiling Information before exposed, to accomplish a good exploitation of Interactive Learning Object and achieve its educational purpose, the following particular aspects have to be considered in LO conception: pedagogical, technological and human-computer interaction characteristics as a result of considering an educational and software product simultaneously. In this way, three dimensions of these characteristics are identified (figure 1) (Silva, Ponce & Villalpando, 2012).

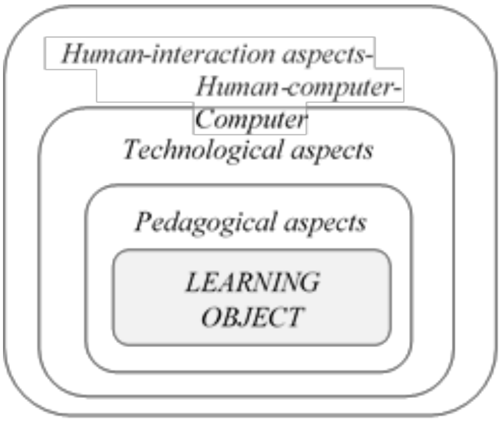


Figure 1. Learning objects' dimensions.
Source: (Silva, Ponce & Villalpando, 2012).

- Pedagogical dimension: the LOs have an educational purpose that allow establishing logical sequences to achieve the learning and teaching process effectiveness, also promote the construction and diffusion of knowledge.

- Technological dimension: the LOs are resources or digital units and can be addressed for software engineering area as a result of being considered as a software product. Facilitate the interchange between diverse platforms and systems, the reuse and scalability in educational environments. The principal characteristics are: re-usability, interoperability, accessibility,portability, flexibility and gradualness.

-Human-computer interaction dimension: as a digital resource has to be accomplish with certain criteria that makes attractive to a learner, to be incorporated in the interactive dynamic of student.

One of the areas which technological educational resources are relevant is accounting. How teaching accounting sciences is highlighted, and this requiring innovative alternative methodologies that allow a great dynamism into students learning process, encouraging their autonomy with the purpose of promoting a great understanding and appropriation of class accounting topics. In this sense, the use of Information and Communication Technologies ICTs as educational purpose has become a dynamic and interactive alternative that allows application of knowledge and encourage the feedback in accounting, finances and other areas or knowledge learning process (Gaviria, Arango & Valencia, 2015).

The use of digital tools through a learning method with virtual learning object has a pedagogical purpose to providing students a conceptual and practical instrument to interpret corporative accounting and other financial aspects. The implementation of methodology before exposed increase a great interest and motivation in students to accounting sciences learning. This attitude facilitates the understanding of mathematical equations of financial area, since these acquired knowledge in classroom are easier to learn because of experimentation and/or simulation (Gaviria, Arango & Valencia, 2015).

In this regard, teacher in the social, cognitive and academic training process has to define the methods of teaching-learning, where theory and practice simultaneously are worked by students, in order to improve their educational process (Gaviria, Arango & Valencia, 2015). It is necessary searching new mechanisms and creative and innovative ways of teaching for students, as a purpose of dynamism and making effective the teaching-learning process (Cabañas & León, 2012).

METHODOLOGY

1. Basic concepts. In Financial Mathematics exist very important concepts that have to remember to develop this Interactive Learning Object:

The Net Present Value represents in present Colombian peso all present and future cash inflows and cash outflows that support an investment project. That means, the result of all projected cash-flows generated by an investment or a project discounted by a discount rate or cost of capital less investment value. If the result is positive, the project is viable, if does not, the project does not add value to the company (Rosero, 2005).

The Internal Rate of Return IRR is the rate which the investment is equal to present value of incomes and expenditures or the present value is zero. Also, IRR explains the true rate which measures the profitability of the invested capital in a particular business, where all cash flows are equal to zero (0).

2. Problem situation: a problem situation is set out in order to make the ILO design. This problem situation has an investor that desires starting a project with an investment. Cash flow by periods and discount rate have been estimated for the investor. Net present value has to be evaluated to know if the project in viable.

3. Construction of ILO with GeoGebra: in the GeoGebra software curves as a result of formula of "Net Present Values (NPV)" and "Present Value (PV)" are designed:

$$\boxed{NPV = -I + \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} \dots + \frac{C_n}{(1+r)^n}} \qquad (1)$$

$$\boxed{PV = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} \dots + \frac{C_n}{(1+r)^n}} \qquad (2)$$

The "Net Present Value (NPV)" and the "Present Value (PV)" are ordinate axis (dependent variable) measured in Monetary Units (MU), while the discount rate "r" is the abscissa axis (independent variable). The cash flows: $C_1, C_2, C_3, \dots, C_n$, and the initial investment "I" are parameters of windows' software where we can change them according our problem situation. When parameter are changed intermediately the curve are transformed.

The ILO was designed for a maximum of 10 cash flow.
In figure 2 is observed both formula, where "$(1+i)^n$" is independent variable "r", in the denominator and always is positive and increases. It produces a decrease exponential function.

RESULTS

If before equations are subtracted, it obtains:

$$\boxed{(2) - (1) = PV - NPV = I} \qquad (3)$$

But the Internal Rate of Return (IRR) is a result of the Net Present Value intercepts the abscesses axis (the discount rate "r"). In other words, in the IRR, the NPV=0.
If NPV=0 in (3): I=PV.

In figure 2, it can observe that the vertical difference between two curves always is "I"

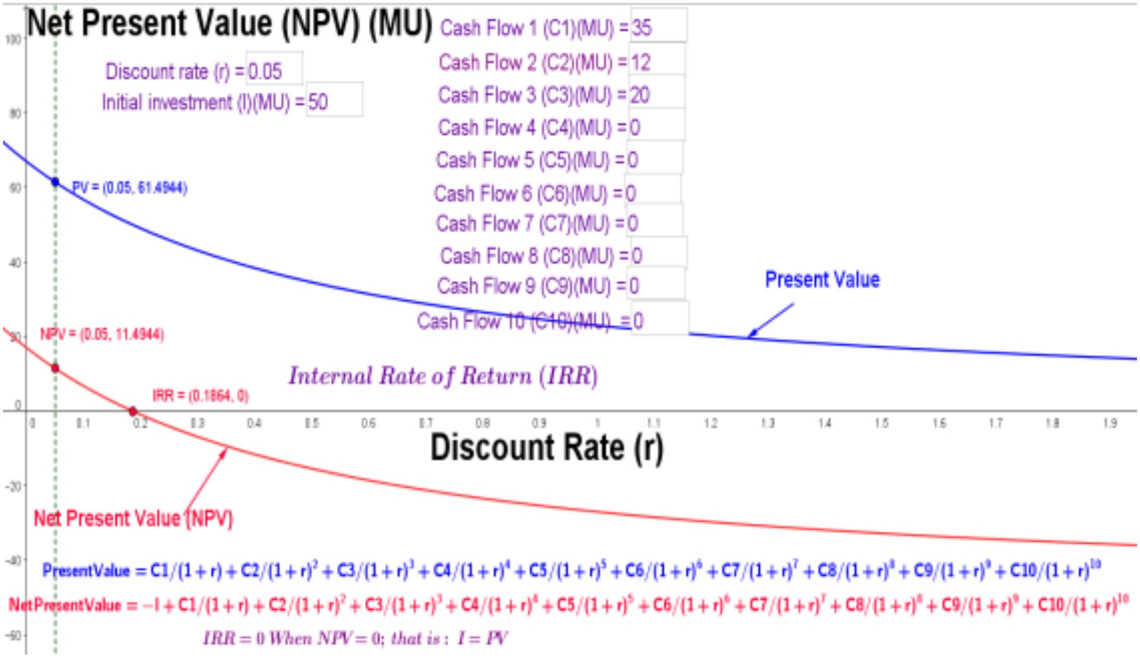
As NPV involves the rate opportunity fund investor, the interest rate for calculating it have to be clarified.

In this sense, If:

NPV<0: Starting the project (investment) would subtract value from the company, and the investment are not recovered at 100%.

NPV=0: The investment would neither add nor subtract value from the company

VAN>0: Starting the project (investment) would add value to the company, and the investment are recovered at 100%



Discount rate (r) = 0.05
Initial investment (I)(MU) = 50
Cash Flow 1 (C1)(MU) = 35
Cash Flow 2 (C2)(MU) = 12
Cash Flow 3 (C3)(MU) = 20
Cash Flow 4 (C4)(MU) = 0
Cash Flow 5 (C5)(MU) = 0
Cash Flow 6 (C6)(MU) = 0
Cash Flow 7 (C7)(MU) = 0
Cash Flow 8 (C8)(MU) = 0
Cash Flow 9 (C9)(MU) = 0
Cash Flow 10 (C10)(MU) = 0

$PresentValue = C1/(1+r) + C2/(1+r)^2 + C3/(1+r)^3 + C4/(1+r)^4 + C5/(1+r)^5 + C6/(1+r)^6 + C7/(1+r)^7 + C8/(1+r)^8 + C9/(1+r)^9 + C10/(1+r)^{10}$

$NetPresentValue = -I + C1/(1+r) + C2/(1+r)^2 + C3/(1+r)^3 + C4/(1+r)^4 + C5/(1+r)^5 + C6/(1+r)^6 + C7/(1+r)^7 + C8/(1+r)^8 + C9/(1+r)^9 + C10/(1+r)^{10}$

$IRR = 0 \text{ When } NPV = 0; \text{ that is: } I = PV$

Fig. 2. Graphic of Net Present Value and Present Value Vs. Discount rate (example 1)

$$NPV = PVincomes - PVexpenditures$$

$$\boxed{NPV = PVincomes - PVexpenditures = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} \dots + \frac{C_n}{(1+r)^n} - I}$$

If on ILO windows are variating the cash flow, discount rate and the initial investment; the graphic immediately will change:

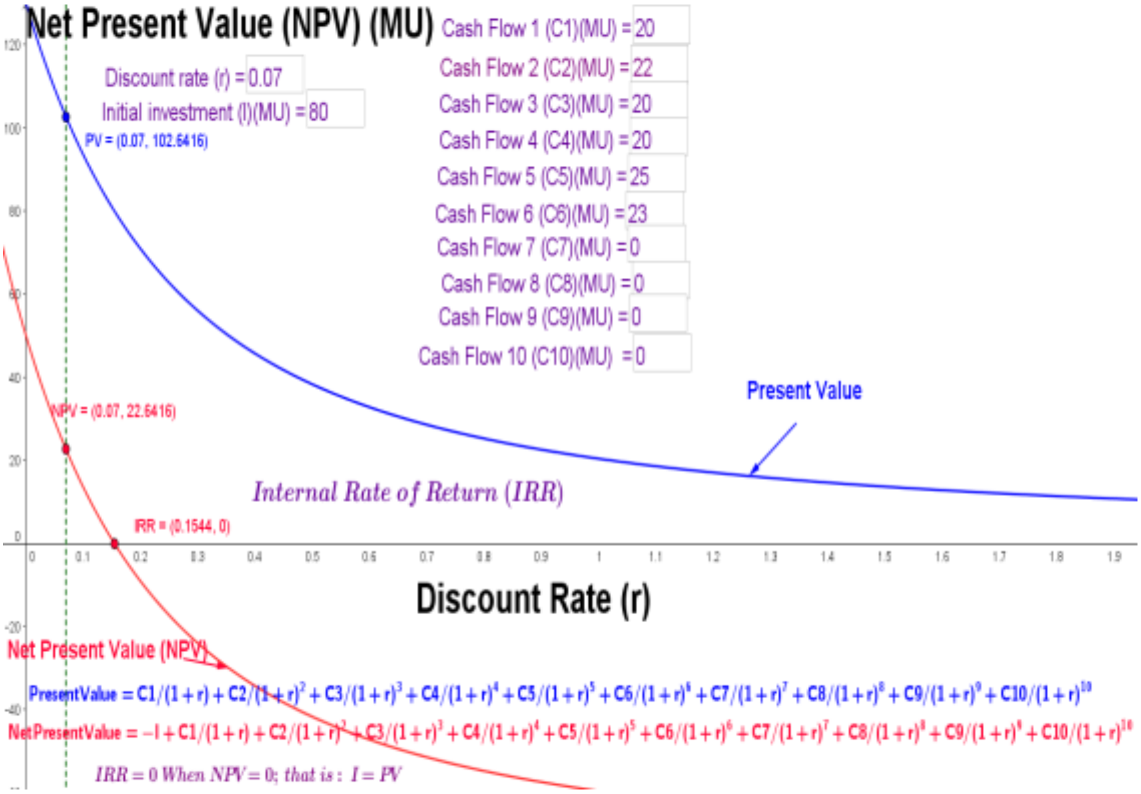


Fig. 3. Graphic of Net Present Value and Present Value Vs. Discount rate (example 2)

If in the example 2 increases the initial investment of 80 MU. As is showed in the example 3, 100 MU (it closed to the sum of cash flows 130 MU). It can observe in figure 4 how discount rate in NPV are closed to IRR.

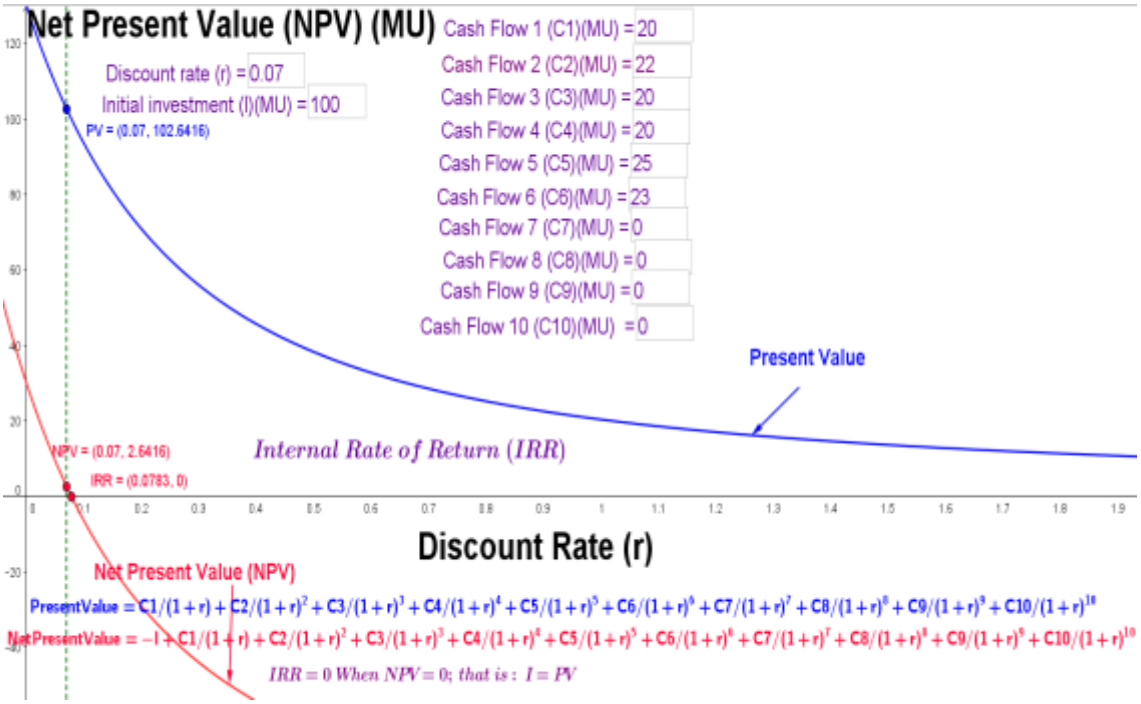


Fig. 4. Graphic of Net Present Value and Present Value Vs. Discount rate (example 3)

RESULTS AND DISCUSSIONS.

Generally, Financial Mathematics are taught in a non-proper way, where a formula is demonstrated and may be can be applied, but when a formula is designed in a software by an Interactive Learning Object, the student begins cognitively to compare the mathematical concepts when observes the curve with the acquired class concepts, since he varies the parameter of the curve, this are transformed in new questions and solutions.

Among the "active methodologies that contribute to development of abilities" are found the projects, which is characterized for applying different areas of knowledge, in a practical way, a proposal that allow resolving an applied problem. When the Interactive Learning Object is combined with this active methodology, makes the student find a logical and reasonable answer when he evaluates or formulates an investment over time. In case of make bad decisions in the assessment, lost a big amount of capital is taken as a risk.

The active methodology "project" and the Interactive Learning Object structure:

- A specific observation of a problem.
- The question formulation has resolve the situation, which are the internal return rate for the project is viable? ¿how is net present value?
- The initial proposal of a hypothesis can be corroborated trough a graphic and the numeric results as ILO sets out, compiling, analyzing and interpreting, to consolidate conclusions and showing results.
- Helps student to develop his autonomy and increases his ability in making decisions for business. (Pimienta, 2012, p. 132, 133)

CONCLUSIONS

The financial Mathematics oriented with Interactive Learning Objects and its graphics search for developing cognitive capabilities and abilities in making decisions on the student. Differential Calculus with ILO develop on student one methodological and didactic strategy according the performance of professional life needed.

By problem situations of real life, the student develops critical thought and generates creative and innovative solutions to live in society.With designed problem situations in an ILO, the student can develop his ability of analysis, resolving a variety of problems as a result of changing values of parameters on the software.
Here, it can see the heuristic part, where the student interact with the computer, changing the Differential Calculus and Financial Mathematics learning for logical reasoning that help him to make better decisions.

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Contributions Of The “Theme” Course In French Learning As A Foreign Language: Case Of The Department Of Ffl Of A Turkish University

Fatma KAZANOĞLU
University of Uludag – Bursa – Turkey
fkazanoglu@uludag.edu.tr

ABSTRACT

This research aims to lead a reflection on the course of “theme” (translation from turkish to french) into the programmes of FFL within the faculties of pedagogy. Through the analysis of the errors found during the course of theme, we shall wonder about the role of this course and its contribution to the optimization of the linguistic skills of the learners, the future FFL’s teachers. It will center mainly on the translation of relative pronouns, by insisting on the errors concerning the choice and the place of the pronoun.

1. INTRODUCTION

The learning of a foreign language is an activity, which involves various factors: programs and teaching methods but also teachers and students, All the actors that must be considered for an optimal acquisition. Although the didactics offers general principles, the difficulties encountered in the learning of a foreign language vary mainly according to the learner, to its mother tongue, which constitutes a different linguistic system but also other languages learnt beforehand, in particular english in our case. The learning of FFL by turkish learners represents a domain impressionant by the number of researches which attempt to analyze the specific difficulties they encounters; It is impossible to us to quote all these researches and we shall select here only those who illustrate the difficulties of the Turkish learners and their possible origin with examples : in the constrastives studies (Topçu Tecelli et Özçelik 2007, Atan 2010,) but also at the level of the analysis of errors (Öztokat 1993, Demirtaş et Gümüş 2009), educational translation (Ünsal 2013), interference problems (Şavlı 2009, Aslım-Yetiş 2013). In the lineage of these studies, we chose to notice the attitude and consequently the performance of our learners at the level of the choice of the relative pronoun and its place in a sentence to be translated. Indeed, basing us on their previous knowledge and on the problems noticed during the grammar lesson of first year, it seemed interesting to notice if the same difficulties persisted at a more advanced level. We chose to evaluate the productions in terms of sentences to avoid the errors due to the coherence cohesion and to those who are imputed to the nature of texts. The final purpose of the analysis is to notice if the errors found are due to lack of practice during the translation or if they represent gaps at the level of the linguistic structures. Those are supposed to be acquired at the beginning of the program, partially in preparatory classroom but particularly in first year, which will allow us to reflect on the role and the contribution of the general translations courses and of the theme course in program of FFL and its importance for the evaluation of the grammatical experiences.

2. THEORICAL FRAMEWORKS

This research is based on two theorical framworks), worth namely error analyses and the educational translation.

2.1. Error Analyses

Any learning process requires an evaluation of the experiences and this one highlights inevitably the error which establishes one of the major concerns in the general education and that of the languages in particular; the error has for long not been considered as « negative, and synonym for failure of the students ot for teacher, that is as a mistake » (Cuq-Gruca 2005 : 389). So recommended in the CEFRL, this evolution in the approach in the error which is put at the heart of the teaching, testifies of a positive stand and of an effort of understanding. Indeed, to understand the status and the cause of an error represents for every teacher an opportunity control its view of the learning process (Porquier &Frauenfelder, 1980 : 30).

Corder (1980 : 9) mentioned two different approaches concerning the errors of the learners : the first one explaining the appearance of the error as « the rate of inappropriate educational techniques » and the second considering the error an inevitable fact.. These two approaches show various stages and states of mind by which the error evolved through the different teaching methods. The third attitude mentioned by Porquier and

Frauenfelder concerning the possiblity of « See in the error a natural and necessary appearance of the processes of learning » (1980 : 29) reflect perfectly the current trend.

At the level of the distinction between error and mistakes and their respective names, there are so diverse approaches. The CEFR precise that « **The errors are caused by a deflection or a bad representation of the target skill. It is then about an adequacy of the skill and about the performance of the learner which developed rules different from standards of L2.** (2000 : 118)**. However, the mistake appears "When the learner is incapable to implement its skills, as it could be the case for a native speaker.** (2000: 118). Corder (1980), etablishes an opposition between non-systematic errors (Errors of performance - the mistake and systematic errors) and systematic error (errors involving skill) which according to him, reflects the "transition skill" of the learner. It would be possible to multiply the definitions but, as Porquier and Frauenfelder specify, « A definition of the error and the options which ensue from it, depend on the point of view and on the attitude adopted » (1980 : 29).

So given that « all learning is a potential source of errors [and that] There is no learning without error because it would mean that the one who learns already knows everything» (Cuq et Gruca 2005 : 389). The analysis of the error thus represents an effective way by which the teacher can estimate the skills of the learner, The error revealing in a way a gap, a lack in the acquisition of the aimed linguistic skills. With the analysis of the nature of these errors, the teacher can then find there the causes and consequently remedy it. It is at this level that comes the notion of "intermediate systems" according to the terminology of Porquier or of "transitional systems" according to to Corder, or more commomly cross-language (Selinker), which in the dictionary of didactics is defined as " the specific nature and the structure of the system of a target language interiorized by a learner at a given stage. This system is characterized by features of the target language and the features of the source language (mother tongue or other acquired languages later or simultaneously). » (2003 : 139).
It is exactly to this level of the evaluation of the acquired knowledge that the translation appears as an effective tool for the evaluation of the acquisition of the linguistic structures.

2.2. The educational translation

Before the era of the modern methods, the translation and the grammar constituted for a long time the core of the language learning and in this sense it has showed itself little effective, especially for the modern language learning. Indeed, the systematic use of the mother tongue represents certain risk in the acquisition of the linguistic structures of the target language. The risk is higher during the early days of the learning when it disrupts the acquisition of the code of the foreign language by preventing the learner from thinking in the language, which he learns. The translation, in the didactics of the languages can be handled differently, as an educational translation, as a tool of skills evaluation.

Elisabeth Lavault specifies that in the case of the educational translation « The translation is a tool used within the framework of the didactics of the languages. It is not the purpose but the way, because what matters, it is not the meaning, which the text provides but the act to translate and the various functions which it, performs: Acquisition of the language, the improvement, the comparison, the control … It is rather about transcoding than about translation. » Karla Déjean le Féal (1987 : 119) also notes that the educational translation is different from the professional translation and she specifies that « The first one is supposed to be a way of control in didactics of the languages. Contrary to the second, we do not assign it a communicative function, but linguistics function because it is intended to reveal if the students understood one or several meanings of the words and the studied structures. » (1987 : 107) Karla Déjean le Féal also notes « Although this exercise is called « translation » should not be (…) indicated by this term, because it does not consist, most of the time, of the réexpression of the meaning of the original statement – the only operation which can deserve to be called "translation" - but in a code switching » (1987 : 107). As pointed out by Karla Déjean le Féal, it'is exactly this " practice of switching " according to Lavault « the transcoding » wich constitutes the central criticism, since that it risks to give the student an « inappropriate perception of a perfect isomorphism of the languages » which according to Déjean le Féal constitutes an obstacle to the « language skills development » (1987 : 108).

However, in spite of criticized points the transposition of a source language towards a target language or vice versa requires a certain competence in both systems in question. In this sense, it represents an interesting activity which allows the student a certain reflection on its capacity to use its experiences and his knowledge.

3. METHODOLOGY

3.1. Univers de la recherché

The participants of the researches are 40 Turkish students in the third year of license in the department of didactics of the FFL. We are in an endolingue situation: These learners are Turkish thus have the same mother tongue. They also have all a level at least B1 in English.

3.2 The corpus

The theme is a course dispensed in the sixth half-year, in the third year of the program of FFL; It is preceded by the course of version in the fifth half-year. The teaching is scheduled over 14 weeks of 3 sequences of 45 minutes. The final goal of the section being to form future French teachers, the course does not address theory of translation but is firstly built as a practicals during whom the students think about their linguistic skills.

The evaluation was carried out during the semester

A pre-test of ten sentences was applied the first course. It was realized without dictionary, the objective being to determine the general skills of the students, and to see how they react. The pre-test was not corrected in classe, It was estimated by the teacher to encircle better the major problems and the points on which it would be necessary to work during the course. During the courses, the learners worked not on sentences but on short texts (A paragraph of about ten lines). To ensure the validity of the evaluation, the same pre-test was applied last year. It is according to the results of this application that the sentences to be translated were retained.

A second test was realized after nine sessions of course, the same sentences were reused but this time the use of the dictionary was authorized. Eight sentences of the same kind were added in ten sentences of the pretest. This second test consist of an intermediate evaluation which aimed at noticing if the students after the course of theme had acquired a different behavior in the application of their knowledge.

The final test consists of copies of the examination of the end of half-year. This test consists of sixteen sentences; They are not exactly the same sentences as those of the pre-test and test of intermediate evaluation, but to allow the comparison, they contain similar linguistic structures with a relative pronoun.

4. DATA

Four tables below present the results obtained in three tests applied in the semester. The results are presented in term of percentage and indicate the rate of right answers concerning the choice and the place of the pronoun in the translated sentence:

Table 1 : Percentage of right answers concerning the choice and the placement of the pronoun “qui”

	Correct choice of the pronoun QUİ (%)	Correct positioning of the pronoun QUİ (%)
Pretest (diagnostic evaluation)	32,5	80
intermediate test (formative)	**89,1**	**95**
Post test (summative evaluation)	-	-

The results for the choice of the pronoun indicate a clear progress of right answers between the pretest and the intermediate test : the rate of right answers increases from 32.5 % to 89.1 %. As regards the positioning of the pronoun, we also notice an evolution,: 80 % in the pretest and 95 % in the intermediate test.

Table 2 : Percentage of right answers concerning the choice and the placement of the pronoun “que”

	Correct choice of the pronoun “que” (%)	Correct olacement of the pronoun "que" (%)
Pretest (diagnostic evaluation)	62,5	82,5
intermediate test (formative evaluation)	**82,5**	**80**
Post test (summative evaluation)	60	74,1

For the pronoun « que », we also notice a progress: for the choice of the pronoun the percentage of right answers between the pretest and the intermediate test, the rate of correct answers passes from 62.5 % to 82.5 %. As regards the placement of the pronoun, we notice a regression: 82.5 % in the pretest for 80 % in the intermediate test. The post test indicates, as well for the choice as the placement, a regression on which we shall comment in the analysis of the results.

Table 3 : Percentage of right answers concerning the choice and the placement of the pronoun “dont”

	Correct choice of the pronoun “dont” (%)	Correct positioning of the pronoun "dont" (%)
Pretest (diagnostic evaluation)	46,5	76
intermediate test (formative evaluation)	**73**	**93**
Post test (summative evaluation)	63	84

For the pronoun “dont”, we also notice a clear progress and by the choice of the pronoun the percentage of right answers between the pretest and the intermediate test, the rate of correct answers passes from 46.5 % to 73%. As regards the placement of the pronoun “dont”, we also notice a progress: 76 % in the pretest and 93 % in the intermediate test. The post test comment indicates, as well for the choice as the placement, a regression.

Table 4 : Percentage of right answers concerning the choice and the placement of the pronoun “où”

For the pronoun "où", the tendency does not change and we notice a clear progress by the choice of the pronoun. For the percentage of right answers between the pretest and the intermediate test, the rate just pass from 50.8 % to 75.9 %. As regards the placement of the pronoun, we notice a progress: 75.8 % in the pretest for 85.8 % in the intermediate test. The post test indicates, as well for the choice as the placement), a regression.

Table 5 : Progress fron pre-test to post test

	Progress regarding the choice of the pronouns from pre-test to post test (%)	Progress regarding the placement of the pronouns from pre-test to post test (%)
Qui	+56,6	+15
Que	-2,5	-8,4
Dont	+16,5	+8
où	+15	-3,3

The table 4 indicates the evolution of the percentages for four pronouns. We notice a general progress of the initial state to the final state at the end of semester. The pronoun "que" presents a 2.5 % regression for the choice of the pronoun and 8.4 % for the placement of the pronoun. It is also question of a 3.3 % regression in the placement of the pronoun “où”.

5. RESULTS

The results observed in the tables testify in the whole of a certain progress at the level of the use of the pronouns, as well for the choice as for the placement. The results must be analyzed by stage and we shall consider at first the results and the changes arisen from the pretest and from the intermediate test. Indeed, the results in the intermediate test show for the pronouns a clear progress. This improvement is doubtless largely due to practical class performed in classroom. These works favored the re-use of these pronouns in diverse texts; this progress so shows the need for the students to update their knowledge. The subject of relative pronouns is one of subjects, which was widely exploited during the course of grammar in both first semester of the year of the program. The relatively low rate in the pretest indicates not generally gaps at the level of the theoretical knowledge but the difficulties putting into practice the acquired skills, the difficulty using the previous knowledge. The results of the tests prove that the activities in the classroom contribute to the updating of the knowledge of the learners, which set ccomscience of their interlanguage.

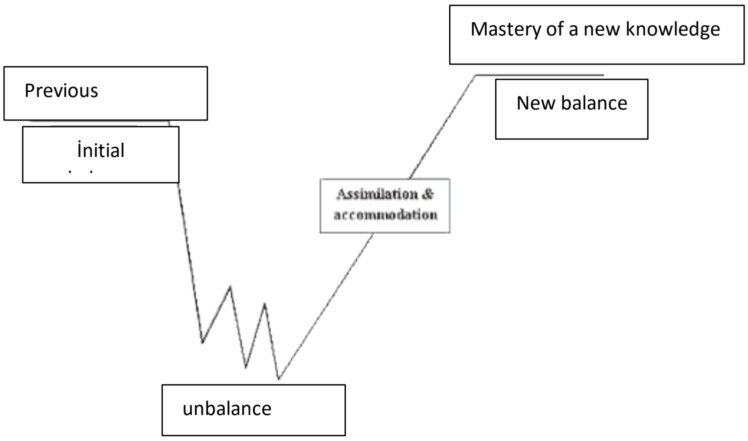
	Correct choice of the pronoun “dont” (%)	Correct positioning of the pronoun "dont" (%)
Pretest (diagnostic evaluation)	50,8	75,8
intermediate test (formative evaluation)	**75,9**	**85,8**
Post test (summative evaluation)	65,8	72,5

The second principal point to be raised is the decline observed in the results of the final test. This regression can be explained according to the nature of the test. Previous both tests came under a formative assessment, the last test was a part of the test of the end of semester, where from the anxiety of the learners towards this test. The evaluation in terms of notes thus established a negative factor in the representation of the knowledge. So it would have been necessary to avoid this obstacle to plan a formative assessment similar to that of the previous tests. However, it should be noted that the decline in question concerns the evolution between the intermediate test and the test comment. Indeed if we evaluates the evolution between the pretest and the test comment, we notice that there is a progress in the results for the pronouns “dont” et “où” but a slight regression for the pronoun “que”.

As we have just specified it, the pronoun « que » is the only exception: 62.5 % in the pretest, 82.5 % in the intermediate test and 60 % in the post test, the regression observed in the post test being relatively important according to the intermediate test. The anxiety generated by the noted test is not the only explanation. It is also important to take into accounts other factors, obstacles to be surmounted, as its mother tongue in which these pronouns do not exist, as a « separate unit in the sentence » (Öztokat 1993 : 73) but also the interference of English in which its use turns out to be optional.

All of our learners had for first foreign language English. In didactics of the foreign languages in particular in translation, the previous knowledge enter conflict with the new knowledge, the target language to be acquired. This cognitive conflict is schematized by Piaget in the following way and adapted in didactics of the languages:

Figure 1 : concept of constructivism and previous knowledge conflict.



Thus, it is not necessary as a teacher to omit this significant point for the remédiation of this kind of errors which, according to Brousseau, are « *The effect of a previous knowledge which had its interest, its successes, but which now, shows itself false or simply inappropriate... As well in the functioning of teacher as in that of the student, the error is constructive of the meaning of the acquired knowledge* ». *(Brousseau 1976 : 71)*

6. PERSPECTIVES AND CONCLUSION

The course of theme showed itself as a beneficial activity for the learners and their teacher: the students expressed that these courses had allowed them an awareness of their current skills and their gaps on which they were able to (re)worked. As for the teacher, it is the satisfaction to notice the application of the theoretical taught knowledges the previous semester. Even if his systematic use remains to avoid in the courts especially at the beginning of the learning, this activity of translation however turns out to be effective for the control and the evaluation of the grammatical experiences. It is gratifying to notice that the errors are more imputed to the lack of practice than severe gaps at the level of the acquisition of the linguistic structures. Given that the contribution of the course of general translation and the course of theme is undeniable, it would be important in program of FFL to increase the hours of classes, or, if the teaching program allows it, to establish other optional courses concerning the translation; which would allow the teachers to reflect about their interlanguage and to develop their language skill.

This analysis was limited to the choice and to the positioning of the pronoun in the sentence; it would be interesting within the framework of another qualitative study to widen the context and to integrate other linguistic problems. We specified that the evolution at the choice level and at the placement level of the pronoun is remarkable but this one remains partial. In all analyzed productions remain problems concerning the linguistic skills. Indeed, certain errors arise systematically, for example, those at the morphological level, the errors concerning the agreements. Even if they do not influence directly on semantics of the sentence which remains understandable, these errors are difficult to accept at the level of the accuracy and of correction grammatical expected from an advanced student, which is dedicated to become a French teacher one year later. A general classification would allow a wider prospect of the frequent errors to see again and to correct.

Our final comment involves the evaluation. The allocation of notes with a punctual evaluation is inevitable in all the schools of any levels but it should be forgotten that even if this type of evaluation is compulsory, nothing prevents the teacher during the semester to set up a continuous evaluation which highlights the current situation of the knowledge of the learners and the formative assessment which allows them to evolve and thus to progress. The practice of this type of evaluation by the teacher favors an awareness at the learner who gets used to selfevaluate.

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Course Supervısıons Carrıed Out By Educatıonal Inspectors And School Managers

Şenyurt YENİPINAR
Aksaray University, Education Faculty, Turkey
yenipina@gmail.com

Süleyman GÖKSOY
Düzce University, Education Faculty, Turkey
slmngks@gmail.com

ABSTRACT

The purpose of this study is to determine the superior and inferior features of course supervisions carried out by educational inspectors and school managers in formal primary schools. The study was conducted with qualitative research method and the participants consisted of 8 primary school managers and 22 teachers working in Kadınhanı, Sarayönü, Selçuklu and Yunak districts of Konya in 2015-2016 academic year. According to the results, school managers and teachers think that course supervision carried out by educational inspectors is superior in terms of "objectivity" and is inferior in terms of "being short-term". It is found that course supervision carried out by school managers is superior in terms of "continuity and closeness" and is inferior in terms of "insufficient information and experience", "personal relationships" and "subjectivity". The managers think that course supervisions should be conducted respectively by school managers, inspectors, parents and students. However, the teachers believe that the course cupervisions should be conducted respectively by school managers, students, branch teachers, parents and inspectors. Some of the teachers stated that conducting course supervisions in order to evaluate the teachers is not necessary. Suggestions were made based on these results.

Key words: Course supervision, supervision, educational inspector, school manager.

INTRODUCTION

People established organisations and assigned them to reach goals which they couldn't achieve by their own skills and abilities. Therefore achievements of the organisations became that of the founders. Surviving and working effectively and productively is only possible for organisations with their self-coordination of current changes and developments. Effectiveness or productivity; modernity or backwardness; necessity of cathcing the era for an organisation are all a subject of Supervision. Therefore, there is always a supervision system in all of the organisations and its an administrative and organisational necessity (Aydin, 2014). Analyzing what is achieved by how and to what extend is needed in order to designate such subjects that determining to what extent or how good practices of educational institutions carried out; whether the process was operated as required; whether the object was achieved or not; to what extent it was achieved or wasn't achieved. An effective supervision system is required for effective and productive evaluating of quantitive components such as quality of the educational institution, achievement rate of students, evaluating learning experience and performance of the students as well as qualitative components such as teaching methods, learning events, materials, learning process, activities, content and options offered to students (Cavanaugh, 2002). Productivity and effectiveness are to be evaluated in order to determine the success of system of education. And this is possible by data which has been collected by administration through operating supervision system. During the process of supervision which is a fundemental element in determining quality of education, it is needed that to collect, evaluate, compare and interpret pertinent data in order to make decisions about institution and workmen (Göksoy, Yenipınar, Sağır, Ereş, Engin, 2011). Various definitions of supervision are present in literature. Supervision is the process of comprehending whether organisational behaviours complies with determined principles and rules in accordance with adopted goals (Aydın, 2014). According to Bursalıoğlu (2013), its possible to define supervision as behavior management for public interest. It is also defined as a wide service area whose goal is making suggestions to those concerned, contribute educational staff on their studies and education by guidance in order to supervise and evaluate the studies which is done and make them more productive (Taymaz, 2002).

Supervision process, which involves evaluating the performence which is done, comparing it with standarts and performing supervisory activities in order to correct deviations, is a three phase process (Robbins, Decenzo and Coulter, 2013). Supervision of Minsitry of National Education consists of comparing activities with objective, applicable, reliable criteria in the context of convenience, accuracy, regularity, productivity, economically, effectiveness in order to attain purposes, morals and goals determined in public bodies within the constitutional and legal framework; revealing the situation in accordance with universal and national principles, guidance to make up for deficiencies, making suggestions on change and development, detailed researching on operation of unit, gathering information, analyzing them, determining results of the analysis, defining problems occured in the results, finding a solution to that problems (MEB, 2015). Success of Turkish Education System is directly relevant with that of schools. In our country, education supervision is the competence of Ministry of National Education with the Article 56 of National Education Basic Law regulation no 1739.

Supervision is a fundamental activity with regard to make studies of educational system operated in accordance with predetermined purposes such in other supervision systems. Supervisings, which are also conducted in providing effectiveness for schools having economic, political and social functions are carried out as institution and course supervision in our country (Taymaz, 2002). Supervision can be conducted before an activity starts, during an activity or after an activity. It is the function of administration involving monitoring the activities to prove that activities were performed as intended and if occurs; correcting significiant deviations. The first, second and third are called respectively as feed forward, feedback and concurred supervision (Robbins, Decenzo ve Coulter, 2013).

Supervision is an administrative function containing monitoring activities and correcting significiant deviations to provide completion of activities of organisation according as planned. Effectiveness of a supervision system depends on how it made easier to achieve goals. The most common kind of supervision depends on the feedback. Feedback is providing direct and clear information about performance depending on results of the activity conducted. Feedback supervision has two superior features. One of them is feedback which provides significiant informations to managers about how their planing efforts are effective. Feedback which shows minor difference between standarts and the performance done, indicates that planning largely achieved its purpose. If deviation is at significiant rate, manager can use that information to make new plans. And the second feature is that feedback may enhance motivation. People want to know how well they did their jobs and the feedback provides required information (Robbins, Docenzo, Coulter, 2013, Robins and Judge 2012). Feedback which reveals developments in accordance with purposes, is a performance improving factor because it express the difference between intended and conducted activitiy. But all kinds of feedbacks are not all equally effective. Feedback which make monitoring self-improvement possible is more motivating than the other that provided from another person (Ivancevich and McMahon, 1982). So not all kinds of feedbacks are strongly effective. Feedback creating by ourselves – self monitoring of staff in accordance with purpose- is more effective than the others that created by environment (Robbins ve Judge, 2012.

Attaining purposes, in other words, for defined purposes to be useful, feedback is required since by this way individuals can compare their performance with their purposes. To what extent the purposes have been attained? Feedbacks are needed to answer this question. It makes possible to attain purposes for members of organisation. Feedback is useful in two ways. First, it provides to individuals that to determine how they performed and it improves performance. Secondly, it makes possible to determine performance adjusments which requires improvement. For instance; a school carries out item analysis of an achievement test which was made obligatory by state and eliminates the faults occured (Lunenburg ve Ornstein, 2013). People do better when they got feedbacks about their progress on purposes. Since feedback provides analysis of differences between what they have done and what they want to do (Robbins ve Judge, 2012).

Course supervision, literally, means “supervision which is conducted during course process of teachers”. Supervision means “Observing, analyzing and evaluating course activitiy of teachers who works as trainers in an educational institution” as to Taymaz (2002). Course supervision may be conducted to control or to guide. Course supervision carried out to guide aims to prevent possible deficiencies of teachers and improve training period, on the other hand, the other which is carried out to control aims to determine and to eliminate deficiencies of course supervision. School managers’ role of supervision, which has been laid down in the Article 13 of Official Bulletin of Ministry of Natinal Education is: “To promote teachers to train in the fields relevant with their job and to take required measures to promote. To closely monitor, course activities and other activities of teachers.” Taking teachers opinions on this supervision role, which was revitalized, of school managers may help to make up the deficiency of study in this field.

Purpose of this study is to determine the superior and inferior features of course supervisions carried out by educational inspectors and school managers in formal primary schools. It seeks answers to these questions:

1. What are inferior and superior features of supervisions carried out by educational inspectors according to school managers?
2. What are superior and inferior features of supervisions carried out by school managers according to school managers?
3. What are inferior and superior features of supervisions carried out by educational inspectors according to teachers?
4. What are superior and inferior features of supervisions carried out by school managers according to teachers?
5. Who must evaluate performances of teachers according to teachers and school managers?

METHODS

Research Model

Qualitative research model was employed in this study. This was thought to be favourable since the purpose is to probe a phenomenon in its own reality. Phenomenological method was adopted in this study. Phenomenological method is the central strategy of qualitative research (Mayring, 2000). The method focuses on phenomenons which is realized but there is no detailed and profound on it. (Yıldırım, Şimşek 2013).

Working group

The participants of this study were determined by purposive sampling and therefore maximum variation and criterion sampling methods. Purposive sampling makes situations, which is thougt to be information-rich, possible to probe (Büyüköztürk et al., 2012; Yıldırım and Şimşek, 2013). It was stipulated for participant school managers and also teachers that having minimum 5 years of experience and being supervised by educational inspectors. Thus it was considered that the degree of knowledge and awareness on research topic to be higher. Participants of this study were volunteers from four different districts of Konya province to provide diversity; 2 school managers from each districts and 5 teachers from each 2 disctricts, 6 teachers from each other 2 districts. Thus volunteers were consist of 8 primary school managers and 22 teachers working in Kadınhanı, Sarayönü, Selçuklu and Yunak districts of Konya. Details about participants were presented in Table 1.

Table 1: Personal details of school managers and teachers

		School Manager		**Teacher**	
Variables	**Subcategories**	**f**	**%**	**f**	**%**
Gender	Female	2	25,00	13	59,09
	Male	6	75,00	9	40,90
Education level	Bachelor	6	75,00	19	86,36
	Master	2	25,00	3	13,63
Length of service	6-10 years	2	25,00	8	36,36
	11-15 years	3	37,50	5	22,72
	16-20 years	2	25,00	7	31,81
	21 years or more	1	12,50	2	9,09

Acoording to Table 1, 25% of participants were females and 75% of them were males. %75 of school managers had bachelor degree and 25% of them had master degree. 25% of managers had 6-10 years, 37.50% of them had 11-15 years, 25% of them had 16-20 years and 12.50% of them had 21 years or more administrative experience and 25% of them, who had 6-10 years length of service, have minimum participating rate. 59.09% of participating teachers were females and 40.90% of them were males. %86.36 of teachers had bachelor degree and %13.63 of them had master degree. 36.36% of teachers had 6-10 years, 22.720% of them had 11-15 years, 31.18% of them had 16-20 years and 9.09% of them had 21 years or more teaching experience and 9.09% of them, who had 21 years or more length of service, had minimum participating rate.

Data collection tool

One of primary data collection tools in phenomenological researchs is interview (Yıldırım and Şimşek, 2013). Semi-structured interview questionnaire, which was developed by researchers, was used. Semi-structured interview technique provide self-expression to participants (Büyüköztürk et al. 2012). During preparation process of questionnaire; literature and legislation were reviewed, academicians, teachers and administrators who study in this field had interviewed and according to information, which was gathered from these ways, a question pool consisting of 6 questions were created. These questions broached to 2 school manager, 2 teacher and one academician and according to remarks of them necessary arrangements were done so an interview questionnaire consisting 5 questions were created with omitting one of the questions. Adequateness ensured by getting opinions of 2 school manager and 2 teachers out of working group and some conceptional arrangements were done so the questionnaire were finalized. Interviews were done by researcher himself. Questionnaire was examined by two different researchers, it was explained in detail that how this conclusion was reached and during interpreting process of data it was presented together with critical and comperative analyses.

Data analysis

Content analysis as qualitative data analysis technique was employed. Main activity conducted in this technique is: Setting and interpreting gathered similiar data pursuant to certain notions and themes for reader to comhrehend in a way which makes comphrehending easier (Yıldırım and Şimşek 2013; 259). For this purpose; permissions of teachers and school managers had received before the interview so their responses were recorded in written, when interview was done, records were read to them and their approval was received. To sensure confidentiality, participants were indicated as "SM" (for school manager) and "T" (for teacher) and each participant were numerated. Afterwards researcher conceptually coded with conducting content analysis to interview questionnaires and classified collected data pursuant to themes which were determined in accordance with literature, thus a content analysis which is proper in terms of qualitative research was tried to be conducted.

RESULTS

A- Opinions of school managers on course supervision carried out by educational inspectors

Considering Table 2, school managers expressed their opinions on superior features of course supervision carried out by educational inspectors by these means: 83.33% of them by "objectivity", 66.66% of them by "knowledge and transfering it" 66.66% of them by "sharing of good samples", 50% of them by "momentum and resilience in institution", 50% of them by "extrinsic supervision", 33.33% of them by "necessary", 33.33% of them by "career and merit", 33.33% of them by "external supervision", 33.33% of them by "analytical view", 16.66% of them by "improvement of administrators", 16.66% of them by "acquisition of teacher", 16.66% of them by "support to school manager", 16.66% of them by "being heeded". "objectivity", "knowledge and transfering it", "sharing of good samples" these were most specified views. This can be said about these three views that they are superior features of course supervision carried out by educational inspectors according to school managers.

Table 2: Opinions of school managers on course supervision carried out by educational inspectors

Theme	Definition	Codes	f	%
Superior	Superior features of course supervision carried out by educational inspectors	Objectivity	5	83,33
		Knowledge and transferring it	4	66,66
		Sharing of good samples	4	66,66
		Momentum and resilience in institution	3	50,00
		Extrinsic supervision	3	50,00
		Necessary	2	33,33
		Career and merit	2	33,33
		External supervision	2	33,33
		Analytical view	2	33,33
		Improvement of administrators	1	16,66
		Support to school manager	1	16,66
		Acquisition of teacher	1	16,66
		Being heeded	1	16,66
Inferior	Inferior features of course supervision carried out by educational inspectors	Being short-term	5	83,33
		Education of educational inspectors	2	33,33
		Personal attitudes of inspectors	2	33,33
		Fear and panic	2	33,33
		Immediate happenings	2	33,33
		Scorning	1	16,66
		Political views	1	16,66
		Momentary tendency of teachers to impress	1	16,66
		Prejudice	1	16,66

School managers expressed their opinions on inferior features of course supervision carried out by educational inspectors by these means: 83.33% of them by "being short-term", 33.33% of them by "education of educational inspectors", 33.33% of them by "personal attitudes of inspectors", 33.33% of them by "fear and panic", 33.33% of them by "immediate hapenings", 16.66% of them by "scorning", 16.66% of them by "political views", 16.66% of them by "momentary tendency of teachers to impress", 16.66% of them by "prejudice". This can be said that the most specified code "being short-term" is the most inferior feature of teacher supervision carried out by educational inspectors according to school managers. Some of the answers of participants in working group to the question of "What are superior features of supervisions carried out by educational inspectors?" are below:

"I think inspectors are in guiding, supporting position" (SM1). "Teacher sees what he don't before, gets himself up, after supervision carried by inspector" (SM3). "It prevents lethargy" (SM4). "Supervisions carried by inspectors are taken more seriously, readiness is cared much" (SM5).

Some of the answers of participants in working group to the question of "What are inferior features of supervisions carried out by educational inspectors?" are below:

"Teachers are believed to be supervised with the an hour of supervising" (SM2). "Teachers work well only before superivision carried out by inspectors and they may don't care the rest" (SM4). "Teachers may dread" (SM5).

B- Opinions of school managers on course supervision carried out by school managers

Considering Table 3, school managers expressed their opinions on superior features of course supervision carried out by school managers by these means: 87.5% of them by "continuity and closeness", 12.5% of them by "accelarating". "continuity and closeness" is the most specified superior feature of supervision carried out by school managers by school managers therefore we can say it's the most superior feature of this kind of supervision.

Table 3: Opinions of school managers on course supervision carried out by school managers

Theme	Definition	Codes	f	%
Superiority	Superior features of course supervision carried out by school managers	Continuity and closeness	7	87,50
		Accelarating	1	12,50
Inferiority	Inferior features of course supervision carried out by school managers	Inadequate knowledge and experience	4	50,00
		Personal relations	4	50,00
		Subjectivity	4	50,00
		Suppressing teachers	2	25,00
		Not suitable	1	12,50
		Lack of boards of appeal	1	12,50
		Ignoring manager	1	12,50
		Being in same status	1	12,50
		Discrimination	1	12,50

School managers expressed their opinions on inferior features of course supervision carried out by school managers by these means: 50.00% of them by "inadequate knowledge and experience", 50.00% of them by "personal relations", 50.00% of them by "subjectivity", 25.00% of them by "suppressing teachers", 12.50% of them by "lack of boards of appeal authority", 12.50% of them by "ingoring manager", 12.50% of them by "being in same status", 12.50% of them by "dicrimination". These are the most specified codes; "inadequate knowledge and experience", "personal relations" and "subjectivity". Therefore, this can be said that the "most inferior" features of supervision carried out by school managers according to school managers are "inadequate knowledge and experience", "personal relations" and "subjectivity. Some of the answers of participant school managers in working group to the question of "What are superior features of supervisions carried out by school managers?" are below:

"School managers collaborate longtime with teachers, therefore, they may evaluate better and objectively" (SM1). "If school manager supervise teachers, they keep their knowledge up to date perpetually" (SM2). "School manager immediately determines success and failure so he takes required precautions" (SM3).

Some of the answers of participant school managers in working group to the question of "What are inferior features of supervisions carried out by school managers?" are below:

"I don't think that school managers have adequate knowledge and experience on supervision" (SM3). "Perpetually collaborating may cause tolerance in evaluations" (SM4). "The most important problem is subjectivity of school managers. Even being member of union may cause problems" (SM5).

C- Opinions of teachers on course supervision carried out by educational inspectors

Considering Table 4, teachers expressed their opinions on superior features of course supervision carried out by educational inspectors by these means: 50% of them by “objectivity”, 50% of them by “knowledge and transfering it”, 4.54% of them by “necessary”, 4.54% of them by “career and merit”, 4.54% of them by “momentum and resilience”, 4.54% of them by “support to school manager”, 4.54% of them by “motivation”. This can be said that the most superior feature of supervision carried out by ecuational inspectors according to teachers is “objectivity”. Teachers expressed their opinions on inferior features of course supervision carried out by educational inspectors by these means: 100% of them by “being short-term”, 18.18% of them by “being suppressed and panic”, 9.09% of them by “scorning”, 9.09% of them by “having different branches”, 4.54% of them by “personal attitudes of inspectors”, 4.54% of them by “inadequate self-improvement”, 4.54% of them by “being nonstandard”, 4.54% of them by “being rebuker”. This can be said that the the most inferior feature of supervision carried out by ecuational inspectors according to teachers is “being short-term”.

Some of the answers of participant teachers in working group to the question of “What are superior features of supervisions carried out by educational inspectors?” are below:

“It’s a positive situation for teachers with regard to having required documents and contemporary knowledge” (T11). “Inspectors are informed of course field so they can eliminate deficiencies” (T15). “Evaluating in comfority with objective criteria” (T17). “They don’t know teachers whom they supervise” (T15). “School administration and teachers are influence positively due to the fact that inspectors may supervise at any time” (T19)

Table 4: Opinions of teachers on course supervision carried out by educational inspectors

Theme	Definition	Codes	F	%
Superiority	Superior features of course supervision carried out by educational inspectors	Objectivity	11	50,00
		Knowledge and transfering it	2	9,09
		Necessary	1	4,54
		Career and merit	1	4,54
		Momentum and resilience	1	4,54
		Support to school manager	1	4,54
		Motivation	1	4,54
Inferiority	Inferior features of course supervision carried out by educational inspectors	Being short-term	22	100,00
		Suppressing and panic	4	18,18
		Scorning	2	9,09
		Subjectivity	2	9,09
		Having different branches	2	9,09
		Personal attitudes of inspectors	1	4,54
		Inadequate selfimprovement	1	4,54
		Being nonstandard	1	4,54
		Being rebuker	1	4,54

Some of the answers of participant teachers in working group to the question of “What are inferior features of supervisions carried out by educational inspectors?” are below:

“I occasionally witnessed that reaching an exact conclude about a class in one or two course periods is not a proper way of evaluating” (T11). “This may be regarded as negative that there is someone who tends to use subjective judgements, ideas and attitudes as evaluating tools.” (T14). “It may not be possible to show their abilities in just 40 minutes for teachers. They may not be in the same mood during courses” (T15). “Negotiating with school managers before courses may make inspectors prejudiced” (T19).

D- Opinions of teachers on course supervision carried out by school managers

Considering Table 5, teachers expressed their opinions on superior features of course supervision carried out by educational inspectors by these means: 59.37% of them by “continuity”, 12.05% of them by “comprehensive and effective”, 9.37% of them by “interaction”, 6.25% of them by “knowing well”, 3.12% of them by “efficiency”, 3.12% of them by “accelarating”. This can be said that the most superior feature of supervision carried out by school managers according to teachers is “continuity”. Teachers expressed their opinions on inferior features of course supervision carried out by school managers by these means: 50% of them by “subjectivity”, 46.87% of them by “having different branches”, 37.50% of them by “inadequate knowledge and experience”, 37.50% of them by “personal relations”, 31.25% of them by “suppressing teacher”, 25% of them by “political views”. This can be said that inferior features of supervision carried out by school managers are “subjectivity”, “having different branches”, “inadequate knowledge and experience” and “personal relations”.

Some of the answers of participant teachers in working group to the question of “What are superior features of supervisions carried out by school managers?” are below:

“School manager is able to recognize and analyze students and parents” (T8). “…it will minimise negations that supervisions carried out by one of our colleagues who we meet and talk everyday” (T11). “They may find opportunity to evaluate a whole year not a short period” (T12). “School managers knows better positive and negative characteristics of teachers” (T13). “They have a better knowledge about teachers than inspectors. They know school better. They may use opportunities and conditions better than them” (T6).

Table 5: Opinions of teachers on course supervision carried out by school managers

Theme	Definitions	Codes	F	%
Superiority	Superior features of course supervision carried out by school managers	Continuity	17	59,37
		Comprehensive and effective	4	12,5
		Interaction	3	9,37
		Knowing well	2	6,25
		Efficiency	1	3,12
		Accelarating	1	3,12
Inferiority	Inferior features of course supervision carried out by school managers	Subjectivity	13	50,00
		Having different branches	10	46,87
		Inadequate knowledge and experience	9	37,50
		Personal relations	9	37,50
		Suppressing teacher	7	31,25
		Political view	4	25,00
		Pressure and panic	2	6,25

Some of the answers of participant teachers in working group to the question of “What are inferior features of supervisions carried out by school managers?” are below:

“Some of the managers are demand too much things from teachers despite being inadequate” (T9). “Teachers may not freely communicate with students if course supervision is carried out perpetually” (T15). “It may be difficult to be objective for school managers who has personal issues with teachers” (T16) “I dont think that school managers have adequate knowledge and skills to supervise teachers” (T5).

E- Opinions of teachers and school managers on who or what should participate in evaluation process of teachers

Table 6: Opinions of teachers and school managers on participants of teacher supervision process

School manager			**Teacher**		
	f	**%**		f	**%**
School manager	6	75,00	School manager	9	40,90
Inspectors	6	75,00	Student	5	22,72
Parents	5	62,50	No need for supervision	5	22,72
Students	4	50,00	Branch teachers	5	22,72
Teachers	2	25,00	Parents	5	22,72
Branch teachers	1	12,50	Inspectors	4	18,18
			Teachers	3	13,63
			Self-evaluation	2	9,09
			Faculty members	2	9,09
			Depuy manager	1	4,54
			Success of students	1	4,54
			Electronic systems	1	4,54
			Team of experts	1	4,54

Considering Table 5, school managers expressed their opinions on who or what should participate in evaluation process of teachers by these means: 75% of them by "school manager", 75% of them by "inspectors", 62.50% of them by "students", 25% of them by "teachers", 12.50% of them by "branch teachers". This can be said that according to school managers course supervisions are respectively more favourable when they are carried out by inspectors, parents and students.

Teachers expressed their opinions on who or what should participate in evaluation process of teachers by these means: 40.90% of them by "school manager", 22.72% of them by "student", 22.72% of them "no need for supervision", 22.72% of them by "branch teachers", 22.72% of them by "parents", 18.18% of them by "inspectors", 13.63% of them by "teachers", 9.09% of them by "self-evaluation", 9.09% of them by "faculty members", 4.54% of them by "deputy manager", 4.54% of them by "success of students", 4.54% of them by "electronic systems", 4.54% of them by "team of experts". This can be said that teachers specified mostly that supervisions carried out by school managers.

CONCLUSION - DISCUSSION AND SUGGESTIONS

The purpose of this study was to determine superior and inferior features of supervisions carried out by school managers and educational inspectors according to school managers and teachers. Conclusions are:

1. School managers expressed their opinions on superior features of course supervision carried out by educational inspectors mostly with "objectivity", "knowledge and transferring it" and "sharing of good samples". Also participant teachers agree with that "objectivity" is the superior feature of supervisions carried out by educational inspectors. Therefore this can be said that according to teachers and school managers superior feature of supervisions carried out by educational inspectors is "objectivity". This can be regarded as main reason of the situation that appointment and training of educational inspectors and they can evaluate teachers more distantly and extrinsically than school managers do.

2. "being short-term" is the most inferior feature of course supervisions carried out by educational inspectors according to teachers and school managers. All of the teachers agree with this opinion while a great majority of school managers who are one of the two participants, agree. This conclusion is supported by results of researchs conducted by Akbaba (1997), Can ve Gündüz (2016), Yeşil ve Kış (2015). "being short-term" is common opinion of school managers and teachers on inferior feature of course supervision carried out by educational inspectors just as "objectivity" were on superior features of course supervision carried out by educational inspectors. Reorganizing short-term course supervisions which was defined as an inferior feature by school managers and teachers who have the most strategic position and value in education process, to make them adequate according to teachers and school managers may make a significiant and effective contribution to education and schools in their process of attaining purposes.

3. According to results of the research, superior feature of course supervisions carried out by school managers is "continuity and closeness". Teachers also want course supervision to be carried out by school managers. Each of two participants have this common opinion. This conclusion is supported with results of the researchs conducted by Başol and Kaya (2009) and Altun B. (2004). Making legislative regulations relavant with "inadequate knowledge and experience", "personal relations", "subjectivity", "having different branches" fields which are expressed as inferior features of course supervision carried out by school managers by teachers may make this kind of supervision an effective way of attaining purposes of education.

4. School managers and teachers expressed their opinions on inferior features of course supervision carried out by school managers mostly with "objectivity", "inadequate knowledge and experience", "personal relations" and "subjectivity". Variability of appointment criteria of school managers and abolishing of factors which are providing objectivity and depending on such cases school managers are believed to be subjective, all or each of these three cases may be the reason for that inferior features. Teachers also express "having different branches" as an inferior feature. Main reason of this case may be that school managers are believed to be expert of only their branches and inadequate to supervise other branhces and with this teachers may be influenced negatively. Such precautions for preventing these inferior features to occur may be taken that determining appointment criteria of school managers and implementing them clearly, establishing a board of appeal for problems may arise during evaluations, creating opportunities for school administration and teachers to be trained in educational administration and supervision fields.

5. According to school managers course supervisions are respectively more favourable when they are carried out by inspectors, parents and students.

6. According to teachers course supervisions are respectively more favourable when they are carried out by school managers, students, branch teachers, parents and inspectors.

7. 22% of the participant teachers expressed that there is no need for supervision. This result complies with conclusions of Fırıncıoğlulları Bige, E. (2014), Topçu ve Aslan (2009). This result which determined through several researches may be evaluated by considering in new arrangements.

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Current Trends In Social Media Research In Higher Education: An Analysis Of Master Theses And Ph.D. Dissertations In Turkey

Dilek Melike ULUÇAY
Department of Public Relations and Advertising
Yaşar University/Turkey
melike.taner@yasar.edu.tr

Kadriye UZUN
Department of Communication Design and Media
Sakarya University/ Turkey
kadriyekobak@gmail.com

ABSTRACT

This article provides the general profile of Master theses and Ph.D. dissertations focusing on Social Media in the Major Field of Communication Sciences in Turkey. In the scope of this study, all Master theses and Ph.D. dissertations that have been allowed to access in Council of Higher Education National Theses Center Database have been scanned with the key word “social media” under the major field of Communication Studies. Subsequently, 77 Master theses and 22 doctoral dissertations have been included into the study. For the purposes of the study, the authors chose to use content analysis to study empirical documentation. Within this context, each thesis and dissertation was categorized in terms of year of approval, authorship, institution affiliation, research topics, social media type, research design, sampling methods, data collection and data analysis methods.

INTRODUCTION

The recent explosion in the use of social media has drastically changed the different aspects of individuals’ lives such as; interpersonal relations, psychological well-being, political participation, civic engagement, consuming behavior and so on. This transformation has inspired various scholars from different fields of studies and given rise to research interest concerning impacts, challenges and applications of social media (Kümpel et. al., 2015, p.1). Scholars have also endeavored to explain the term and have developed new theoretical perspectives and methodological approaches in relation to the topic (Khang et. al., 2012, p. 280). As a result of this accumulation in the social media research, a rich and comprehensive social media literature is available. However, the dynamic structure of the topic requires further studies to reveal uncovered issues and changes in relation to social media.

Development and design of new social media research is partly possible through grasping the existing research discussing the theories and field studies of social media. For this purpose, a number of reviews on existing research have been conducted in different countries.

Khang et. al. (2012) examined 436 peer-reviewed articles that investigated the topic of social media in seventeen journals in four disciplines (Advertising, Communication, Marketing and Public Relations) during the fourteen-year period of 1997–2010. Their study demonstrated that social media usage and attitudes towards social media is the most frequent (67.7%) research topic across the disciplines. Additionally, their study uncovered that the most frequently researched social media type was computer mediated group communication, online community/virtual group (34.2%), and quantitative methods (58.5%) were dominant across the disciplines.

Smiliarly, Robson (2013), conducted a content analysis research aiming to underline the gaps in social media research in Public Relations. Robson (2013) claims that most of the current studies focused on social media and the users of the media from the perspectives of practitioners. As Kümplel et. al. (2015) also implied in their later study, Robson (2013) underlines that most of the reviewed studies are geographically restricted. Another significant finding

of the study is that there exists lack of theoretical applications based on scientific research. Finally, he argues that case studies and organizational ethnographies are inadequate in existing literature.
Wetzstein et. al. (2014) in the same vein investigated the articles analyzing the relation between social media and crisis communication. In the scope of their research 66 paper were reviewed in terms of topic, theory, geographical location and methodology. Findings of this research revealed that the use and emergence of social media in crisis communication has the largest proportion among the articles. Additionally, large number of research results are coming from empirical research, and quantitative content analysis was most frequently used approach in the articles that are reviewed.

Another recent study addressing to social media research was conducted by Ngai and et. al. (2015). The scholars consolidated and analyzed a total of 46 articles on social media research including empirical studies spanning from 2002 to 2011. The study underlined that personal behavior theories, social behavior theories and mass communication theories were chosen to design the research in the articles. According to this study, organization orientation, social power, cultural differences, and impacts of social media, have not received sufficient research attention

In addition to these studies, Kümpel et. al. (2015), reviewed 461 scientific, peer-reviewed articles that examine the relationship between news sharing and social media in the period from 2004 to 2014. They found that the topic gained interest in 2010, and most of the studies' (%51) first authors are affiliated in US universities. Moreover, they revealed that majority of the articles are empirical and quantitative and diffusion of information and innovation is the most common theoretical approach among the studies. Another significant finding of the study is that social media output is mostly the primary object investigated in these articles.

In Turkish existing literature, it is noticed that just one review covering social media related research is available. This single research was conducted by Aydoğan (2005). In her study, she examined master theses and Ph. D. dissertations on new communication technologies approved between the years 1987 and 2003. Although her research is not directly related to social media, it gives some important clues about current research on social media. Consequently, more research is needed in Turkish social media literature to understand the current trends in Turkish social media research and to prevent accumulation of similar studies. This need is also crucial to shed light on distinctive features of Turkish social media research and to guide further researchers.

In Turkey, it is known that most of the scientific information is provided by higher education institutions. One of the responsibilities of these institutions is conducting scientific research to contribute social welfare and scientific development (as cited in Bakır, 2013, p. 1). Therefore, master theses and dissertations, which are vital for Turkish higher education system, are valuable information providers to delineate a retrospective path of social media research since they have a crucial function of creating, distributing and disseminating scientific information (Bozkurt et. al., 2015).

On this basis, this paper aims to provide a current profile of Turkish master theses and dissertations covering social media issues in the major field of Communication Sciences between the years 2010-2015. Toward this purpose the study is going to answer the following questions;

RQ1. What are the frequency and proportion of social media research in Turkish master theses and Ph.D. dissertations in the major field of Communication Sciences?
RQ2. What is the topical, theoretical and methodological status of social media research in Turkish master theses and Ph.D. dissertations in the major field of Communication Sciences?

THE STUDY

Method

Research Design

For the purposes of the study, content analysis was chosen to study empirical documentation. An inclusive definition of content analysis is offered by Holsti (1969) as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (as cited in Stemler, 2001, p. 1). In other words, content analysis is conducted with the aim of grouping similar cases or data according to certain concepts and themes and then to organize and interpret the data systematically. Moreover, content analysis is widely preferrable for examining trends and patterns in documents (Stemler, 2001, p. 2.)

After an intensive literature review, in this research, Khang's and his friends (2013) framework was largely adopted to set categories and codes which were used in the content analysis of the theses and dissertations. Since the scope of Khang's study includes social media research in four disciplines; advertising, communication, marketing and public relations, it covers all major fields of Communication Sciences in Turkish higher education institutions. Thus, Khang's and his friends (2013) framework fits the purposes of this study.

According to the chosen framework, in this study all master theses and dissertations were analyzed and coded based on the following; general information (publication year, authorship, institution affiliation), content of the theses and dissertations (research topics, social media type,), research tools employed (research methods, sampling methods, data collection and data analyses methods). Subsequently, frequencies and percentages are provided as a descriptive analysis.

Sample

In the scope of this study, all master theses and Ph.D. dissertations on social media that have been allowed to access in Council of Higher Education National Theses Center Database were reviewed for the years between 2010 and 2015. The timeframe for this study is limited to the years between 2010 and 2015 because it was noticed that social media research in Turkish Higher Education context accelerated during this period. Subsequently, 77 master theses and 22 Ph.D. dissertations have been included into the study. In the database, the key words "social media", "social network sites", "web 2.0", "sns", "social web", "online communities", "online platforms", and name of the popular social media sites e.g. "Facebook, twitter, Pinterest" were scanned in topic filter. These key words are predetermined on the basis of the social media definition "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content" (Kaplan and Haenlein, 2010, p. 61). Then, the researchers manually reviewed titles and abstracts of the theses and dissertations, and totally 77 theses and 22 dissertations were included in the final sample.

FINDINGS

This part of the study presents descriptive analysis of the categories in terms of frequencies and percentages.

Higher Education Institutions

In Table 1 distribution of theses and dissertations are seen according to institution affiliation. The research was carried out in the limitations of social media context and its components. In this scope, among 99 master theses and doctoral dissertations in total, Marmara University has the highest number (22) of theses and dissertations. 8 theses and dissertations are Anadolu University affiliated and 7 theses and dissertations are Kadir Has University affiliated. By considering the numbers, it may be assumed that Marmara University, Anadolu University and Kadir Has University are the top 3 universities conducting social media related theses and dissertations in Turkey. On the other hand, the number of post graduate students of major field of Communication Sciences may be higher in these institutions.

Table 1. Frequencies of theses and dissertations per institution

Institutions	f	%
Marmara University	**22**	**17,29**
Anadolu University	8	6,37
Kadir Has University	7	6,37
Ankara University	7	6,37
Bilgi University	5	4,95
İstanbul Ticaret University	4	3,64
Selçuk University	4	3,64
Gazi University	3	2,73
Ege University	3	2,73
İstanbul Kültür University	3	2,73
İstanbul University	3	2,73
Doğuş University	2	1,82
Başkent University	2	1,82
Fırat	2	1,82
Beykent	2	1,82
Maltepe	2	1,82
Yaşar	2	1,82
Süleyman Demirel	2	1,82
Akdeniz	2	1,82
Kocaeli	2	1,98
Galatasaray	1	0,99
Hacettepe	1	0,99
Atatürk	1	0,99
Koç	1	0,99
Bahçeşehir	1	0,99
İstanbul Teknik	1	0,99
Karadeniz Teknik	1	0,99
Erciyes	1	0,99
Boğaziçi	1	0,99
Sakarya	1	0,99
Ufuk	1	0,99
Yeditepe	1	0,99
Total	**99**	**100,0**

Year of Approval

In Figure 1 the number of theses and dissertations on social media related topics for the years between 2010 and 2015 is illustrated. The finding revealed that the largest proportion (24) of the social media related theses and dissertations are approved in 2012. It is seen that there is a homogeneous distribution of number of the theses and dissertations per year except 2012. To grasp the underlying reason of this exceptional situation, an in depth research is necessary in terms of social media issues in Turkey.

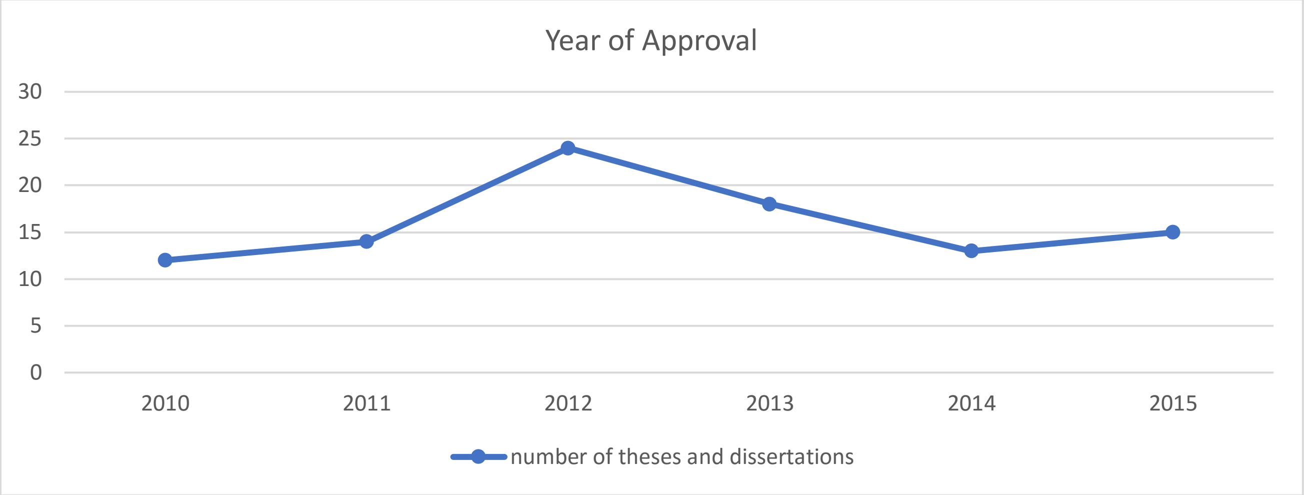

Figure 1. Frequencies of theses and dissertations per year

Research Topics

Social media is a multi-dimensional research area which indicates variety in terms of its function. In this paper, the classification of social media topics developed by Khang et. al. (2013) was taken as a reference and used to identify social media research topics in Turkish theses and dissertations. Subsequently, theses and dissertations were analyzed in 7 categories; "social media usage, perception, attitude towards social media", "impacts of social media", "political communication", "social media advertising issues", "social and political issues", "personal issues", "cultural issues". The categories "social and political issues", "personal issues" and "cultural issues" were classified into sub-categories to provide an in-depth profile of the research topics. In a detailed investigation it is observed that multiple topics were studied in some theses or dissertations. In such situations each topic was coded to the code book separately. Similar to previous research results by Khang et. al. (2013), findings of this study revealed that "social media usage, perception, attitude towards social media" is the most frequent social media research topic studied in theses and dissertations from 2010 to 2015.

Table 2. Frequency of social media topics studied in Turkish theses and dissertations from 2010 to 2015

Topics	**f**	%
Social media usage, perception, attitude towards social media	**33**	**26,4**
Impacts of social media	**12**	**9,6**
Social and political issues (digital activism)	10	8
Political communication	3	2,4
Social media advertising and PR issues	10	8
Social and political issues (democracy)	6	4,8
Social and political issues (virtual social communication)	12	9,6
Personal issues (self-presentation)	5	4
Personal issues (identity)	5	4
Social and political issues (hate speech)	3	2,4
Personal issues (privacy)	4	3,2
Social and political issues (fanaticism)	1	0,8
Social and political issues (anonymity)	1	0,8
Social and political issues (masculinity discourse)	1	0,8
Social and political issues (public space)	3	2,4
Cultural issues (historical heritage)	1	0,8
Cultural issues (cyber culture)	2	1,6
Social and political issues (social capital)	1	0,8
Social and political issues (violence)	1	0,8
Social and political issues (education)	1	0,8
Social and political issues (gender)	1	0,8
Cultural issues (alienation)	1	0,8
Personal issues (isolation)	2	1,6
Cultural issues (short movies)	1	0,8
Cultural issues (music)	1	0,8
Cultural issues (consumption culture)	1	0,8
Social and political issues (legal regulations)	1	0,8
Social and political issues (ideology)	1	0,8
Personal issues (self-disclosure)	1	0,8
Total	**125**	100

Social Media Types

Table 3 indicates the frequency of social media types studied in Turkish theses and dissertations from 2010 to 2015. As indicated in Table 3 the majority of the research (%51) preferred to study on Facebook as a social media type. Twitter is the second most frequent social media type (%12) which is focused among these studies. On the other hand, online communities, MMORG and multi-player online games are noticed as alternative social media types which are getting popular.

Table 3. Frequency of social media types studied in Turkish theses and dissertations from 2010 to 2015

Social Media Types	f	%
Facebook	32	51,61
Twitter	12	19,35
Online communities, MMORG and multi-player online games	8	12,90
Blog	3	4,84
Instagram	1	1,61
Foursquare	1	1,61
Facebook Place	1	1,61
Tumblr	1	1,61
YouTube	1	1,61
Forum, bulletin board system	2	3,22
Total	**62**	**100,0**

*one study may focus on more than one social media type

Research Design

Theses and dissertations were analyzed and categorized according to quantitative, qualitative, or mixed research designs for each year. As it is shown in Table 4 qualitative research is the most frequent method used in the theses and dissertations. It may be assumed that for social media research qualitative methods are more functional and efficient to reach in depth findings. It is seen that there is a tendency to apply mixed methods for more in depth research on social media.

Table 4. Use of research designs per year in theses and dissertations

Year	Qualitative	Quantitative	Mixed
2015	7	5	2
2014	9	4	0
2013	14	5	4
2012	12	8	5
2011	6	7	1
2010	8	2	3
Total	**56**	**31**	**12**

As it is illustrated in Table 5, in majority of the theses and dissertations that applied qualitative design, descriptive analysis is preferred most frequently (%43). Content analysis (%21) and discourse analysis (7,69) are following descriptive analysis.

Table 5. Frequencies of qualitative analysis used in theses and dissertations from 2010 to 2015

Qualitative	**f**	**%**
Descriptive analysis	**43**	**55,13**
Content analysis	21	26,92
Discourse analysis	6	7,69
Netnography	3	3,85
Case study	3	3,85
Semiotics	1	1,28
Data mining	1	1,28
Total	**78**	**100,0**

*one study may apply more than one analysis

In Table 6 frequency of quantitative tests and analysis are given. According to the findings descriptive analysis is the most frequent analysis (%50) that is preferred in the studies.

Table 6. Frequencies of quantitative tests and analysis used in theses and dissertations from 2010 to 2015

Quantitative	**f**	**%**
Descriptive Statistics	**87**	**50**
t-test	14	8,05
Factor analysis	13	7,47
Variance analysis (ANOVA, MANOVA, MANCOVA)	9	5,17
Mann Whitney U	9	5,17
Chi-square	8	4,60
Variability (standard deviation rate)	7	4,02
Correlation	7	4,02
Kruskal Wallis Test	7	4,02
Regression Analysis	4	2,30
Post Hoc	3	1,72
KMO test	2	1,15
Wilcoxon test	2	1,15
Barlett's test	1	0,57
Gini Coefficient	1	0,57
Total	**174**	**100,0**

*one study may apply more than one analysis

Sampling

In Table 7 frequencies of sampling methods are given. Researchers identified that in some of the theses and dissertations sampling method was not given. In such cases researchers examine whole body of the theses or dissertation and grasped the sampling method. Then, they coded on the code book. Additionally, in some of the theses and dissertations no universe or sample was given. It is noticed as a problematic point in the theses and dissertations. According to the research findings purposive sampling (%71) is most frequently preferred sampling method.

Table 7. Frequencies of sampling methods used in theses and dissertations from 2010 to 2015

Sampling	f	%
Purposive sampling	**41**	**71,93**
Random sampling	7	12,28
Snowball sampling	4	7,02
Stratified sampling	3	5,26
Quota sampling	2	3,51
Total	**57**	**100,00**

Data Collection

As it is seen in Table 8 the most frequent data collection method that is applied in the theses and dissertations is questionnaire (28,93). Interview (%20,66) and documents (%10,74) are following in order.

Table 8. Frequencies of data collection methods used in theses and dissertations from 2010 to 2015

Data collection methods	f	%
Questionnaire	35	28,93
Electronic documents (profile page, web page, social media content)	30	24,79
Interview	25	20,66
Documents	13	10,74
Observation	10	8.27
Scale	6	4,96
Photograph	2	1,65
Total	**121**	**100,0**

*one study may use more than one data collection tool

CONCLUSIONS

This study was carried out to identify research trends in social media in the major field of Communication Sciences in Turkish higher education institutions. In the scope of this study 99 master theses and doctoral dissertations in total are reviewed which were conducted between the years 2010 and 2015. Included sample were analyzed in terms of year of approval, authorship, institution affiliation, research topics, social media type, research design, research model, sampling methods, data collection and data analysis methods.

The findings of the study revealed that Marmara University is holding the largest proportion of the social media research related theses and dissertations. Although social media research topic is a dynamic and wide in scope topic, it is noticed that there is an accumulation on social media use, attitude and perception topic. Moreover, Facebook is the dominant social media type that is studied in this research area. Another important finding of the study demonstrated that qualitative research design is the most frequent research method that is applied in the theses and dissertations. It is assumed that qualitative research provides more in depth information in social media context. Besides, descriptive analysis is the most preferred analysis technique both in qualitative and quantitative research design. Finally, purposive sampling and questionnaires are dominant among the theses and doctoral dissertations analyzed in the scope of this research.

On the other hand, some important points which should be improved are identified in the scope of this study. In most of the master theses many spelling and formatting mistakes are noticed. Furthermore, there is lack of research methodology, reliability test, and research questions in several theses and dissertations.

All in all, this study provides a general profile of social media research in Turkish theses and dissertations conducted from 2010 to 2015. It is revealed that there is an accumulation on similar topics although the research area is multilayered and very rich in context. Nearly all of the studies search on social media users; however, very few theses and dissertations approach the topic by considering the social media practitioners. Thus, there is a lacuna in this research topic. Finally, it is suggested to employ variety of research models to enrich research results to be able to examine research phenomena from different perspectives.

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Cynicism In Organizations And Personal Stress Perception: A Correlational Screening Research

Esef Hakan TOYTOK
Education Faculty, Department of Educational Sciences
Siirt Universty, Turkey
hakantoytok@hotmail.com

Eda ÇELEPÇIKAY
Education Faculty, Department of Educational Sciences
Siirt Universty, Turkey
clpcky@hotmail.com

ABSTRACT

Nowadays, success appears as one of the quite poplar and ubiquitously looked for fundamental personal characteristics. In general, success is accepted as progress towards a desired result. Success motive is one of the essential causes that enables individuals pursue their objectives. It is observed that individuals with success desire and with need to satisfy this desire are easier to steer towards organizational purposes. In contrary to success, organizational cynicism term that expresses a negative attitude. In short, organizational cynicism term is defined as the negative attitude of individuals towards the organization and belief of individuals reflecting that the organization that the individuals work is far away from honesty. Organizational cynicism arises when individuals' fundamental expectations such as sincerity, justice, and honesty are not met. In this context, organizational cynicism is interpreted as a reaction from workers against organizational policies and applications. The main purpose of this research is revealing the relationship and the level of relationship between two fundamental terms that are organizational cynicism and personal success, and in this sense, bringing a point of view in the name of effectiveness to organizations. A qualitative way is followed and descriptive correlational screening model is used in this study. The universe of research consists only Uskudar district of Istanbul city. The working group of the research consist of middle schools in Yavuz Turk neighborhood in Uskudar district. Data that are obtained in this research are analyzed using R version 3.3.0 and SPSS version 21.00 programs and findings that are obtained are interpreted in a tabular form. Based on the data revealed as a result of this research, there is a significant but small negative relationship between personal success and organizational cynicism.

KEYWORDS: organization, cynicism, teacher, personal success.

INTRODUCTION

The fundamental logic of organization constitution is achieving pre-determined organizational purpose or purposes effectively. Increasing organizational effectiveness and achieving success are linked to many factors. Organization's management style, financial power, environment, and quality of participants are just among those many factors. One important propelling factor in a successful organization is quality of personnel. The continuity of the organization and achieving organizational goals are positively affected by the quality of the human resource of the organization. In this context, the success of the organization is in fact linked to the success of the individual. Personal success is defined as "depending on individual's ability and growth, the positive product of momentarily or actual actions" by Turkish Language Institution. When various success definitions are analyzed generally, the shared emphasis on progress towards desired result is observed. In the light of the definitions, in fact, success instinct is observed as an important effect creating compass that focuses individuals on purpose or purposes and defines individual's behaviors. Therefore, personal success is supposed to be a shared facet that is looked for in every personnel. Because, the success instinct is the main reason that makes individuals follow their purposes. Individuals, who want to be successful and want to satisfy success need, are easily directed towards organizational purposes (Kaya &Selçuk, 2007).

Another term that becomes prominent recently is organizational cynicism. The cynicism term takes its root around 500 B. C. from Ancient Greekphilosophical thought "cynic" word (Mantere&Martinsuo, 2001; Metzger, 2004). According to cynic philosophy, individuals reject every beliefs and norms that are determined by other people and live only based on natural norms. Hence, they are defined as cynic. Therefore, individuals who live by cynic philosophy are observed as problematic individuals because they do not follow social norms. Organizational cynicism term is defined by many people but the common ground of those definitions is the negative attitude of behaviors of the personnel towards the organization. The first research on organizational cynicism is conducted by Kanter and Mirvis in 1990s (James, 2005). Organizational cynicism is an existing situation in organizations, some organizations experience it rarely, and some other organizations experience it quite frequently. In the same time, frequent organizational cynicism behaviors is an indicator of negativeness for the organization.

The main purpose of this research is revealing the relationship, significance, and direction of the relationship between two fundamental terms that are organizational cynicism and personal success.

METHODS

In the research among the quantitative research methods, relational descriptive survey model was used. The relational descriptive survey model is a research model describing a situation or an occured event as it is and indicating the relationship between the variables that cause this situation, their effect and degree (Kaya, Balay ve Göçen,2012). The research population constitutes Uskudar district of Istanbul province. The research of constitute the work group of secondary schools in the Üsküdar Yavuztürk neighborhood. According to demographic variables the distribution of participants who participated in this research is shown in table 1.

Table 1. Information on the sample of the research

	N	%
Gender		
Female	173	47,5
Male	191	52,5
Professional Seniority		
3 years and less	107	29,4
4-7 years	140	38,5
8-12 years	81	22,3
13 years and older	36	9,9
Age		
25 and less	53	14,6
25-36	239	65,7
36-45	72	19,8
Years Of Service In The School		
2 years and less	138	37,9
3-6 years	149	40,9
7-10 years	47	12,9
10 years and older	30	8,2
Branch		
Verbal Section	184	50,5
Numerical Section	180	49,5
Total	364	100,0

As an inventory of data collection, for organizational cynicism variable "Scale of Organizational Cynicism (OSO)" developed by Kalağan (2009) which has 3 extent and 12 subjects, for personal success "Scale of Personal Success (KBO) " developed by Erdoğan (2009) which has 4 extent and 14 subjects were used in the research. For the analysis of obtained data, R 3.2.4 (R Core Team, 2016) and SPSS 21,00 packaged softwares were used. The method of confirmatory factor analysis (CFA reference) *"cfa"* function which is defined in *"lavaan"* library version of 0.5-20 was used in the analysis of construct validity of the inventories (Rosseel, 2012). The suitability of the model to the data was determined by the analysis of compatibility values of Chi-square (Hu and Bentier, 1999), Comparative Fit Index (CFI) (Byrne, 1998; Kline, 2011), Tucker Lewis Index (TLI) and Root Mean Square of Approximation (RMSEA) (Byrne, 1998). Cronbach Alpha values were calculated for the calculation of reliability. Coefficient of pearson correlation was calculated and tabulated for the relation between variables.

RESULTS

The result of the fit index that is made regarding the validity of the research model related to the two variables "Organizational Cynicism " and "Personal Success " which are required to be determined in the research is given in table 2.

Table 2. The fit index results of the measurement model

Minimum Function Test Statistic	1521.108
Degrees of freedom	303
P-value (Chi-square)	.001
Comparative Fit Index (CFI)	.871
Tucker-Lewis Index (TLI)	.851
RMSEA	.058

According to the results shown in table 2, for the compatibility of the research model created for the variables we want to measure, the value of P-value (Chi-square) being .001 indicates that our model gave us a more significant result than zero. In addition to this, the value of Comparative Fit Index (CFI) come out to be .871 and the value of Tucker-Lewis Index (TLI) come out to be .851 and this states that both of the values show us a good fit as they are over .85. According to Hu and Bentler (1999), the more CFI and TFI values get .85 and higher the more it represents that the research is modelled so well. In addition to this, the value of RMSEA being .058 is also an indicator of the fit. According to Browne and Cudeck (199),if the value of RMSEA is .050 and lower, it represents that the fit increases. According to the statistics results that is made, it can be said that the research indicates a good fit.

The data obtained by making Confirmatory Factor Analysis (CFA) for the organizational cynicism and the personal success and the clauses which are the inventories used in the research is represented in table 3.

Table 3. The factor loads of the inventorys

Dimensions		λ
Organizational Cynicism (OSO)	*Cognitive* $(\rho = .907)$	
	OSO1	0,857
	OSO2	0,901
	OSO3	0,824
	OSO4	0,660
	OSO5	0,812
	Emotional $(\rho = .925)$	
	OSO6	0,859
	OSO7	0,923
	OSO8	0,840
	OSO9	0,851
	Behavioral $(\rho = .820)$	
	OSO10	0,786
	OSO11	0,825
	OSO12	0,705
	OSO13	0,593
Personal Success (KBO)	*Be Ambitious And Achievement* $(\rho = .720)$	
	KBO1	0,752
	KBO6	0,607
	KBO10	0,748
	KBO13	0,364
	Superiority and be Different $(\rho = .828)$	
	KBO2	0,821
	KBO5	0,662
	KBO8	0,765
	KBO11	0,701
	Focus $(\rho = .709)$	
	KBO4	0,656
	KBO9	0,692
	KBO14	0,631
	Take Personal Responsibility $(\rho = .747)$	
	KBO3	0,799
	KBO7	0,750
	KBO12	0,551

NOTE: For each extent, the results of the internal consistency index of Raykov Rho (ρ) are given inside the parentheses.

According to the data in table 3, when the data related to CFA applied for the organizational cynicism and the personal success inventory is analyzed, it is seen that the factor load of each subject is (λ) .36 and higher. These values represent that they are sufficient with regard to the validity of the subjects. Looking at the values of Raykov Rho, it is seen that the extent of the extent *Cognitive* is .907, the extent *Emotional* is .925, the extent *Behavioral* is .820, the extent *Be Ambitious And Achievement* is .720, the extent *Superiority and be Different* is .828, the extent *Focus* is .709 and the extent *Take Personal Responsibility* is .747. According to Raykov (1997; 2004), it is accepted that the more the obtained results get .70 and higher, the more reliability and validity increases that much. These results indicate that inventory of the organizational cynicism and the personal success has the conditions for reliability and validity needed for the research.

For the relation between *Personal Success* and *Organizational Cynicism*, the correlations of the sub extent was calculated and represented in table 5.

Table 4. Correlation results

			Perception of Personal Success			
	Dimensions	General	Be Ambitious And Achievement	Superiority and be Different	Take Personal Responsibility	Focus
Organizational Cynicism	*General*	-.107*	-.082	-.123*	-.103*	-.071
	Cognitive	-.096	-.101	-.086	-.084	-.073
	Emotional	-.161**	-.140**	-.186**	-.149**	-.091
	Behavioral	.023	.068	-.005	.005	.009

Note: It is meaningful for * p≤ .050, ** p≤ .010 and *** p≤ .001.

According to the results in table 4, when the relation between Personal Success and Organizational Cynicism is analyzed it is seen that in a low-level ,negative and significant relation.

DISCUSSION AND CONCLUSION

Based on the data revealed as a result of this research, there is a significant but small negative relationship between personal success and organizational cynicism. In this sense, increase of organizational cynicism behaviors is associated with a decrease in personal success levels of the organization personnel. Kilic (2013) also concluded a negative, significant, and medium relationship between organizational cynicism and work satisfaction in his research. Since the work satisfaction and personal success terms are directly linked structure, the results that are obtained by Kilic (2013) supports findings from this research. Similar research findings are also revealed by Bryne and Hochwarter (2008).

Organizations are supposed to be successful and sustain their successful condition to be effective and efficient. Naus, Van Iterson, andRoe (2007) concluded in their research that the increase in organizational cynicism behaviors in an organization results in decreased autonomy and brash behaviors of individuals. Johnson and O'Leary-Kelly (2003) also concluded in their research that organizational cynicism creates psychological exhaustion in individuals and this exhaustion creates a negative effect on the performance of individuals.

In conclusion, private and public organizations make an effort to be efficient and effective. One of the important factor that provides organizational efficiency is properties of personnel. If an organization may increase the personal success motivation of the personnel, may also increase the organizational efficiency and effectiveness. Therefore, keeping cynic behaviors that harm organizational structure away allows organizations to get closer this purpose. Because, there is a negative significant relationship between organizational cynicism and personal success. Hence, it is quite important that person or people who have power to affect the organizational process, are supposed to perform required regulations.

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Researchers, may further investigate the organizational cynicism construct in terms of its relationship and effects on other variables. In addition, quasi-experimental research may be conducted with this construct. Applicants may perform regulations that promote personal success; therefore, decrease the organizational cynicism behaviors.

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Department Of Computer And Instructional Technology Teacher Education Opinions Of Candidate Teachers On Education Models

Mithat ELÇİÇEK
Faculty of Computer Education and Instructional Technologies Department
Siirt University
mithatelcicek@gmail.com

Mustafa KAHYAOĞLU
Faculty of Computer Education and Instructional Technologies Department
Siirt University
mustafa.kahyaoglu56@gmail.com

ABSTRACT

The aim of this study is to reveal education models imagined by candidate teachers from Computer and Instructional Technology Teacher Education (BÖTE) department regarding preparation of course, responsibility of teacher and student during phases of learning/instructing and assessment processes as well as possible methods and techniques that can be used in those phases. In the study, a qualitative approach is employed in order for the research to feature a flexible, holistic and inductive analysis and for an in-depth examination and depiction of sample. Working group of the study consists of 30 candidate teachers who received education at Siirt University Education Faculty Computer and Instructional Technology Teacher Education during 2015-2016 education term. The sample is chosen through criterion sampling which is one of the purposeful samplings. In the study, a questionnaire form is used as a data collection tool which consists of open-ended questions to ask opinions about teacher's responsibility during course preparation phase, learning/instructing phase and assessment phase, student responsibility and methods and techniques that can be used during those phases. A descriptive content analysis technique, which is a qualitative analysis technique, is used during analysis of data. After the conclusion of the study findings are put in order as course preparation, learning-instructing practices and assessment phases and in each phase, opinions are presented regarding teacher responsibility, student responsibility and methods and techniques that can be used during those phases.

Key words: Education, education model, candidate teacher

INTRODUCTION

Students are located at the center of modern education understanding. Education is focused on the livings of students. This student-focused approach views him or her as a whole consisting of emotion, thought and values an aims at development with all these aspects.(Özabacı and Acat, 2005) Despite this, one of the factors that impact student performance is teachers. Teachers are one of the main elements of education. According to Kavcar (1987), success in education depends on teachers who can operate and implement the system in the first place. No education model can offer service above the qualifications of its personnel. Therefore, he stated that a school can be no better than the teachers within itself. According to Can (2004), an effective teacher is an employee in education sector who does have responsibilities towards his or her students and care about emotions and needs of students. Üstündağ et. al. (2008), on the other hand, argued that class environment should be designed to increase quality of learning and instruction in accordance with necessities of present time. When it is considered that teachers have a duty and responsibility for preparing students for life, making them aware of their duties and responsibilities towards self and society, bringing up querier, investigative and self-confident individuals, it is important to pre-determine which education models they imagine Aydın, Şahin and Topal (2008) argue that new responsiblities are given to teacher, who are defined as behavior changing engineer, at present. Tatar et. al. (2012) argued that the beliefs of teachers regarding learning-instructing process should be examined closely since they give shape to the education. In their study, Thomas, Pederson and Finson (2001), on the other hand, mentioned that there is a relationship between candidate teachers' beliefs towards education and cognitive models that reflect their behavior. Senemoğlu (2012) said that human beings perceive cases, facts and entities after interaction with the environment and structure them in their minds and then transform the knowledge they structured in their minds into behavior. Therefore after graduation, candidate teachers too begins their career with the education models they constructed in their minds and learning experiences they gained throughout their training process for instruction. Hence, this situation is influential in student's performance, classroom management and method they will use and technical decisions they will make in education environment. For this reason, it is important to reveal what kind of education models are contemplated by candidate teachers for predicting what kind of education they will offer in future.

The goal of this study, is to reveal education models contemplated by Computer and Instructional Technology Teacher Education (BÖTE) department candidate teachers regarding preparation of course, responsibility of teacher and student during phases of learning/instructing and assessment process as well as possible methods and techniques that can be used in those phases.

METHOD

Pattern Of Study

In the study, a qualitative research method is employed in order for the research to feature a flexible, holistic and for an in-depth examination and depiction of sample. Qualitative research method is defined as a study method in which qualitative data collection techniques such as observation, interview and documents are used and in which a qualitative process is followed in order to put forth cases in a realistic and holistic way in their natural surroundings (Yıldırım and Şimşek, 2008). Qualitative research method adopts an interpretative approach when it comes to research problem by looking from a holistic view to all disciplines. The facts and cases, on which research is made, are dealt in their own context and are interpreted in terms of the meanings attributed to them by people.

Working Group

Working group of the study consists of 30 candidate teachers who received education at Siirt University Education Faculty Computer and Instructional Technology Teacher Education during 2015-2016 education term. The working group is chosen through criterion sampling which is one of the purposeful samplings. Criterion sampling features individuals, cases, object or situation that have certain qualities of observation units. In this case, units (objects, cases etc.) that meet criteria are taken into the sampling. (Büyüköztürk et. al., 2008) In this study, criterion is set as possession of basic knowledge about and being a student in Computer and Instructional Technology Teacher Education, fulfillment of Special Education Methods I and II courses and participation in the study as a volunteer.

Data Collection Tool and Analysis

In the data collection phase of the study, a semi-structured questionnaire form is used as a data collection tool which consists of open-ended questions to ask opinions on teacher's responsibility during course preparation phase, learning/instructing phase and assessment phase, student responsibility and methods and techniques that can be used during those phases. Before the preparation of the survey form, relevant studies were looked up in the literature (Ayvacı et. al., 2014; Sünbül, 1999; Yeşil, 2014). Thereafter, under the light of collected data, the survey form was given final shape in accordance with opinions and recommendations of two academics who are expert in their respective fields. Candidate teachers were given information regarding the content and goal of the study during the application process of the study and were requested to fill up forms in 30 minutes. The forms filled up by teachers are the main data sources of the study. A descriptive analysis technique, which is a qualitative analysis technique, is used during analysis of data.

During the analysis and interpretation of data through a descriptive analysis, the steps pursued are as follows: forming a framework for descriptive analysis, identification of findings and interpretation of findings. Since a qualitative research method is employed in the study, differently from quantitative method, aspects such as persuasiveness, transmissibility, consistency and confirmation were assessed. Increase of persuasiveness (internal validity) and transmissibility (external validity) is ensured through use of expert views and detailed depiction of research process with purposeful sampling respectively, during the development of data collection tool. In addition, every answers given to each question were compared among themselves and codification was independently made by two individuals. Thereby it was aimed at increasing consistency (internal reliability). Besides, all data derived from candidate teachers are kept in a codified form.

FINDINGS

In this section, the opinions of candidate BÖTE teachers regarding preparation of lesson, learning/instructing and assessment phases, responsibility of teacher and education methods they have in their minds regarding the methods and techniques that can be used during these phases. Opinions of candidate teachers on preparation phase are given on Table-1.

Table-1 Opinions of candidate teachers on preparation phase

		N	%
Teacher responsibility	Should be ready lesson by preparing a good lesson plan	16	26,7
	Should check degree of student preparedness	9	15,0
	Should keep order in class	8	13,3
	Should arouse interest of students when commencing lesson	7	11,7
	Should prepare lesson material	6	10,0
	Should give information about lesson to students at the beginning	5	8,3
	Should ask questions to student	5	8,3
	Should make a physical preparation in class environment	4	6,7
	Total	75	100
Student responsibility	Should make preparation before class	21	30,4
	Should prepare tools and equipment about lesson	12	17,4
	Waits for teacher in a silence	10	14,5
	Listens to teacher	7	10,1
	Should have made homework	6	8,7
	Should show interest towards lesson	5	7,2
	Should arrive class in time	5	7,2
	Should ask questions if a subject is not understood	2	2,9
	Should make research about the subject	1	1,4
	Total	69	100
Method and techniques	Question answer	11	19,0
	Lecture	10	17,2
	Brainstorm	9	15,5
	Have it done by pointing out	8	13,8
	Fishbone	6	10,3
	Lecture with slide show	3	5,2
	Drama	3	5,2
	Should make experiment	3	5,2
	Cognitive map	2	3,4
	Discussion	1	1,7
	Sample case	1	1,7
	Debate	1	1,7
	Total	58	100

As seen from the Table-1, when looked into the opinions of candidate teachers about teacher responsibilities during preparation phase %26,7 said "*Should be ready lesson by preparing a good lesson plan*", %15 said "*Should check degree of student preparedness*" and %13,3 said "*Should keep order in class*". In this phase, when looked into the opinions on student responsibilities, %30 said "*Should make preparation before class*", %17,4 said "*Should prepare tools and equipment about lesson*", %14,5 said "*Waits for teacher in a silence*" and %10,1 said "*Listens to teacher*". When looked into the opinions of candidate teachers regarding methods and techniques that can be used in this pase, %19 said "*question answer*", %17,2 "*lecture*" and %15,5 said "*brainstorming*". Opinions of candidate teachers about learning/instructing phase are given on Table-2.

Table-2 Opinions of candidate teachers about learning/instructing phase

		N	**%**
Teacher responsibility	Active participation of students in lesson should be ensured	9	11,8
	Materials that would enrich lecture should be used	8	10,5
	Examples should be given about subjects	8	10,5
	Questions of students should be answered	7	9,2
	Students should be given opportunity to voice their opinions about subjects	7	9,2
	A suitable technique, which is related to lecture subject, should be used	6	7,9
	Should forward questions	5	6,6
	Exercises should be made	5	6,6
	Should make eye contact	3	3,9
	Should motivate class	3	3,9
	Should use class board	3	3,9
	Should use time efficiently	3	3,9
	Should make revisions	2	2,6
	Should use means for consolidation	2	2,6
	Should lecture fluently	2	2,6
	Should establish contact with student	1	1,3
	Should warn students who create disturbances in classroom	1	1,3
	Total	76	100
Student responsibility	Should listen to teacher	23	31,1
	Should ask questions to teacher and give answers to questions	16	21,6
	Should actively participate in class	12	16,2
	Should take notes	10	13,5
	Should do practices during lesson	6	8,1
	Should openly voice his or her opinions or beliefs	5	6,8
	Should give example about lesson	2	2,7
	Total	74	100
Applied method and technique	Plain lecture	14	13,3
	Question answer	13	12,4
	Brainstorming	12	11,4
	Show then get it done	9	8,6
	Six thinking hats technique	7	6,7
	Empirical observation	7	6,7
	Presentation technique	6	5,7
	Fishbone	6	5,7
	Drama	5	4,8
	Discovery	5	4,8
	Sample case	4	3,8
	Discussion	4	3,8
	Concept map	2	1,9
	Cooperative learning	2	1,9
	Showing video	2	1,9
	Debate	2	1,9
	Panel	1	1,0
	Station	1	1,0
	Micro education	1	1,0
	Problem based education	1	1,0
	Project-based learning	1	1,0
	Total	105	100

As seen from Table-2, when candidate teachers' opinions on teacher responsibility is examined, %11,8 said "active participation of students in lesson should be ensured", %10,5 said "materials that would enrich lecture should be used", %10,5 said "examples should be given about subjects, %9,2 said "questions of students should be answered, %9,2 said "students should be given opportunity to voice their opinions about subjects." When looked at candidate teachers' opinion on student responsibilities, %31,1 said "should listen to teacher", %21,6 said "should ask questions to teacher and give answers to questions", %16,2 said "should actively participate in class, %13,5 said "should take notes." With regard to methods and techniques that can be used during learning/instructing phase, %13,3 of candidate teachers preferred "Plain lecture", %12,4 preferred "question answer", %11,4 preferred "brainstorming" and %8,6 preferred "show then get it done." Opinions of candidate teachers on possible methods and techniques that can be used during assessment phase is given on Table-3.

Table-3. Opinions of candidate teachers on assessment phase

		N	%
Teacher Responsibilities	Should make assessment and evaluation	10	19,6
	Should ensure student fulfill goals	10	19,6
	Should make revisions	9	17,6
	Should ask questions	9	17,6
	Should establish criterion	4	7,8
	Should prepare question	3	5,9
	Should perform measurement that is appropriate for class level	3	5,9
	Should assign homework	2	3,9
	Should encourage thinking	1	2,0
	Total	51	100
Student Responsibilities	Should answer questions	8	29,6
	Should ask questions about the topics not well understood	6	22,2
	Should have knowledge about his or her learning performance	4	14,8
	Should make self assessment	3	11,1
	Should make revisions	2	7,4
	Should not cheat	2	7,4
	Should write summary	1	3,7
	Should do homework	1	3,7
	Total	27	100
Applied Method and Technique	Oral examination	19	40,4
	Multiple-choice tests	9	19,1
	Open-ended interpretive questions	3	6,4
	Concepts web	3	6,4
	Exercise questions	3	6,4
	Brainstorm	3	6,4
	Concept map	2	4,3
	Gap-filling	2	4,3
	Cognitive map	2	4,3
	Correct wrong	1	2,1
	Total	47	100

When looked into the Table-3 for the opinions of candidates teachers about responsibilities of teachers, %19,6 said "should make assessment and evaluation", %19,6 said "should make assessment and evaluation, %17,6 said "should make revisions and %17,6 said "should ask questions". About students responsibilities during assessment phase, %29,6 of the candidate teachers said "should answer questions", %22,2 said "should ask questions about the topics not well understood, %14,8 said "should have knowledge about his or her learning performance" and %11,1 said "should make self assessment". When looked into the preferences of candidate teachers regarding methods and techniques that can be used during assessment phase the figures are as follows: Oral examination (%40,4), multiple-choice tests (%19,1) and open-ended interpretive questions (%6,4)

DISCUSSION CONCLUSION AND RECOMMENDATIONS

In this section, a conclusion on education models imagined by candidate teachers regarding preparation of course, responsibility of teacher and student during phases of learning/instructing and possible methods and techniques that can be used in those phases is presented below.

In the study, with regard to course preparation phase candidate teachers said teachers should "be ready for lesson by preparing a good lesson plan, check degree of student preparedness, keep order in class and arouse interest of student for lesson." Accordingly, it can be said that candidate teachers favor a constructivist approach during course preparation phase. Constructivist approach designated teacher responsibilities as encouraging active participation of students in lesson, forge a link between prior and new knowledge and encourage asking of questions (Orhan and Bozkurt, 2005) Besides, main role of teacher is considered as preparation of an environment which would help students to reach information and make sense of it (Akpınar and Ergin, 2005). Furthermore, it is stated that good preparation of education process by teachers has an important role in inclusion of students the process and their success. On the other hand it is highlighted that physical and psychological preparedness of students should be taken into account (Çelik, Şanal and Yeni, 2005). Therefore, it is noteworthy that candidate teachers are aware of the fact that teachers has responsibilities of a good lesson preparation and necessity of controlling how much students are prepared for lesson. In a similar study conducted by Ayvacı et. al. (2014), graduate students stated that teachers have responsibilities of organizing education environment, drawing student attention and motivating students during course preparation phase. Er and Aral (2008) argued that teachers should interrogate how students make sense of concepts as well as organize extraordinary, student focused and interesting activities before lesson. Şişman (2007) states that unless teachers do not fulfill their responsibilities towards students, they should not expect they to fulfill their responsibilities. In this study, with regard to students responsibilities during lesson preparation phase, candidate teachers said that student should make preparation before class, prepare tools and equipment about lesson", wait for teacher in a silence and listen to teacher. In addition, in this phase, they stated that methods and techniques question answer, plain lecture and brainstorming can be used. In the constructive approach, teachers are tasked with making planning of authentic learning tasks and education counseling for helping for thinking. (Koç, 2006)

In the study, when opinions of candidate teachers from BÖTE department regarding student responsibilities during learning/instructing phase, they said students should listen to teacher", ask questions, give answers to questions and actively participate in class. With regard to teacher responsibilities they said teachers should use materials that would enrich lecture, give examples about subjects and encourage active participation of students in lesson. These findings has parallels with constructive approach. Teachers who embrace constructivist approach argue that different education method and techniques should be employed and for that emphasis should be placed on activities such as case study, project based learning, problem based learning, learning based on cooperation which feature active student inclusion. In the study, candidate teachers said that methods and techniques such as plain lecture, question answer and brainstorming can be used during learning/instructing phase and favored techniques such as cooperative learning, project based learning and problem based learning less. According to this, it can be said that candidate teachers do contemplate well about educational activities that include process and group activities during learning and instructing phase. Yeşilyurt (2013) has conducted a similar study which found that teachers often use methods and techniques such as plain lecture and question-answer and rarely use those such as cooperative, project and problem based learning as well as concepts map and brainstorming. Ocak et. al. (2012) said in his study that teachers avoid methods suggested by constructive approach and opt rather for plain lecture and question and answer.In contrast, in a similar study conducted by Ayvacı et. al. (2014), graduate students found to have embraced principles of constructive approach and the methods and techniques suitable for 5E model. This difference may stem from the selection of a different sample group.

In the study, candidate teachers designated teacher responsibilities as making assessment and evaluation, ensuring students fulfill goals, making revisions and asking questions while designated student responsibilities as answering questions, asking questions about the topics not well understood and making self assessment. Besides in this study, candidate teachers gave preference to oral examination, multiple-choice study and open-ended interpretive questions as methods and techniques that can be used in this phase. Accordingly, it can be said that candidate teachers from BÖTE department contemplate responsibilities of teacher and students in line with principles of constructive approach during assessment phase while embrace methods and techniques suggested by behavioral approach rather than alternative measurement tools suggested by constructive approach that can be used in this phase.

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Designation And Qualification Of Victims Of Local News Story In Turkish Daily Written Press: Exemple Of *Milliyet*

Havva ÖZÇELEBİ
Faculty of Education
Uludağ University, Turkey
havvaozcelebi@uludag.edu.tr

ABSTRACT

The local news is a kind of the print media which does not know limits today. It is everywhere; in the printed media, on the radio, on television, in the cinema, in the literature, on the web, etc. Centered on the human dramas of every type, this media kind is of sensational character and causes at the readers different feelings: surprise, fear, pity, insecurity, etc. In our study, we have for objective to analyze the nomination of the victims in the print media by establishing their reference chains throughout the text. Afterward, we are going to try to raise the linguistic processes of qualification of the victims, and consequently the linguistic way(s) by which the sensation is created.

INTRODUCTION

The media constitute) an indisputable power in the current world and they are capable of mobilizing with not much effort of the masses, of manipulating the information, people, etc... However, they have an essential aim, it is the "aim to let know, or disclosure objectives (…) which seeks to produce an object of knowledge, according to a civic logic: inform the citizen" (Chareaudeau 2005: 70). That is provide information onto events which took place or take place in the country or abroad through the linguistic activities such as to tell, to describe and to explain in order to clear up the things to the addressees. Furthermore, they have a second aim which is also important as the first one, but it is especially with the aim of survival in the media world, It is the "aim to make feel, or to drew attention, that tends to produce an object of marketed consumption according to a commercial logic: gain control of the largest number to survive the competition" (Chareaudeau 2005: 70). Get people make attention means "making feel feelings to its public, to mobilize his affect, to activate with him interest and passion for the information which is transmitted him" (Charaudeau 2005: 74). And consequently be best sellers to be able to assure their existence in the media competition.

In the present study, we are going to observe the fulfillment of these two aims in the Turkish daily newspaper *Milliyet.* To observe the realization of the disclosure objectives, we opted for news story as text of information in particular the name of the victim. Besides, the news story is a media which is "from informative point of view, self-sufficient" (Petitjean, 1987 : 84) and a "*claused structure*" (Barthes, 1964 : 189) car "it contains all its knowledge in itself ; no need to know anything about the world in order to consume a fait-divers ; it refers formally to nothing bat itself ; (…) on the level of reading, everything is given within the news story ; its circumstances, its causes, its past, its outcome" (*ibid.*). That is he contains the answers of the famous journalistic questions *who? whose? with who ? what? where? when? why? how?* the consequences, etc. However, there are also news story "whose structure is opened" (Petitjean, 1987 : 84). In this case, although most of the information are present in the text, there are also points not clarified sometimes on the "identity of the victim, the murderers, motives..." (*ibid.*), of ongoing investigations, witnesses to be questioned, etc. And as the unclear aspects clear up, new publications are realized to bring details of external developments.

And to demonstrate the aim of drawing the attention, we concentrated on the designation of the victim in the titles and on the first designation in the text. The reason is that during the description of the sequence of events, we just tell the spatiotemporal frame of the facts, The chronology of the facts and the description of the criminal/aggressor which can become "at the same time object of attraction and object of rejection (discharge)" (Charaudeau 2006) while the victim stays generally in the background of the history, which does not prevent the victim, as suggests a victim named Fanny, to be "the heroin" and "the survivor" of her own story (http://www.acrimed.org/Le-viol-dans-les-medias-un-fait-divers, 07.07.2016), except in the cases of murder. And after the event, the victim has to deal with several problems and troubles: cure her physical wounds and her soul; calm its suffering, overcome prejudices and difficulties …

And the journalist, with his speech of dramatization, invites the public "to share the suffering of others, especially as this one is reported by the victims themselves, or by outside witness but close, and we know that words of the victims and the words of witnesses are indisputable" (Charaudeau 2006). And by this way the journalist address essentially "the affect of the receiver" (Kalinic 2005: 184) and try to affect the feelings of the readers in order to make them feel new feelings.

THE STUDY

For our study, we built our corpus from news story published on the web site of the Turkish national newspaper *Milliyet* from March 1st till March 31st, 2016. During the choice of texts, we paid attention to select texts presenting criminal loads or offences which results in legal proceedings, that's why news story have an open structure. We have excluded from our corpus, texts presenting the accidents of any kind (road, domestic, nature, marriage, death...). So, we formed a rather homogeneous corpus of 42 texts among which 41 appear in the column "*News*" and an article being a part of the section "*Sport*" but handles an aggression with a bladed weapon between supporters of two teams of the city of Adana (Turkey), which is consequently one of themes of news story. The distribution of texts according to their subject was not always easy because certain texts contain two different offences; nevertheless we managed to summarize them in the following way:

- rape : 4 texts ;
- any kind of aggression : 9 texts ;
- sexual harassment : 3 texts ;
- murder: 18 texts, Among which, three concern a single event and five others are committed after the rape;
- kidnapping: 2 texts ;
- sexual assault: 3 texts, Among which, one is followed by suicide;
- subtraction of money: 1 text
- dead overdraft: 2 texts.

Among 42 texts of our corpus, 17 texts present the pursuit of an event which has already taken place, or the end of the legal proceedings, etc. because "without judicial follow-up, a news story goes out of itself and is the object of none followed journalistic" (Cossalter 2006: 49). During the mediatisation of the event there is always a brief reminder on the progress.

During our study, you have adopted at first a descriptive method and then an analytical method to demonstrate the aims of information and "attention drawing" of texts. We also made all the necessary translations from the Turk to French by taking into account the structure of the Turkish language and the desired meaning.

FINDINGS

THE INTRODUCTION OF THE VICTIM IN THE TITLES

We began our study of analysis of the first name of the victim in the title to observe the aim of information because the title plays a decisive role in the choice of a text to be read or not to be read. So, we arrived at a classification of the titles in five subgroups.

The designation by a proper noun

The identification of the victim and her presentation as a real being come true by the use of the proper nouns because it allows "to indicate the particular being, through its civilian identity" (Kalinic 2005: 178). To use proper nouns allows us to speak about people who live. So, among 42 titles of our corpus, we observed the use of the proper nouns in 6 titles but only 4 titles concern the victim. In these 4 uses, indeed, there are only 2 first names. One of the first names, example (2 and 3), is "in abrupt naming" (Perret 2003: 115) and it is used 3 times because it is a part of a series of texts which handles the death of a 10-year-old child.

(1) A sexual assault is the cause of the suicide of the high school student Oya (*Milliyet*, 25.03.2016)

(2) Is Beratcan a victim of secret love? (*Milliyet*, 23.03.2016)

(3) The arrest of the alleged murderer of Beratcan (*Milliyet*, 27.03.2016)

To read the first name of the victim gives the impression to us that we already know the victim and that we have certain relationships. Especially in the example (1), to speak about "the high school student Oya" implies that we know several people having for first name Oya, and by indicating she by "the high school student" separates her from the others. However, from the point of view of information, to have only the first name make difficult the identification of the victim.

The designation by the age of the victim

Describe the victim according to its the age, which is also an important peculiarity of the civil identity of a human being, allows the author of the article not only to give information but also to create the sensation; it affects the "affect" (Charaudeau 2005: 74) of the reader and "capture" its attention. More the age of the victim is low or higher more the pain or the sensation is deeper because these victims are the most vulnerable among all the victims. The expressions encountered are: a nine-ear-old nephew / niece, a 15-year-old girl, a newborn child, an old woman … In our corpus, the number of the title introducing the victim according to the age is 9.

(4) 23 years prison for sexual abuse against his niece (or nephew) of 9 years old! (*Milliyet*, 16.03.2016) (in the title in Turkish it is impossible to identify the gender of the victim; it is possible after reading the text)

(5) Sexual harassment against 15- years– old girl on the tram! (*Milliyet*, 22.03.2016)

(6) Imprisonment for 4 accused of sexual abuse to 46 year–old man (*Milliyet*, 22.03.2016)

We notice minors in the examples (4) and (5). These minors keep their anonymity in the text because they are indicated by their initial of their names. In these examples "their identity is irrelevant" (Perret 2003: 115); what matters it is the fact that they are minor. So, these titles inform about an event by describing the victim according to her age but at the same time perform the function "attention-channeling". As for the example (6), we have 4 aggressors against a single victim of an adulthood whose physical capacity remains lower than that of his aggressors.

The designation by a social identity

Having a social identity is important because "the trait of the social identity is dominant compared with the name of the victim. We notes that the insertion of the victim within an implicitly valued traditional social order" (Kalinic 2005: 178). In our corpus, 23 titles introduce the victim by a social identity that can be grouped according to their nature:

a) The family relationship

A father, a child, a grandfather, a grandson, a mother-in-law (stepmother), a nephew / niece, etc... The names of the relatives are often accompanied with a possessive adjective. Moreover, in the relationship "as the father evokes an image of responsibility, authority and justifiable protection towards his family and towards his children" (Kalinic 2005: 178). All the parents are generally responsible, the one towards the other one. Nevertheless, the examples (7) and (8) show that the victims died because of the violence of their family, which perturbs the traditional social order evoked above.

(7) A grandfather who killed accidentally his grandson has been released (*Milliyet*, 12.03.2016)

(8) (He) killed her sister with whom he had a falling out (*Milliyet*, 09.03.2016). (It is the context which allows identifying that it is about a brother but in the Turkish title the aggressor is indicated by the pronoun of the third person and to the singular)

b) The professional status

A businessman, a professor, a schoolgirl, a retired colonel, etc... Within a working environment, the relationship between the individuals is rules with standards not necessarily written. By examples in a school relationship between teachers, persons in charge, students, etc. are pre-established by regulations and we expect that everybody conforms to it. It is not the case of the example (9), that besides informing, surprise because of the number of the victims in a school. On the other hand the example (10) is a rather informative title of event even if the victim is mentioned there, it remains totally anonymous.

(9) 150 years of prison for the teacher who committed a sexual assault on 12 schoolgirls (*Milliyet*, 16.03.2016)

(10) Assault with a firearm against a businessman in Kadıköy (*Milliyet*, 22.03.2016)

c) The designation by a generic name

In 6 texts of our corpus, we noticed a designation of the victim by a generic name such as *a woman, a man, a person, a type(chap)* … This designation gives the impression that it is irrelevant people while every individual is important within the society. The common point of these three titles, it is because they perform their function to inform the readers of the events who took place: It is successively about a murder, sexual harassments and discovery of body. On the other hand the title (11) is distinguished from two others by the demonstration of the feelings of the journalist especially with the "atrocious" adjective which would doubtless awaken feelings at readers. And as for the example (13), this title is a little bit mysterious and it might arouse the curiosity of the readers.

(11) An atrocious murder of a woman in Erzurum! (*Milliyet*, 28.03.2016)

(12) A person having committed sexual harassments to 7 women during 4 months has been captured (*Milliyet*, 03.03.3016)

(13) Two body found in a vehicle (*Milliyet*, 28.03.2016)

d) The titles without name of the victim

This classification, it is possible to observe two groups of titles; the first category contains the delinquent but bears no indication of the victim while in the second category, there is nothing which concerns the victim as well as the event. It is after the reading of the text that it is possible to understand the information. Nevertheless, in the title (14), it is easy to guess the victim(s) while in the title (15) there is unsatisfactory information but which can awaken the curiosity of the readers.

(14) Teacher's beaten on camera!! (*Milliyet*, 11.03.2016)

(15) The detail in the photo betrayed the assassin (*Milliyet*, 12.03.2016)

As regards the titles below, we do not know which kind of events is in question. Nevertheless, these titles arouse the curiosity of the readers and make feel "the agitation" and the horror.

(16) An event that caused a stir in Istanbul! (*Milliyet*, 11.03.2016)

(17) A blood-curdling news from Hatay (*Milliyet*, 25.03.2016)

Predominantly, the titles analyzed up to here perform their disclosure objectives in diverse degrees either on the victim or on the event and some are capable of grabbing the readers. Furthermore, there are other indications which even without indicating the victim are capable of grabbing the readers excepted the processes which we were able to observe in the previous examples.

DRAWING THE ATTENTION WITH THE TITLES

Punctuation marks

First of all, it is necessary to underline that certain titles include no name of the victim. Nevertheless, it does not prevent from drawing the attention of the readers and from making read the news story. Punctuation is, in certain contexts, mark who indicate the subjectivity, in other words ways to express feelings. So, in the examples (16 and 18), we can observe the use of the exclamation mark which allows to show the feelings and the position of the journalist during the writing of its article. The grabbing effect in the example (18) is strengthened by the emotional subjective adjective "disgusting", which demonstrates "an emotional reaction of the speaking subject" (Kerbrat-Orecchioni 1980: 84) in front of a fact and aim directly at the feelings of aversion of the readers.

(16) An event that caused a stir in Istanbul! (*Milliyet*, 11.03.2016

(18) The most disgusting news of the day! (*Milliyet*, 30.03.2016)

The question mark, according to the context, can express the subjectivity and can touch the affect of the readers. In the example below, it is not about a real question but about the interrogation of the journalist which speculates and tries to arouse the interest of the readers and consequently to make them read the article.

(2) Is Beratcan a victim of secret love? (*Milliyet*, 23.03.2016)

And finally, suspension points in the example (19) which, without mentioning the horrible adjective and the exclamation mark, allow the readers to complete the history in their way, which takes away the readers of the truthfulness of the event.

(19) Terrible claim! A new-born baby ... (*Milliyet*, 29.03.2016)

The subjective words

Besides punctuation marks, these titles contain a name, a verb and two subjective adjectives. Without any complication, the words "*disgusting*" (18), "*atrocious*" (11) and "*bloodcurdling*" (17) are intrinsically subjective words and show the feelings and the judgments of the journalist. It is completely normal that these texts draw the attention of the readers and reflect consequently the feelings of the readers from the reading of texts.

(18) The most disgusting news of the day! (*Milliyet*, 30.03.2016)

(11) An atrocious murder of a woman in Erzurum! (*Milliyet*, 28.03.2016)

(17) A blood-curdling news from Hatay (*Milliyet*, 25.03.2016)

In this last example (20) there is an evaluative non axiological adjective "old woman" but in this title it is the vulnerability of the elderly person that plays a decisive role to draw the attention of the reader.

(20) *An old woman missing for 4 months was found dead in the sewerage* (*Milliyet*, 25.03.2016)

FIRST DESIGNATION OF THE VICTIMS IN THE TEXT

Having analyzed the designation of the victim in the title, we have conducted the same approach to study the first designation of the victims in the text. So, we noticed that in 40 texts of our corpus, the first designation is made in the headings or in the summary. Two texts have no headings and the first designation of the victims is made in the text with proper nouns.

The heading is distinguished from the introduction according to its informative nature because it is written in bold and answers generally five questions *what? who? where? when? how?* and sometimes w*hy*?. So, the introduction gives enough information onto the subject and plays a decisive role for the reader in the choice of texts to be read, after the title of course. In particular in case the title remains insufficient to arouse the interest of the reader, this role is performed by the introduction.

After the first designation of the victim, the resumption is made according to the rules of the textual grammar; either by the repetition of the proper nouns, the initial of names, etc. or by the equivalents capable of establishing reference chains (pronouns, synonyms, etc.). In this step of our analysis, we grouped the first name in 5 groups.

The name by a proper noun: In 13 texts the first designation is made by proper nouns. However, they are not alone; they are often accompanied with a description on the age, the job, the social status, the place of residence or the district, etc. All these traits of description allow to identify easily the victim and to locate it in the space as in the example (21) whereas in the example (22) the proper noun is accompanied by its professional status.

(21) In Esenyurt in Istanbul, Yasemin Altun,twenty-eight-years-old, married for 8 years and a mother of one child, was stabbed and killed by her husband Ömer Altun (*Milliyet*, 06.02.2016)

(22) Used products shop owners Muammer Saraç (59), was found his throat cut in his shop. (*Milliyet*, 07.02.2016)

The name by a trunked proper noun: in our corpus we found a single text in which was used the trucked proper noun. As specified above, the presence of the first designation of the victims gives the impression that we know them and allows to feel the compassion and to share their suffering.

(23) In Kayseri, the 3rd Criminal Court has given 42 years 6 months prison sentence for the two accused who, after inviting under the pretext of offering coffee in the workplace, beat Murat K. at 33 years old and raped his wife Pınar K., at 35 years old after stealing her money and jewelry. (*Milliyet*, 01.03.106)

The designation by the initials of the proper noun: In our corpus we identified 8 news stories in which we could observe the use of the initial of names. In the example (24), the name of the victim loses its importance and what becomes abominable it is the drama and the duration of the act "*a father who raped his own daughter H.E. during six years*". In this sentence, drawing the attention of the reader by the feelings of horror, disgust and suffering, prevails the informative objective of the text.

(24) In the district of Kepez in Antalya, a father who raped his own daughter H.E. for six years has been jailed. (*Milliyet*, 06.03.2016)

The designations by a generic name: 17 news stories present a first name of the victim by a common noun which is repeated in the text either with the initials of the abrupt proper noun, or with the abrupt proper noun or with the truncated name. However three of the news story of the corpus keep the use of the generic name throughout the text and protect the anonymity of the victims. In the example (25), by protecting the anonymity of the aggressor and the victim, the act of violence is stressed. Furthermore, even if in the written text the name of the aggressor and the victim are anonymous, this event had been recorded by a camera, as indicated in the heading. The identification of both actors of the fact is not a problem but for the example (26) we don't have the same opportunity.

(25) A person, who peddles, upraised and threw cruelly down a Syrian child after catching him. These moments were recorded second by second. (*Milliyet*, 10.03.2016)

(26) A grandfather, who had accidentally killed his grandson while playing with his shotgun, was released by the Court. (*Milliyet*, 12.03.2016)

DRAWING THE ATTENTION WITH THE TEXT

In 42 analyzed news story the processes of captation of the reader are few in number. The facts are rather presented in their raw state. And there are few adjectives; those who are used are "none" axiological evaluative adjectives: *An old woman, a girl, the Beratcan boy, a victim*. These expressions can be considered as "stereotyped qualifications" (Kalinic 2005: 178) of the victims. However, by the intensive repetition of the expressions as *the victim, the girl, the Beratcan boy* (examples (1) or (2)) or by explaining the psychological suffering of the girl which had not recovered after a sexual assault (example (1)), the authors of news stories try to awaken the pity, experience emotions and heartfelt sympathy and consequently to share the suffering of the victims either their close friends. In our corpus of 42 texts, we had only three texts in which the captation was made by the suffering, among which two are texts having for titles (1) and (2).

For example, in the text (1) *A sexual assault is the cause of the suicide of the high school student Oya* (*Milliyet*, 25.03.2016), we can observe the abundance of the designation of the victim as well as its moral suffering. You should not forget that 17 years is a vulnerable age. So, as the list exposes it, the name of the victim is accompanied with a preceding or consecutive expression, or with an abrupt repetition:
- *the school girl Oya*
- *the school girl Oya Yaşar (3 times)*
- *17-year-old Oya Yasar*
- *the young girl (3 times)*
- *the high school student Oya of the class 11/A*
- *Oya Yaşar (5 times)*
- *Oya (4 times)*

About the young girl suffering, we observed how she got to suicide "*The high school student committed suicide because of the sexual assault and the psychological problems*". The following examples will expose the stages by which the girl had passed as well as a part of the extent of her suffering: "*The girl had lost her gaiety and her hopes, demoralized*", "*She could not stand anymore the blackmail and the pressure of… "* and "*what she had written after her first suicide attempt…* ".

In the text of title (2) *Is Beratcan a victim of secret love*? (*Milliyet*, 23.03.2016), we observe the abundance of the expressions which underlines the small age of the child and the repetition of its name:
- *the body of Beratcan Karakütük (4 times)*
- *Beratcan Karakütük, 10 years old.*
- *Beratcan Karakütük, student of 4th year of the primary school called Kartal Yıldız İşcimen*
- *the body of the small child (4 times)*
- *the Beratcan boy*
- *the unfortunate Beratcan*
- *Beratcan (3 times)*

CONCLUSION

In our corpus, it is easy to note that news story perform their function to inform by telling the events in their raw state even if the majority were short texts. We have 10 texts, among which three are dedicated to a single event, long enough to explain the events. The fulfillment of the disclosure objective of the victims in the titles and in the caps is realized by the exposure of the personal traits such as "the name, the age, the environment in which he "lives"" (Kazanoğlu 2013: 620) and by their social identity. So, "the taking into consideration of the main character is, doubtless, essential to a good understanding" (*ibid*: 636) of the event, the construction of the speech of dramatization but especially it is the proof of the dramas which take place around us. So, news story perform their "function of alert: inform for example the citizens of certain types of attacks of whom they could be the object; evoke the explosions of gas to lead the users to take precautions, etc." (Deleu 2005: 15) and contribute indirectly "in the creation of collective links" (*ibid.*).

Concerning the aim of drawing the attention of the reader, t is realized by diverse processes: the use of the proper nouns in particular the first names, the name by the social identity, the punctuations, the subjective names … In brief, we find expressions susceptible to hold attention of readers.

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Designing Animations And Simulations For The Teaching Of Complex Information: A Practitioner's Perspective

George HATSIDIMITRIS
University of New South Wales
Australia
georgeh@unsw.edu.au

Jeremy BAILEY
University of New South Wales
Australia
j.bailey@unsw.edu.au

Lucyna KEDZIORA-CHUDCZER
University of New South Wales
Australia
lkedzior@unsw.edu.au

ABSTRACT

The current paper provides a practitioners perspective on the re-designing of an online course that includes the teaching of complex scientific information in the field of astronomy. The subject matter was upgraded from being primarily video-based to a more interactive experience that comprised of text, images, animations, videos and simulations. The project team incorporated research-based multimedia principles to guide the design process of the dynamic visualisations such as animations, videos and simulations. Multimedia assessment tasks were incorporated within an adaptive e-learning platform to facilitate contextual feedback in the form of hints so as to direct the individual's learning pathway. Further to this, a set of videos were created to provide an overview of each topic and, where necessary, included instructional advice pertaining to the acquisition of particularly difficult scientific concepts or optimal learning strategies. The team brought together a combination of theoretical perspectives coupled with previous educational research and a wealth of teaching experience to the design process culminating in an innovative yet informed course layout. Recommendations are forwarded regarding effective strategies for collaborations between academic content-experts and educational multimedia designers.

INTRODUCTION

The advent of a plethora of technologies onto the educational landscape has necessitated a growing trend towards team work wherein design and content experts collaborate towards creating best practice learning experiences. However a productive partnership relies upon a balance between the design considerations implied by a theoretical framework and the intuitive leaning of the subject expert. The applicability of research-based multimedia guidelines need to be considered alongside the creative input of the academic who has an understanding of the complexity of the subject matter and the particular challenges it imposes upon the abilities of the student cohort.

The unfolding of the collaborative design process undertaken during the project suggests that the most effective role for the multimedia designer is to relate only a few key guidelines regarding the layout of specific visualisations, such as minimizing split attention and providing signaling cues, so as not to overwhelm the subject expert who may not be acquainted with cognitive design principles. On the other hand the academic has a crucial part to play in ensuring that there isn't a mismatch between the complexity of the learning task and the ability of the student. To this end the subject expert should be directed to consider principles such as those relating to pre-training and segmentation which both work to minimise the load placed upon the student by the inherent complexity or novelty of the information (Mayer 2005a). Having optimised the layout and presentation aspects of the subject matter, the remaining consideration is to provide instructional advice to the student in terms of illustrating the optimal form of self-directed study.

DESIGNING THE LAYOUT TO OPTIMISE EFFICIENCIES IN LEARNING

Arguably the most common cause of inefficiency in multimedia design occurs when the teaching resource requires the learner to unnecessarily split their attention, either spatially or temporally (Kalyuga, Chandler et al. 1999). If two elements are spatially separated on the screen it may require the learner to go back and forth in a "ping pong" mode of processing as he/she seeks to integrate and encode the information into long term memory. Co-locating the information can result in associations being more explicitly represented and more readily processed. Similarly when elements are unnecessarily visually or aurally separated by time then the student must rely on their ability to recall information that is no longer accessible by their visual or aural channels. If elements from disparate sources need to be integrated then the designer should ask the question as to whether the information could be temporally and/or spatially co-located. Bringing information together in time and space to facilitate integration leads to a much more efficient student learning experience.

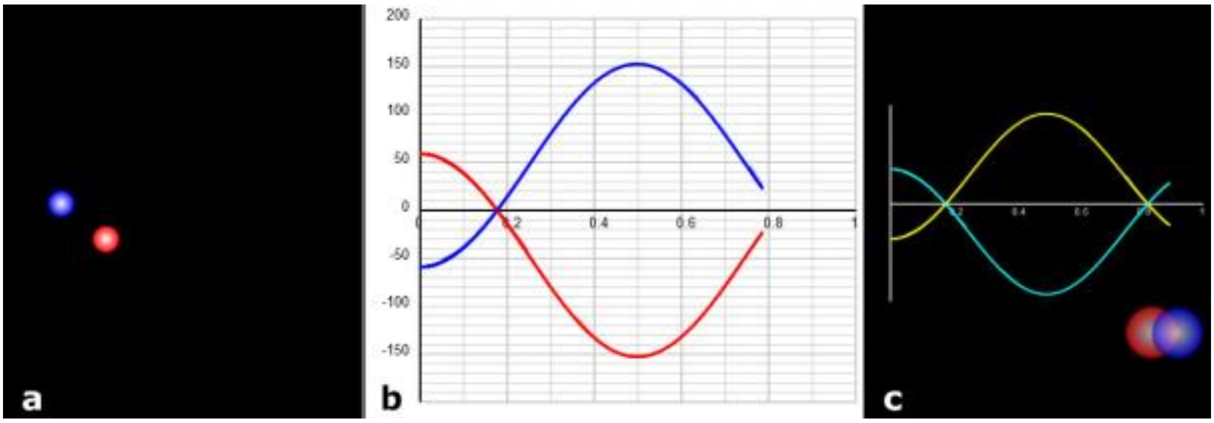

Fig.1 An original simulation design necessitated that the learner go back and forth between images "a" and "b" in a ping-pong fashion so as to establish the relationship between the moving planets and the trajectories on the graph. However by co-locating and aligning the two elements as pictured in image "c" the level of split attention has been minimized and assimilation of the information can more efficiently take place.

Another multimedia principle that can be readily integrated into the design process involves incorporating visual cues that signal to the learner the relevant location for his/her visual attention, particularly useful when a voiceover needs to be synchronized to animations or videos containing spatially disparate visual elements(Moreno 2007). By so doing the learner can efficiently engage both channels i.e. visual and aural, to acquire, integrate and process the necessary information. These signaling cues may be simply arrows, highlighting, fading or any other means of indicating the elements being referred to in the accompanying text or voiceover.

DESIGNING WITH A CONSIDERATION FOR LEVELS OF PRIOR KNOWLEDGE

Students lacking in suitable levels of prior knowledge may easily be overwhelmed with new knowledge that is not only complex but, if embedded in animations, videos or simulations, is also be fleeting. To promote efficiencies of learning under such circumstances it can be beneficial to provide the students with some form of pre-training (Mayer 2005b). This may simply mean a still image that identifies discrete elements that then form part of a dynamic visualization. Having already studied the various elements that play a role in the animation or video, the learner can allocate more of his cognitive resources to analyzing and understanding the behavior and inter-relationship of the different components of the teaching resource. In practice this may simply involve extracting a "critical snapshot" from the video or animation, which is essentially a still that portrays essential information in terms of inter-relationships or behavior, and then discussing the knowledge construct in class before displaying the dynamic visualization in its entirety. As a general guideline the designer can scaffold from a static image to a video or animation and then where necessary to a learner-controlled simulation wherein the student requires a sufficient level of prior knowledge to skillfully manipulate a number of inter-related parameters.

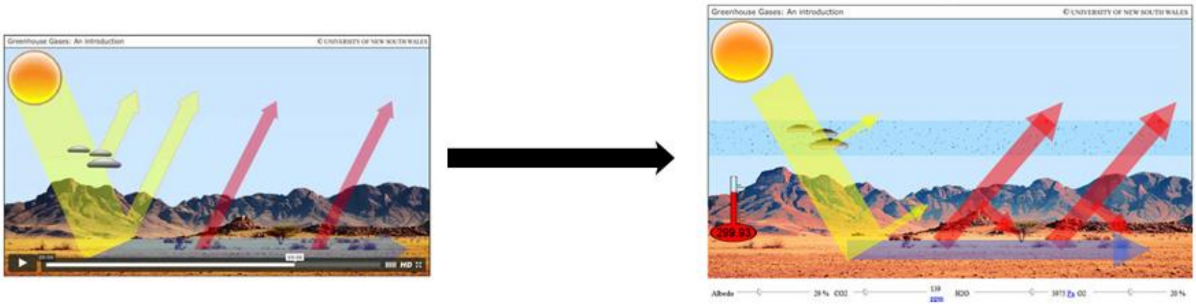

Fig. 2 A video introducing the various interacting elements (shown on left) that form the basis of user-controlled parameters in a simulation (shown on right) can serve as an essential form of pre-training for novices with low levels of prior knowledge.

Another strategy to deal with lowering the inherent load imposed by complex or novel information on the student's limited cognitive resources is to introduce segmentation. By segmenting the a continuously running video or animation into conceptually discrete elements the educator is not only indicating the underlying structure of the learning task but also encouraging the student to pause and process smaller bits of information.

SELF-MANAGEMENT OF COMPLEX OR TRANSIENT INFORMATION

In the first instance, when considering the structure of the layout to optimize efficiencies in learning the designer is organizing the information to align with the limitations of human cognitive architecture. The stumbling block to meaningful learning for students in general is the limited capacity of working memory. In the second instance the educator must look at the particular nature and complexity of the subject matter at hand and consider the load it imposes on a specific group of learners. In so doing the educator can organize the presentation of the information in terms of pre-training and segmentation so that the student's cognitive capacity to assimilate information is not overwhelmed. And now, thirdly, one must allow for the fact that there will be individual differences amongst the student cohort and also that there will be optimal or recommended strategies by which the learner can guide their own learning processes. To this end it may be beneficial to provide a "working example" of how the learner may best engage with the teaching resources and assessment tasks (Hatsidimitris and Kalyuga 2013). In the current project this consideration took the form of a general overview video wherein the academic exemplified some study skills, in particular the need to split the screen between the lectures providing the background material and the assessment tasks. In so doing the student minimizes any split attention effect that would have existed between the two disparate sources of information. Another strategy employed was to provide a video prior to each topic that not only identified the main theme(s) of the lesson but where necessary pointed to any particularly difficult concept or hidden inter-relationship between concepts. In so doing they were signaling to the student where any learning difficulty may lie and by default where also providing a certain degree of pre-training. The student could then approach the lesson material and assessment tasks accordingly.

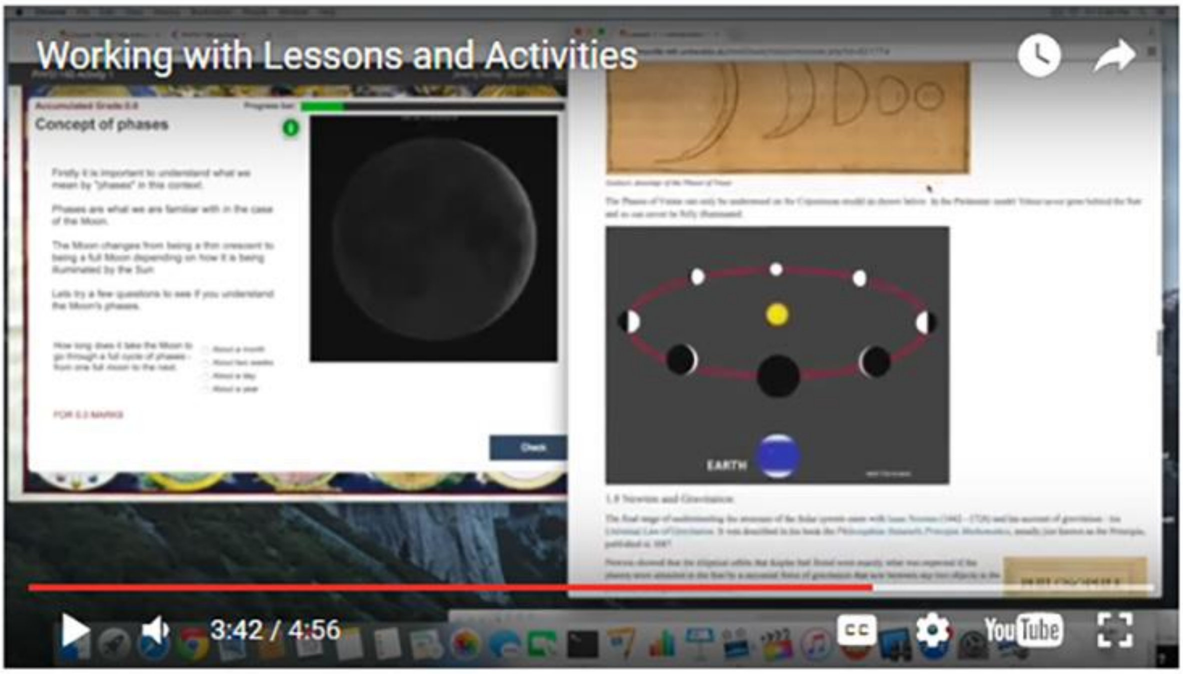

Fig. 3 In demonstrating the intended method by which to engage with the assessment tasks (shown on left) i.e. to concurrently open the lesson material (shown on right), the content expert is providing instructional advice to ensure the student employs a learning strategy that is optimally attuned to the provision of available teaching resources.

CONCLUSIONS

The teaching of complex information, especially where difficult counter-intuitive concepts are involved, will rely on a partnership between the designer, content expert and the learner. The designer can draw on a wealth of research based findings in the field of multimedia learning to act as a guide in the decisions related to the layout of the information. The content expert is particularly equipped in understanding the relationship between the subject matter and the skills and prior knowledge of the student cohort and is thus ideally suited to adjusting the presentation of information in terms of parameters such as pre-training and segmentation. The "baton" is then passed on in scenarios where the learner must interact with complex information in a "self-management" mode as each learner has a different spectrum of prior knowledge constructs and learning skills. This inclusion of the student's role might best be initiated by the academic illustrating through a video or animations what would be considered an optimal strategy for acquiring the requisite knowledge. For all these factors to come together in any given learning design the collaborators must be mindful of the interplay of theoretically driven research outcomes and the experience and domain-specific expertise of the academic. Once all the layout and presentation considerations have been put in place it is then best to make explicit to the student the intent of the underlying design in terms of improving efficiencies in learning. By so doing, and giving due regard to the broader learning environment in which the resources are embedded, one has arguably provided a best-practice multimedia learning environment that draws upon the skills and input of the collaborating practitioners.

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Determination Of Geometry Self-Sufficiency Of 5th, 6th, 7th And 8th Grade Students Having Impaired Hearing

Kenan ÇAĞLIYAN
Institute of Educational Sciences
Gazi University
kenan1453571@gmail.com

Gülay KORU YÜCEKAYA
Division of Elementary Education, Department of Mathematics
Gazi University
gkoru@gazi.edu.tr

Ayşe ALTIN
Department of Mathematics
Hacettepe University
ayse@hacettepe.edu.tr

ABSTRACT

Geometry, a significant field of Mathematics, contributes a lot to the lives of individuals in intellectual development, perception of environment, problem-solving, etc. Geometry learning is also important for hearing impaired students. Former NTCM (National Council of Teachers of Mathematics) president Shirley M. Frye says; *'All students can learn, but neither in the same way, nor on the same day'* (Van De Walle, A. J., Karp, S. K. & Bay-Williams, M. J., 2013, s.93). In Elementary Mathematics Program of Ministry of National Education (2013), the affective skills that should be build in students are their self-confidence in mathematics and the belief in the fact that they can learn it. The perception of sufficiency the individuals feel inside for the fulfillment of learning refers to self-sufficiency concept, one of the substantial concepts of social learning theory. In this research, it is aimed for the determination of Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students having impaired hearing. The research was carried out in the second term of 2015-2016 school year with 126 students who attend Secondary Schools for the Deaf in Ankara, Kırıkkale, Niğde and Konya provinces. Geometry Self-Sufficiency Scale and forms including general information were applied to students. The data obtained in the research were examined through using Independent Samples T-Test and Anova Variance Analysis. In the case of detecting variance in Anova Variance Analysis, Scheffe Test was carried out to specify the groups with variances. In the comparisons, level of significance was tested at 0,05. Significant differences were obtained in students' positive self-sufficiency notions, beliefs for the usage of geometry knowledge, familiarity level of sign language and mathematics grade in the first term. It is anticipated that the research will contribute to the educational activities of hearing impaired students.

Keywords: Deaf or hearing impaired students, self-sufficiency, geometry

INTRODUCTION

Mathematics stimulates human intelligence to reasoning, forming hypothesis, making logical inferences. Mathematics plays a fundamental part in human's enhancing his thought system, explanation of universe and regulation of his life. What is more important is that mathematics, with its gains to humanity, is the power which produces the technology and knowledge we own (Baki, 2014, s.12). Geometry is an important field of study for mathematics. Geometry, by means of its scope and understanding, enables individuals to have some acquirements on the patterns in their environment, problem-solving, branches of mathematics and on other disciplines. In general terms, learning geometry subsidizes the evolvement of basic skills and the ability of scientific thinking in students (Tutak and Birgin cited from Kılıç, 2008).

Affective factors clarify a considerable part -as much as one fourth- of individual differences in learning (Yurt and Korkmaz cited from Bloom, 2015). Advancing technology and science diversify expectancy from education and attitudes towards education. Students' opinions on math class influence their mathematical achievements

(Bulut, Ekici, İşeri and Helvacı, 2002). An individual's judgements which the individual attains through testing the results of his behaviors and which are affected by his opinion, observations and previous experiences constitute his self-judgement capacity. This capacity is expressed with self-sufficiency concept. Self-sufficiency is described as '*individual's own judgement of his capacity of organizing and successfully implementing the required activities so as to display a specific performance'* (Eyyam, Doğruer and Meneviş, 2012, s.93).For self-sufficiency, individual's self-confidence phrase, depending on time and individual's past experience, was put forward by Cantürk-Günhan ve Başer (2007).

Students' physiological, social and cultural backgrounds constitute a framework for their educational capacity and limits of utilizing education (Atay, 1999, s.13). Özbay (2004, s.157). Individual's associating weaknesses in his self-sufficiency notions with his personal inadequacy only complicates the situations he is to encounter. It is of a great importance to be informed about the progress of students. Compelling students to understand information above their mental capacity or creating a dull educational process through repeating the information below their cognitive levels is an expression of not recognizing students and being unfamiliar with their developments (Selçuk, 2014, s.13).

Bilgin and Kartal state that utilizing educational services provided for students to the utmost can be ensured by students' recognition of themselves and their own personal qualifications (2002). The notions created by an individual in reference to self-sufficiency affect the individual's behaviors in the following three aspects; *(a) selection of the activities to be fulfilled, (b) performance quality of the individual, (c) resolution in difficult duties.* Besides this, they strengthen the individual in his struggle against failure (Özbay, 2004, s.157). Hearing impaired students who believe in themselves, express themselves well think positively towards lessons and increase their mathematical achievements (Tarakçı and Kaplan, 2006). Geometry Self-Sufficiency of students who proceed their educational life with impaired hearing is of a great importance in terms of understanding them, and determining educational activities to be performed. (Özbay, 2004, s.231) For most of our children, school is the chief place where sense of achievement is enjoyed. It is possible for a student who may constantly think himself unsuccessful to form an identity of failure. Formation of such an identity in hearing impaired students makes the life and educational process more difficult for themselves. It is vital that teachers preparing and implementing plans and schedules for these students have adequate knowledge about their Geometry Self-Sufficiency in respect to their success in lessons, their opinion on the lessons, in a broader sense, their educational process. When it is considered that researches on hearing impaired students are limited, our accumulation of knowledge on these students is narrow-scoped. The purpose of this research is to determine Geometry Self-Sufficiency of hearing impaired students and examine it in terms of different variables. Within the context of this aim, answers are sought for the following questions.

Is there a significant difference in Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students depending on;

a) their gender
b) their grade
c) availability of another hearing impaired person in their family
d) their utilization of assistive technologies for the deaf
e) their receiving subsidized education
f) their familiarity level of sign language
g) their elementary school
h) their first term Mathematics marks?

METHOD

This study is a quantitative research which examines Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students with regard to their auditory conditions. As it is aimed in the research to determine Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students according to their auditory conditions, it is a descriptive research in survey model. Descriptive researches are the studies that depict a specified situation in the best way possible (Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2014). The purpose of survey model is accumulation of data with the aim of detecting specific qualities in a certain group (Büyüköztürk vd., 2014).

Research Sample and Population

The aim this research is to reveal Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students having impaired hearing. The population of the research will be composed of students who attend Secondary Schools for the Deaf within the context of Ministry of National Education in Kırıkkale, Ankara, Konya and Niğde provinces in Central Anatolian Region. Karasar states that population of the research is the accessible population and that researcher may deliver an opinion on this population either by directly observing the population itself or observing on a group selected from this population (2013, s.110). In this research, as it is possible to reach the whole population, there will not be a sample selection by any means.

Measuring Instruments

1. Developed by Cantürk-Günhan and Başer so as to specify 6th grade elementary students' self-sufficiency notions towards geometry, Geometry Self-Sufficiency Scale will be used. Geometry Self-Sufficiency Scale is composed of following three sub-dimensions as positive self-sufficiency notions, usage of geometry knowledge and negative self-sufficiency notions. In consequence of the preparatory work carried out among elementary students having impaired hearing, two questions have been extracted from Geometry Self-Sufficiency Scale. In the scale consisting of 23 questions in total, in reply to self-sufficiency questions related to geometry, there are option formats such as 'Never', 'Rarely', 'Sometimes', 'Generally', 'Always'. Students will be asked to tick the best alternatives that comply with their conditions. Sub-dimensions, item samples belonging to dimensions and total number of items in dimensions are given below.

Sub-dimensions	Item Samples	Number of Items
Positive Self-sufficiency Notions	I can visualize geometric shapes in my mind.	12
Usage of Geometry Knowledge	I can create a new geometric shape using existing geometric shapes.	6
Negative Self-sufficiency Notions	I think I am not as good as my friends in Geometry.	5

Analysis and Interpretation of Data

Independent Samples T-Test, with independent variable composed of two groups, was utilized to specify the differences in students' Geometry Self-Sufficiency. $P < 0.05$ value was predicated on for the recognition of a significant difference in the variables. To specify Geometry Self-Sufficiency differences in independent variables composed of three or more groups, One-Way Anova Analysis of Variance was used. $P < 0.05$ value was predicated on for the recognition of a significant difference in the variables. In the case of detecting a significant difference, Scheffe Comparison Test was utilized to specify the groups with differences. The requisite value of significance is $p < 0.05$.

FINDINGS AND INTERPRETATION

Table 1: Findings concerning the question 'Is there any other person having impaired hearing except for you?'

	Is there any other person having impaired hearing except for you?	N	Mean	Std. Deviation	t	df	p
Positive Self-sufficiency Notions	Yes	60	2,7833	,83209	-,717	123,502	,474
	No	66	2,8990	,97638			
Usage of Geometry Knowledge	Yes	60	2,7417	,92995	-,412	124	,681
	No	66	2,8131	1,00873			
Negative Self-sufficiency Notions	Yes	60	2,9467	,85954	-,845	124	,400
	No	66	3,0697	,77459			

According to the table, there is no significant difference in students' Geometry Self-Sufficiency depending on the availability of another person in their family with impaired hearing.

Table 2: Findings concerning the question 'What is your gender?'

	What is your gender?	N	Mean	Std. Deviation	t	df	p
Positive Self-sufficiency Notions	Female	64	2,7917	,85540	-,654	124	,514
	Male	62	2,8978	,96482			
Usage of Geometry Knowledge	Female	64	2,7682	,92325	-,127	124	,899
	Male	62	2,7903	1,02115			
Negative Self-sufficiency Notions	Female	64	3,1000	,83495	1,246	124	,215
	Male	62	2,9194	,79048			

According to the table, there is no significant difference in students' Geometry Self-Sufficiency depending on their gender.

Table 3: Findings concerning the question 'Have you received subsidized education?'

	Have you received subsidized education?	N	Mean	Std. Deviation	t	df	p
Positive Self-sufficiency Notions	Yes	63	2,8995	,92350	,685	124	,495
	No	63	2,7884	,89776			
Usage of Geometry Knowledge	Yes	63	2,8360	,97986	,658	124	,512
	No	63	2,7222	,96210			
Negative Self-sufficiency Notions	Yes	63	2,9302	,80895	-1,116	124	,267
	No	63	3,0921	,81978			

According to the table, there is no significant difference in students' Geometry Self-Sufficiency depending on whether or not they have received subsidized education.

Table 4: Findings concerning the question 'What kind of a school was your elementary school?'

	What kind of a school was your elementary school?	N	Mean	Std. Deviation	t	df	p
Positive Self-sufficiency Notions	Normal Elementary School	15	2,9167	,57304	,477	25,780	,637
	Elementary School for the Deaf	111	2,8341	,94652			
Usage of Geometry Knowledge	Normal Elementary School	15	2,8444	,64999	,384	24,209	,704
	Elementary School for the Deaf	111	2,7703	1,00606			
Negative Self-sufficiency Notions	Normal Elementary School	15	2,9867	,53166	-,174	24,905	,863
	Elementary School for the Deaf	111	3,0144	,84798			

According to the table, there is no significant difference in students' Geometry Self-Sufficiency depending on the elementary school they attended.

Table 5: Variance Analysis for the comparison of Geometry Self-Sufficiency of students attending different grades.

Descriptive Statistics

		N	Mean	Std. Deviation
Positive Self-sufficiency Notions	5th grade	24	2,7465	,83206
	6th grade	25	3,0233	,90220
	7th grade	36	2,5509	,85409
	8th grade	41	3,0488	,95397
	Total	126	2,8439	,90878
Usage of Geometry Knowledge	5th grade	24	2,7778	,98744
	6th grade	25	2,8867	,90615
	7th grade	36	2,4861	,94060
	8th grade	41	2,9715	,99156
	Total	126	2,7791	,96881
Negative Self-sufficiency Notions	5th grade	24	3,0417	,86070
	6th grade	25	2,8640	,75437
	7th grade	36	3,1222	,78744
	8th grade	41	2,9854	,86069
	Total	126	3,0111	,81518

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Positive Self-sufficiency Notions	Between Groups	5,843	3	1,948	2,440	,068
	Within Groups	97,392	122	,798		
	Total	103,236	125			
Usage of Geometry Knowledge	Between Groups	4,898	3	1,633	1,772	,156
	Within Groups	112,426	122	,922		
	Total	117,324	125			
Negative Self-sufficiency Notions	Between Groups	1,035	3	,345	,513	,674
	Within Groups	82,029	122	,672		
	Total	83,064	125			

In consequence of variance analysis carried out for the comparison of Geometry Self-Sufficiency of the students attending different grades, no significant difference was encountered in Geometry Self-Sufficiency of students in different grades.

Table 6: Variance Analysis for the comparison of Geometry Self-Sufficiency of students utilizing different assistive technologies for the deaf.

Descriptive Statistics

		N	Mean	Std. Deviation
Positive Self-sufficiency Notions	Koklear Implant	20	2,6708	,91226
	Hearing aid	69	3,0217	,88937
	FM Systems	16	2,4583	,63683
	None	21	2,7183	1,05029
	Total	126	2,8439	,90878
Usage of Geometry Knowledge	Koklear Implant	20	2,6750	1,03516
	Hearing aid	69	2,9251	,90547
	FM Systems	16	2,2917	,73912
	None	21	2,7698	1,17317
	Total	126	2,7791	,96881
Negative Self-sufficiency Notions	Koklear Implant	20	3,3700	,75749
	Hearing aid	69	2,8841	,77945
	FM Systems	16	2,9625	,93870
	None	21	3,1238	,82578
	Total	126	3,0111	,81518

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Positive Self-sufficiency Notions	Between Groups	5,491	3	1,830	2,285	,082
	Within Groups	97,744	122	,801		
	Total	103,236	125			
Usage of Geometry Knowledge	Between Groups	5,491	3	1,830	1,997	,118
	Within Groups	111,833	122	,917		
	Total	117,324	125			
Negative Self-sufficiency Notions	Between Groups	3,994	3	1,331	2,054	,110
	Within Groups	79,070	122	,648		
	Total	83,064	125			

In consequence of variance analysis carried out for the comparison of Geometry Self-Sufficiency of the students utilizing different assistive technologies for the deaf, no significant difference was encountered in Geometry Self-Sufficiency of students utilizing different assistive technologies for the deaf.

Table 7: Variance Analysis for the comparison of Geometry Self-Sufficiency of students familiar with sign language at different levels.

Descriptive Statistics

		N	Mean	Std. Deviation
Positive Self-sufficiency Notions	None	6	2,6389	1,38310
	Elementary	28	2,4792	,85515
	Intermediate	21	2,6865	,89089
	Upper-Intermediate	41	2,8557	,85066
	Advanced	30	3,3194	,78390
	Total	126	2,8439	,90878
Usage of Geometry Knowledge	None	6	2,5000	1,55278
	Elementary	28	2,4881	,94491
	Intermediate	21	2,5873	,89848
	Upper-Intermediate	41	2,7317	,90820
	Advanced	30	3,3056	,83055
	Total	126	2,7791	,96881
Negative Self-sufficiency Notions	None	6	3,6333	,96678
	Elementary	28	2,9429	,85524
	Intermediate	21	3,1143	,64675
	Upper-Intermediate	41	2,9707	,81678
	Advanced	30	2,9333	,84418
	Total	126	3,0111	,81518

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Positive Self-sufficiency Notions	Between Groups	11,287	4	2,822	3,713	,007
	Within Groups	91,949	121	,760		
	Total	103,236	125			
Usage of Geometry Knowledge	Between Groups	12,018	4	3,004	3,452	,010
	Within Groups	105,306	121	,870		
	Total	117,324	125			
Negative Self-sufficiency Notions	Between Groups	2,925	4	,731	1,104	,358
	Within Groups	80,139	121	,662		
	Total	83,064	125			

In consequence of variance analysis carried out for the comparison of Geometry Self-Sufficiency of the students familiar with sign language at different levels, it was clearly seen that positive self-sufficiency notions towards geometry are higher in students who claim that they know sign language very well than those who know it a little. Once again, as a result of the analysis, it was concluded that the notions related to the usage of geometry knowledge are higher in students who claim that they know sign language very well than those who know it a little.

Table 8: Variance Analysis for the comparison of Geometry Self-Sufficiency of students in relation to their first term Mathematics marks.

Descriptive Statistics

		N	Mean	Std. Deviation
Positive Self-sufficiency Notions	45-54	15	1,9722	,78089
	55-69	21	2,5238	,76064
	70-84	43	2,8023	,75593
	85-100	47	3,3032	,87959
	Total	126	2,8439	,90878
Usage of Geometry Knowledge	45-54	15	1,8556	,82343
	55-69	21	2,5635	,82744
	70-84	43	2,7791	,89732
	85-100	47	3,1702	,92502
	Total	126	2,7791	,96881
Negative Self-sufficiency Notions	45-54	15	2,9067	,89400
	55-69	21	2,8952	,88004
	70-84	43	3,2233	,75871
	85-100	47	2,9021	,79768
	Total	126	3,0111	,81518

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Positive Self-sufficiency Notions	Between Groups	23,538	3	7,846	12,010	,000
	Within Groups	79,698	122	,653		
	Total	103,236	125			
Usage of Geometry Knowledge	Between Groups	20,960	3	6,987	8,845	,000
	Within Groups	96,364	122	,790		
	Total	117,324	125			
Negative Self-sufficiency Notions	Between Groups	2,939	3	,980	1,492	,220
	Within Groups	80,125	122	,657		
	Total	83,064	125			

A significant difference was encountered in the students' first term Mathematics marks with regard to students' notions for the usage of geometry knowledge and positive self-sufficiency notions.

Conclusion and Discussion

Depending on the availability of another hearing impaired person in the family, no significant difference was encountered in Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students having impaired hearing. Depending on the gender of the students, no significant difference was encountered in the sub-dimensions of 'Positive Self-Sufficiency Notions', 'Usage of Geometry Knowledge' and 'Negative Self-Sufficiency Notions'. Depending on the gender, unavailability of a significant difference in 'Positive Self-Sufficiency Notions' and 'Usage of Geometry Knowledge' is a consequence that bear resemblance to the results discovered by (Yenilmez and Korkmaz, 2013; Gülten-Çağırgan and Soytürk, 2013; Özkan , 2010).

There is no significant difference in Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students having impaired hearing depending on whether or not they have received subsidized education. It is also concluded in the research that there is no significant difference in Geometry Self-Sufficiency of 5th, 6th, 7th and 8th grade students having impaired hearing depending on whether they graduated from normal elementary schools or elementary schools for the deaf.

Following the comparison of Geometry Self-Sufficiency of students in different grades, no significant difference was encountered in 'Positive Self-Sufficiency Notions', 'Usage of Geometry Knowledge' and 'Negative Self-

Sufficiency Notions' of students in different grades. It corresponds to the results of (Yenilmez and Korkmaz, 2013) that there is no significant difference in 'Positive Self-Sufficiency Notions' and 'Negative Self-Sufficiency Notions' depending on the grades of students.

There is no significant difference in Geometry Self-Sufficiency of students depending on their utilization of various assistive technologies for the deaf. When compared with children using hearing aid, children using Asker-Árnason, L., Wass, M., Gustafsson, F., & Sahlén, B. (2015) Koklear implants have a slighter difference in reading comprehension tests than the children with normal hearing. By means of a similar research, it may be detected whether there is a significant difference in the success of Geometry lesson.

When we look at the familiarity level of sign language, self-sufficiency notions of students who claim to know sign language very well are higher in the sub-dimensions of 'Positive Self-Sufficiency Notions' and 'Usage of Geometry Knowledge' than those who state to know sign language a little.

When the first term Mathematics grades of students are taken into account, it is concluded that self-sufficiency notions of students who have good Mathematics grades are higher in the sub-dimensions of 'Positive Self-Sufficiency Notions' and 'Usage of Geometry Knowledge' than those who have low grades in Mathematics. Aslan has found that there is a significant relation between self-sufficiency notions of students and their performance progress, which he expressed as positive results the students presented in the learning environment (2012). The first term Mathematics grades we viewed in the research are outcome of the whole performance displayed by the students throughout the term. The findings we discovered in the research correspond to those expressed by (Arslan, 2012; Gülten-Çağırgan and Soytürk, 2013).

Recommendations

1. Self-sufficiency notions of students who claim to know sign language very well are higher than those who state to know sign language a little. Considering that students communicate with each other mostly through using sign language, students can be given trainings on sign language. Once again, it can be recommended that teachers who initially interact with students in learning environment know sign language in order to maintain a healthy communication and support students' learning.
2. Students' self-sufficiency notions can be strengthened through organizing the instruction plans and programs prepared for hearing impaired students in such a way that students can feel the sense of achievement.
3. Researchers can study on the relation between teachers' familiarity of sign language and self-sufficiency of students.

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Developing A Scale To Evaluate Teaching And Learning Situations In Secondary School Curricula

Assoc. Prof. Dr. İjlal OCAK
Afyon Kocatepe University, Faculty of Education, Turkey
iocak@aku.edu.tr

Lecturer Serkan BOYRAZ
Afyon Kocatepe University, Faculty of Education, Turkey
serkan.boyraz@gmail.com

ABSTRACT

As the needs of the individuals have gone under big changes parallel to the continuous and extensive improvements in information technologies, curricula have also been changed in order to be able to adapt and respond them. In the new curricula, terms such as student-centeredness and flexibility which are difficult to define and apply are emphasized in the teaching and learning situations which are directly about the students. More research is needed to reveal the effectiveness, weak and strong parts of the new curricula and teachers are one of and probably the most important source of information in this term as they are who put the new curricula in practice and see the firsthand results. Following it, this study aims to develop a scale to evaluate teaching and learning situations of curricula put in practice in 2013 in secondary schools (grade 9-12) by teachers and reveal their strength and weakness, deficiencies and halting points. First, scale items will be written depending on literature review findings and results of interviews with field teachers. Later, prior study of likert type items will be carried out with 10-15 teachers and required corrections will be done on items. Then, pilot stud will be done with the required number of sample depending on item number. Data acquired from pilot study will be analyzed for reliability and validity and factor analysis will be done. The scale for evaluating the teaching and learning situations in secondary school curricula will be ready to apply after required analysis.

Keywords: secondary school curricula, curriculum evaluation, teaching and learning situation, scale development

INTRODUCTION

Notwithstanding the influence of factors such as socio-economic status, home, and community, student learning is strongly influenced by what and how teachers teach (Timperley, 2008). Maintaining a positive and organized classroom setting free from disruption is critical to providing an instructional environment conducive to teaching and learning (Skiba, Ormiston, Martinez, & Cummings, 2016). According to Department of Education and Early Childhood Development (2016) a student-centered approach which actively engages the young person in the learning process is critical if skills which result in healthy behaviors are to be fostered and developed. Some of the learning strategies that could be incorporated in a comprehensive approach include self-directed learning, co-operative learning, role playing, behavioral rehearsal, peer education and parent involvement. Consideration should be given to allowing students to plan some learning experiences. They could be provided with opportunities to identify topics or areas for further study, contribute information relevant to an issue for study and/or make suggestions for follow-up activities.

Prawat (1992) stated that the education system in the USA was in the midst of a major paradigm shift which was argued as "a revolution" by Goldman (1989) and according to him it represents "one of those rare periods in history when large numbers of people are receptive to major changes in education." This inference is supported by results from Gallup poll in education sponsored by Phi Delta Kappa. For the first time in its 20-year history then, the poll showed the public favored drastic overhaul of the educational system-including the adoption of a national curriculum and national educational standards (Elan and Gallup 1989). This "revolution" was more than two decades ago when the technology wasn't as effective as today. The 21st century is about the management of all the knowledge and information, we have generated and the value addition we bring to it. But we should continue with lifelong learning (Sharma, 2016). In the light of all these 21st century educational theories, all the curricula in all classes have been continuously changing in Turkey since 2005 when a reform movement to follow constructivism started. These changes aim to create a teaching and learning situation in class that results with more active students, individualized education and supporting students' holistic development. It will help students to have a deep understanding if students experience the followings in the teaching and learning process (MEB, 2011): explore, wonder and question, do experiments and observations, reach the concepts, relate new information with the old, practice and solve problems in different ways.

Problem

Although it is common to evaluate curricula through teacher opinions, these studies are generally carried out through qualitative data coming from interviews and this results in difficulty of comparing studies of curriculum evaluation. Focusing on the teaching and learning situations in the curricula, the question is: "How can we collect teacher opinions on curricula in a more comparable way?"

Aim

The aim of the study is to develop a "Teaching and learning situations evaluation scale" which will give the opportunity to make direct comparisons among similar studies of curriculum evaluation and let researchers who aim to evaluate teaching and learning situations use it in all courses.

METHOD

This study was carried out to do reliability and validity analyses of the teaching and learning situations evaluation scale, so the study employs survey method which aims to gather people's perceptions, opinions, attitudes, and beliefs about a current issue in education (Lodico, Spaulding, & Voegtle, 2010).

Sample

The universe is secondary teachers of all courses who work in Afyon. After required permission was given by the Provincial Directorate of National Education, the teachers were asked to fill the scale which was formed online and distributed through a link or handed personally by the teachers. It was seen that 380 teachers filled the scale but only 357 were appropriate for data analyses.

Data Analysis

Exploratory factor analysis, item-total correlation and 27% bottom-top group comparisons were made for validity and Cronbach alpha value was calculated for reliability.

Data Collection Tool

In the process of scale development, the national and international literature (for example, Çakmak and Gürbüz, 2014; Öksüz, 2015; Ocak and Ataseven, 2015; Hung, Liu, Lin, & Lee, 2016; Baker, Brown, Wilcox, Overstreet, & Arora, 2016) was reviewed and 57 items were written for the pilot study. The items were controlled for language and structure validity by the experts and then piloted on 20 teachers. The final form of the scale was then formed through the feedback from experts and the pilot study.

FINDINGS

Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) and *Bartlett's test* which is a test that examines whether the population correlation matrix resembles an identity matrix values were examined before starting the exploratory factor analyses in order to check the appropriateness of the data to factor analysis (Field, 2009).

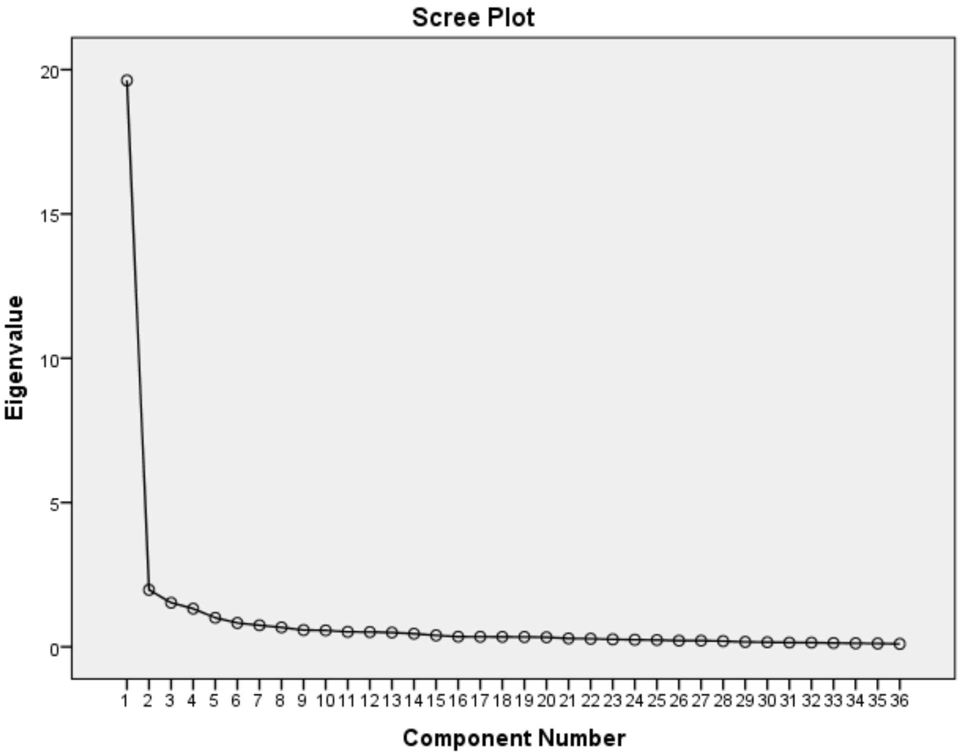

Figure-1 Scree Plot

KMO value is .970 and Barlett's test is .000. As the results indicate that data set is appropriate for factor analysis because KMO is higher than 0.50 and .970 is superb and Barlett's test is significant ($p<.05$), factor analysis was carried out. According to the results, the scale consists of a single factor (Figure-1). It was seen that 21 items had factor loadings lower than .40 and they were excluded from further analyses.

Table-1 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19.627	54.519	54.519	19.627	54.519	54.519
2	1.976	5.488	60.007			
3	1.530	4.249	64.256			
4	1.322	3.672	67.928			
5	1.008	2.800	70.728			
6	.827	2.297	73.025			
7	.748	2.078	75.103			
8	.672	1.867	76.969			
9	.580	1.612	78.582			
10	.569	1.581	80.163			
11	.520	1.443	81.606			
12	.514	1.427	83.033			
13	.495	1.374	84.407			
14	.453	1.258	85.665			
15	.396	1.101	86.766			
16	.352	.977	87.743			
17	.349	.969	88.712			
18	.346	.962	89.674			
19	.342	.951	90.625			
20	.333	.926	91.551			
21	.292	.811	92.362			
22	.280	.777	93.139			
23	.260	.723	93.862			
24	.246	.682	94.544			
25	.237	.658	95.202			
26	.217	.602	95.804			
27	.215	.596	96.400			
28	.198	.550	96.950			
29	.172	.477	97.427			
30	.158	.440	97.867			
31	.148	.411	98.278			
32	.146	.405	98.683			
33	.134	.371	99.054			
34	.124	.344	99.399			
35	.115	.320	99.718			
36	.101	.282	100.000			

Extraction Method: Principal Component Analysis.

After 21 items were excluded from further analysis, the remaining 36 items explain 54.519% of the total variance.

Another way of examining the validity in item analysis is to compare 27% bottom-top groups' means (Can, 2014). Accordingly, the highest and lowest scores of 96 participants were compared through independent samples t-test.

Table-2 Bottom-top Group Comparisons

Items	t	Sig. (2-tailed)
1- Sample activities are student-centered.	10.059	.000
2- Sample activities are teacher-centered.	.058	.954
3- Activities are applicable.	10.414	.000
4- Teaching and learning experiences are consistent with the objectives.	12.499	.000
5- Teaching and learning approaches are appropriate to the field of study.	15.222	.000
6- Resulting activities such as discussion, trip, observation, experiment, summarizing, production in the end of learning experiences are directive for the teacher.	17.152	.000
7- Activities support learning by doing and experiencing.	18.187	.000
8- Activities are organized by keeping student interests, needs and demands in mind.	19.860	.000
9- Teaching and learning process develops critical thinking ability.	25.244	.000
10- Teaching and learning process develops creative thinking ability.	22.162	.000
11- Teaching and learning process develops research, questioning and deciding abilities.	24.813	.000
12- Teaching and learning process develops problem solving ability.	24.193	.000
13- Teaching and learning process develops communication ability.	23.444	.000
14- Teaching and learning process develops correct, effective and good use of Turkish ability.	22.892	.000
15- Teaching and learning process develops entrepreneurship ability.	20.210	.000
16- Teaching and learning process develops information technology using ability.	22.793	.000
17- Teaching and learning process supports 5E instructional model.	16.933	.000
18- Teaching and learning process directs towards discussion methods like debate, panel, open forum etc.	18.391	.000
19- Teaching and learning activities direct towards group work.	20.904	.000
20- Teaching and learning process directs towards teacher-centered methods such as direct method, question and answer, etc.	4.674	.000
21- Teaching and learning activities direct towards group work.	19.976	.000
22- Methods and techniques are consistent with objectives.	21.687	.000
23- Methods and techniques are consistent with content.	22.316	.000
24- Activities can be done both in and out of the school.	19.981	.000
25- The teacher is a guide who leads the students and improves him/herself in the process.	16.249	.000
26- Curriculum offers materials to be used in the activities.	19.001	.000
27. The materials used in teaching and learning process can easily be reached in all regions.	17.239	.000
28. Sample activities are appropriate to students' level.	18.654	.000
29. A learning experience is in interaction with the others.	24.019	.000
30. Activities can be done both in and out of the school.	18.988	.000
31. Learning experiences support the upper class attainments.	17.568	.000
32. There are examples of how to use EBA in the teaching and learning process.	9.535	.000
33. The teaching and learning process directs teachers to use digital materials.	9.218	.000
34. The teaching and learning process directs students to use digital materials.	10.276	.000
35. A classroom seating plan is provided appropriate to the activities in the curriculum.	13.308	.000
36. There are explanations in the curriculum about classroom management.	14.602	.000

According to the results shown in Table-2, there is a significant difference between the bottom and top groups in all items ($p<.05$) except number 2 ($p=.954$; $p>.05$). As a result, this item should be excluded from further analysis.

Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) and Bartlett's test were repeated after excluding 22 items due to insufficient factor loading or insignificant difference in bottom-top groups. The next KMO value is .971 and Barlett test is significant ($p=.00$; $p<.05$). Then the exploratory factor analysis was repeated and it was seen that factor loading of the item 20 is lower than .40, so it was excluded from further analysis. Then, analyses were repeated with a total of 34 items. Finally, KMO value is .971 and Barlett test is significant ($p=.00$; $p<.05$) for the remaining 34 items.

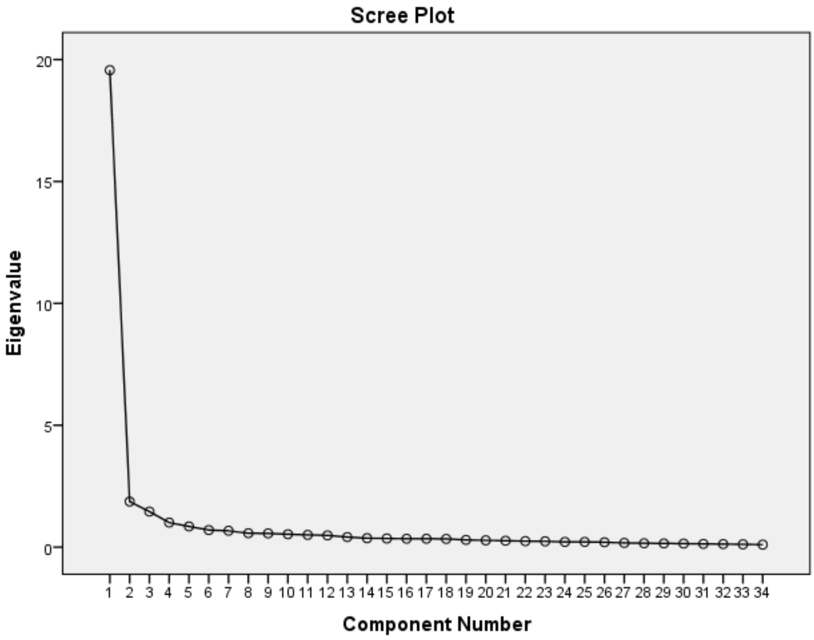

Figure-2 Scree Plot for 34 Items

According to factor analysis, 34 items in the scale again goes under one single factor (Figure-2). After excluding a total of 23 items in the analyses, the remaining 34 items explain 57.545 of the total variance (Table-3). The Cronbach alpha reliability value is .976.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19.565	57.545	57.545	19.565	57.545	57.545
2	1.871	5.503	63.047			
3	1.457	4.286	67.333			
4	1.007	2.960	70.294			
5	.850	2.500	72.794			
6	.703	2.066	74.860			
7	.671	1.974	76.834			
8	.570	1.676	78.510			
9	.562	1.653	80.163			
10	.531	1.560	81.724			
11	.502	1.477	83.200			
12	.482	1.418	84.619			
13	.412	1.213	85.832			
14	.370	1.088	86.920			
15	.355	1.044	87.963			
16	.347	1.020	88.983			
17	.344	1.013	89.996			
18	.338	.994	90.990			
19	.297	.873	91.863			
20	.281	.826	92.689			
21	.261	.768	93.457			
22	.247	.726	94.183			
23	.239	.702	94.885			
24	.217	.637	95.522			
25	.215	.633	96.156			
26	.201	.591	96.746			
27	.173	.508	97.255			
28	.159	.467	97.721			
29	.152	.446	98.168			
30	.147	.431	98.599			
31	.134	.394	98.992			
32	.125	.368	99.360			
33	.116	.342	99.702			
34	.101	.298	100.000			

Table-3 Total Variance Explained

Extraction Method: Principal Component Analysis.

Another way to check the reliability of a scale is to calculate item-total correlation as in a reliable scale all items should correlate with the total, not less than .30 (Field, 2009). Findings about item-total correlation is given in Table-4.

Table-4 Findings about Item Reliability

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1- Sample activities are student-centered.	113.894	708.017	.568	.976
2- Activities are consistent with the content.	113.922	708.286	.564	.976
3- Activities are applicable.	114.171	704.080	.623	.976
4- Teaching and learning experiences are consistent with the objectives.	114.143	703.634	.694	.976
5- Teaching and learning approaches are appropriate to the field of study.	114.045	702.470	.734	.976
6- Resulting activities such as discussion, trip, observation, experiment, summarizing, production in the end of learning experiences are directive for the teacher.	114.305	694.870	.775	.975
7- Activities support learning by doing and experiencing.	114.300	693.351	.772	.975
8- Activities are organized by keeping student interests, needs and demands in mind.	114.580	688.340	.836	.975
9- Teaching and learning process develops critical thinking ability.	114.451	691.333	.831	.975
10- Teaching and learning process develops creative thinking ability.	114.487	690.295	.833	.975
11- Teaching and learning process develops research, questioning and deciding abilities.	114.457	690.468	.852	.975
12- Teaching and learning process develops problem solving ability.	114.490	689.251	.852	.975
13- Teaching and learning process develops communication ability.	114.303	692.953	.828	.975
14- Teaching and learning process develops correct, effective and good use of Turkish ability.	114.384	693.175	.770	.975
15- Teaching and learning process develops entrepreneurship ability.	114.499	690.880	.808	.975
16- Teaching and learning process develops information technology using ability.	114.280	697.146	.711	.976
17- Teaching and learning process supports 5E instructional model.	114.434	697.055	.786	.975
18- Teaching and learning process directs towards discussion methods like debate, panel, open forum etc.	114.507	695.492	.754	.975
19- Teaching and learning activities direct towards group work.	114.328	697.963	.791	.975
20- Methods and techniques are consistent with objectives.	114.238	695.440	.832	.975
21- Methods and techniques are consistent with content.	114.185	697.522	.833	.975
22- Activities can be done both in and out of the school.	114.499	693.318	.780	.975
23- The teacher is a guide who leads the students and improves him/herself in the process.	114.134	696.735	.738	.975
24- Curriculum offers materials to be used in the activities.	114.339	696.612	.772	.975
25- The materials used in teaching and learning process can easily be reached in all regions.	114.605	697.717	.696	.976
26- Sample activities are appropriate to students' level.	114.381	697.214	.749	.975

27- A learning experience is in interaction with the others.	114.328	696.620	.820	.975
28- Activities can be done both in and out of the school.	114.412	694.760	.774	.975
29- Learning experiences support the upper class attainments.	114.305	697.999	.756	.975
30- There are examples of how to use EBA in the teaching and learning process.	114.824	706.713	.468	.977
31- The teaching and learning process directs teachers to use digital materials.	114.168	709.489	.524	.976
32- The teaching and learning process directs students to use digital materials.	114.280	707.118	.557	.976
33- A classroom seating plan is provided appropriate to the activities in the curriculum.	114.874	695.936	.634	.976
34- There are explanations about the classroom management in the curriculum.	114.720	697.713	.654	.976

As seen in Table-4, item-total correlation of all 34 items are above .30 which means it is not necessary to exclude any other item. The values of item-total correlation change between .469 and .852

RESULTS

This study aims to develop a teaching and learning situations evaluation scale in order to help curriculum developers and teachers find strengths and weaknesses in the theory or practice of the teaching and learning situations in the curriculum as new theories and practices in education emerge continuously. The draft of the scale included 57 items after it was checked by experts and piloted with a group of 20 teachers. The draft form of the scale was given to 380 secondary school teachers in Afyon but 357 scales were returned and appropriate for data analyses. An explanatory factor analysis was carried out on the data as KMO and Barlett values indicated convenience for factor analysis. Of 57 items in the draft, 21 items were excluded because of insufficient factor loading score; 1 item because of no significant difference between 27% bottom-top group comparison and 1 because of insufficient item-total correlation value. The final form of the scale includes 34 items under a single factor and total variance explained is 57.545%. The Cronbach alpha value that indicates the reliability of the scale is .976 which is much above the minimum required value. All these results show that the developed teaching and learning situations evaluation scale can be used by researchers to collect data from the teachers about what to keep and change in the curriculum. Such a scale giving the opportunity to collect quantitative data which makes comparisons among similar researches easier will save time and effort.

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Developing A Teacher Characteristics Scale

Hüseyin YARATAN
Cyprus International University, Faculty of Education, Nicosia-North Cyprus
hyaratan@ciu.edu.tr

Emre MUEZZIN
European University of Lefke, Faculty of Education (Dr. Fazıl Küçük), Lefke-North Cyprus
emuezzin@eul.edu.tr

ABSTRACT

It is a known fact that every profession needs to be developed during its practice. To be able to acquire this we need to know the characteristics of teachers related to their professional development. For this purpose this study tries to develop a scale to measure teacher characteristics which would help in designing in-service training programs to educate teachers. The first draft of the scale had 69 items and was administered to 99 senior teacher candidates in the faculty of education. The results were analysed by using exploratory factor analysis. As a result it was found that the scale contains three components, namely, teacher-student interaction characteristics with 13 items, characteristics related to teaching profession with 11 items, humanistic and justice characteristics of teachers with 9 items.

Keywords: teacher characteristics, in-service training, professional development.

INTRODUCTION

Teachers play an influential role in shaping the society and for this reason they are expected to have certain types of attitude and behavior to fulfil the requirements of their work. In order to work in a field that requires such dedication, they have to have a compatible personality with this profession to get satisfaction from what they are doing, love teaching and learning process and be happy doing this job. Otherwise, needs of individuals such as happiness, self-fulfilment and self-actualization cannot be met and for this reason they are not expected to be successful in their profession (Dağ, 2010).

Student characteristics as well as teacher characteristics affect the teaching-learning situation, but this study will be concentrated on teacher characteristics only. Hence a review of the existing literature was done to find desired attitudes and behaviour of teachers. Seferoğlu (2004) listed the characteristics of a qualified teacher as follows:

- Provides learning experiences, taking into account the characteristics of students
- Believes in the necessity of advance planning and plans before implementation.
- Develops suitable instructional materials for students at different levels of capacity.
- Knows advantages and limitations of different approaches, methods and techniques for the realization of effective learning.
- Encourages students to interact with each other and participate in the teaching-learning process and enables them to effectively take responsibility of their own learning.
- Knows the importance of evaluation in the teaching-learning process and the necessity of using different evaluation strategies.
- Knows the necessary resources and methods to motivate students on topics such as career choice and gaining learning habits.
- Takes the necessary measures to improve the basic skills of students.
- Knows physical, emotional and mental characteristics of students and designs teaching activities accordingly.
- Is not aware only of formal education but also knows adults education and is equipped to support professional development.
- Plans, manages and evaluates school extracurricular activities in cooperation with the school administration.
- Knows the necessity of constant professional and personal improvement.
- Knows the structure and functioning of the education system and schools and provides necessary opinions and suggestions for development.

- Is in cooperation with parents and other related people for the best education of students (in Sarpkaya, 2012).

According to Ronald and Grogan (2003) teachers' behaviors that are necessary in quality classes should be examined in specific categories. In the *having good command of the subject area and passion for teaching* category there exist behaviors such as deep knowledge in the teaching-learning process, loving his/her subject, relating teaching tools and materials to students' experiences and life. In the *relationships with students'* category there are behaviors such as calling students frequently with their names during lessons, being concerned of the achievements of students in their tests, and building a warm friendly relationship with students. In the *validity* category behaviors such as creating additional opportunities for students, and helping students individually outside of class time exist. İn the *class arrangement and management* category behaviors such as maintaining an appropriate pace during lessons and diversifying classroom activities are given place (in Cafoğlu, 2007).

Maria Orlando (2013) points out that most teachers give no effort to do more than the minimum required. Teaching is not an easy work and some teachers can never be excellent but stay at a medium level of competency in teaching. To be a great teacher one must constantly work very hard to provide a nurturing and challenging environment for fostering maximum learning of their students. Maria Orlando based on her K-12 administrative experience and many teacher evaluations that she made listed nine characteristics of a great teacher as follows:

“1. A great teacher respects students [and] creates a welcoming learning environment for all students.
2. A great teacher creates a sense of community and belonging in the classroom [and] lets students know that they can depend not only on her, but also on the entire class.
3. A great teacher is warm, accessible, enthusiastic and caring [and] is the teacher to whom students know they can go with any problems or concerns.
4. A great teacher sets high expectations for all students [and] knows that students generally give to teachers as much or as little as is expected of them.
5. A great teacher has his own love of learning and inspires students with his passion for education and for the course material. He constantly renews himself as a professional on his quest to provide students with the highest quality of education possible.
6. A great teacher is a skilled leader [and] conveys this sense of leadership to students by providing opportunities for each of them to assume leadership roles.
7. A great teacher can “shift-gears” and is flexible when a lesson isn’t working [and] assesses his teaching throughout the lessons and finds new ways to present material to make sure that every student understands the key concepts.
8. A great teacher collaborates with colleagues on an ongoing basis [and] uses constructive criticism and advice as an opportunity to grow as an educator.
9. A great teacher maintains professionalism in all areas—from personal appearance to organizational skills and preparedness for each day.” (Retrieved on August 27, 2016, brackets are mine).

Since a lot of hard work is required to achieve the status of a great teacher we must help teachers in their efforts. For this reason we must be aware of their existing characteristics to know exactly what they need to improve themselves. This study aims to develop an instrument for assessing teacher characteristics related to their teaching profession.

Significance and Purpose of the Study

The purpose of this research is to develop a scale to measure teachers' perceptions about their own teaching characteristics. This scale will help teachers improve their teaching-learning process by raising their awareness about their own strengths and weaknesses in the teaching profession. In addition, the scale can be used by administrators as a part of teacher assessment procedure. With this scale teachers will be able to assess their own behaviors and try to change to be more effective in class. Administrators and inspectors will also be aware of the characteristics of teachers and will be in a better position when designing in-service training courses/workshops for them.

RESEARCH METHOD

The Population and Sample of the Study

The research population consists of senior teacher candidates studying at private universities in the TRNC in the 2015-2016 academic year. The sample for the first pilot study was chosen randomly and consists of 99 senior teacher candidates in the faculty of education. 41 of them (41.4%) were female and 58 (58.6%) were male. The average age of the teacher candidates was 22.59.

Development and Administration of Teacher Characteristics Scale

After a thorough review of the literature characteristics of teachers were listed in three major areas, namely, teacher-student interaction characteristics, characteristics related to the teaching profession, humanistic and justice characteristics. From this list 69 items could be written for the first draft of the scale. A five-point Likert-type scale with options "fully agree", "agree", "undecided", "disagree", "strongly disagree" was used. Group administration method STAM (Synchronous Technological Administration Method) which uses PowerPoint slides and optic forms to collect data was used (Yaratan and Suphi, 2013).

Data Analysis

The results were analyzed by using exploratory factor analysis with principal components analysis and Varimax rotation.

RESULTS

Exploratory factor analysis was conducted to identify items that reflect the three predetermined categories of teacher characteristics. First sampling adequacy and the significance of the relationship between items were checked to decide on the applicability of the factor analysis. As can be seen from Table 1, KMO is above .70 which means that the sample size is adequate for doing a factor analysis. Also Bartlett's Test of Sphericity turned out to be significant which means that there is enough correlation between the items of the scale to do a factor analysis.

Table 1. KMO and Bartlett's Test of Sphericity results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.734
Approx. Chi-Square	1419.998
Bartlett's Test of Sphericity df	561
Sig.	.000

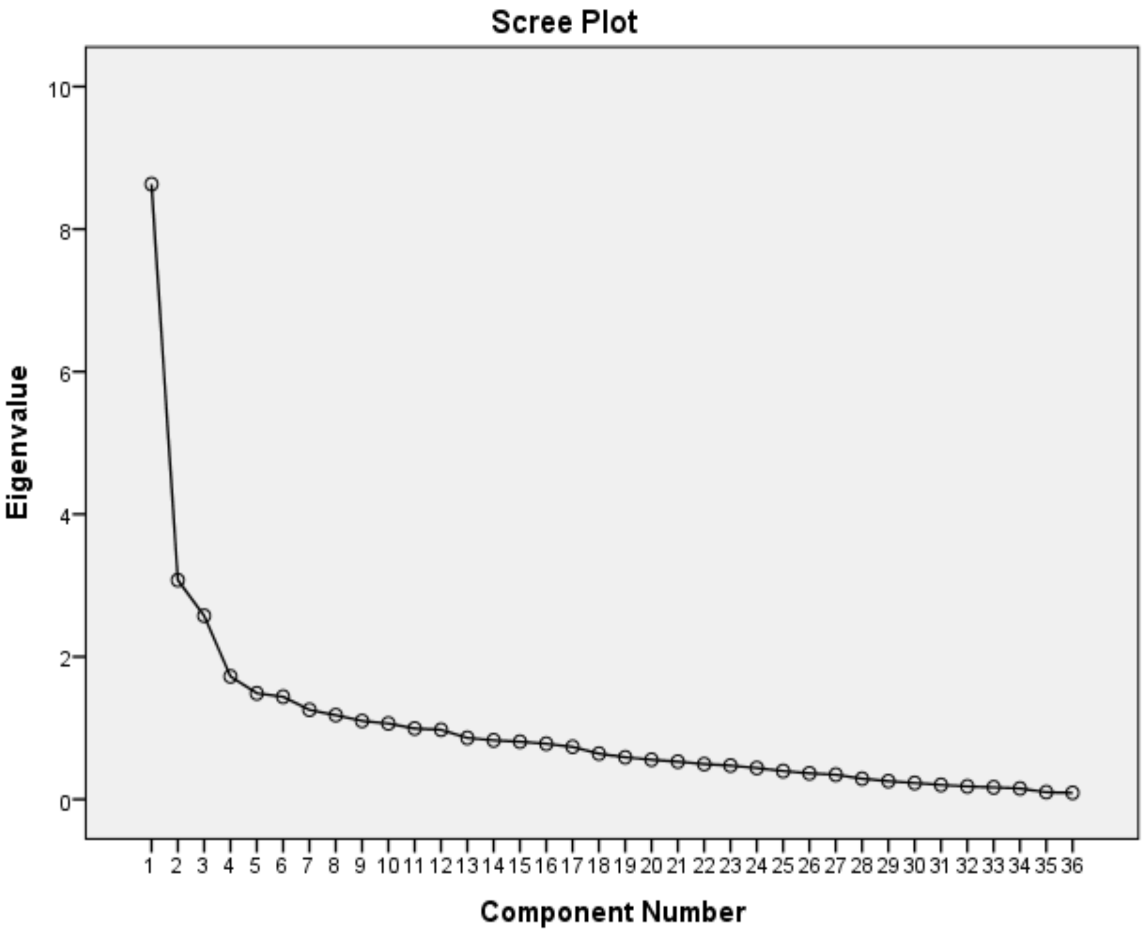

Figure 1: Scree Plot for the Exploratory Factor Analysis.

From Figure 1 it can be seen that on the vertical part of the scree plot there are three eigen values that represent three factors and the rest of the eigenvalues are on the horizontal part of the scree plot. Hence, as we expected, three components can be extracted from the scale. After the factor analysis the following components were obtained:

1. *Teacher-student interaction characteristics of teachers* component with 13 items,
2. *Characteristics of teachers related to the teaching profession* component with 12 items,
3. *Humanistic and justice characteristics of teachers* component with 11 items.

After Varimax rotation the items related to the *teacher-student interaction characteristics* component were obtained as shown in Table 2. Cronbach's alpha for this component was found to be .866 which indicates a very reliable component. This component accounted for 15.3% of the item variance.

Table 2. Rotated Component Matrix^a for Teacher-Student Interaction Characteristics of Teachers

	Component		
	1	2	3
34. I like to participate in social activities with my students.	.747		
59. I include the ideas of my students to my lessons.	.699		
45. I create additional opportunities and I help my students individully outside class time.	.678		
35. I set up a warm friendly relationsship with my students.	.653		
42. I organize appropriate learning experiences to motivate my students to fulfil their motives.	.620		
67. I am open to opinions and suggestions of my students about my teaching.	.580		
64. I tell my students that they can see me outside the classroom to discuss and ask questions about the course.	.562		
47. I diversify classroom activities.	.545		
65. I encourage cooperative behavior of my students in my class by giving assignments to enable them to help each other.	.542		
36. I avoid critical and judgmental responses while I listen my students.	.528		
66. I follow the individual development of my students and provide the necessary assistance to them in this process.	.526		
32. I call my students by their names.	.506		
38. when I interact with my students I share my positive feelings about them.	.487		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Table 3. Rotated Component Matrix^a for Characteristics related to the teaching profession

	Component		
	1	2	3
25. I pay attention to sources of knowledge around me to utilize them for educational purposes.		.673	
40. I have the pattern of personality to raise the prestige of the teaching profession.		.667	
23. I have the professional insight to sense behavioral problems before they occur.		.580	
26. I am knowledgeable in my professional area.		.577	
43. I use teaching-learning principles and methods effectively.		.573	
21. I do my work properly and on time.		.538	
6. My feelings of self-confidence are developed.		.523	
46. I maintain an appropriate rate of progress throughout the lesson.		.516	
24. I show an intense interest in developing myself.		.515	
57. I change the physical layout of the classroom if I believe that it will provide a better learning opportunity for my students.		.506	
62. I ask questions in class to produce an effective environment.		.459	
9. I am an organized teacher.		.417	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Varimax rotation for the component *characteristics related to the teaching profession* revealed 12 items to be related as shown in Table 3. Cronbach's alpha was found to be .812 which indicates that this component is also a very reliable component. 13.0% of item variance were accounted for by this component.

Humanistic and justice characteristics component was obtained after Varimax rotation with 11 items as shown in Table 4. Cronbach's alpha was found to be .832 indicating a very reliable component. This component explains 11.4% of item variance.

Table 4. Rotated Component Matrix[a] for Humanistic and Justice Characteristics of Teachers

	Component		
	1	2	3
10. I am an honest and fair teacher.			.712
17. I am a sensitive person.			.647
33. Instead of an authoritarian approach caused by the concern of losing control, I set up humane relationships with my students with an equal and democratic approach.			.622
13. I am a tolerant teacher.			.596
41. I am aware that there may be some students with learning disabilities or behavioral disorders due to individual differences.			.581
19. I show an unbiased and objective attitude in solving the problems.			.570
8. I show love and care to the people around me.			.566
31. I can establish positive relationships with my students.			.528
30. I am aware of the individual differences of my students.			.495
52. I clearly state my expectations from my students about their lessons.			.478
50. I provide equal learning opportunities to all students in my class.			.453

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

CONCLUSION

In this study "Teacher Characteristics Scale" was designed to have three factors, namely, teacher-student interaction characteristics, characteristics related to teaching profession and humanistic and justice characteristics of teachers. Other studies which resemble to this study have been found in the literature that had been reviewed. One such study was done by Erdoğdu (2013) who developed "Perceived Teacher Behaviors Scale". This scale was administered to elementary school students to collect data about their perceptions of the behaviors of their teachers. Only two factors were extracted from this scale. The first factor reflected the perceptions of students about the democratic behaviors of their teachers and the second factor reflected the perceptions of students about the authoritarian behaviors of their teachers. Yeşil (2010) also worked on the democratic behaviors of teachers and ended up with a one factor instrument solely related to democratic behaviors of teachers and the scale was titled as "Scale for Democratic Teacher's Behavior Determination".

Tarhan and Şentürk (2011) called their instrument as "Teacher Attitude Scale toward Undesirable Intra-class Behaviors of Students" which had two factors "Emotional Attitude Expressions" and "Behavioral Expressions". This scale measured teacher attitudes toward undesirable student behaviors. Erişen ve Çeliköz (2003) developed a five-factor instrument to measure the perceived degree of competency of teacher candidates about "subject matter", "designing, planning, and administering instruction", "testing and evaluation", "cooperation with others concerned" and "professional development". They called their instrument as "Prospective Teacher Competency Scale".

Many scales have been developed by researchers associated with examining various aspects of teacher behavior. This study was aimed at investigating teachers' characteristics about their interaction with their students, characteristics related to the teaching profession, and humanistic and justice characteristics. These three components of this scale accounted for a total of 39.7% of item variance. The final version of the scale with a total of 36 items has a Cronbach's alpha of .898 which represents an excellent reliability level.

This phase was the first pilot study which was done on the first draft of 69 items of the "Teacher Characteristics Scale". It was prepared with the intension of obtaining three factors. The next phase will be the administration of the scale to a larger sample of teachers. The data collected in this second phase will first be analyzed by using exploratory factor analysis followed by a confirmatory factor analysis for convergent and discriminant validities.

Of course for reliability Cronbach's alpha will be computed. The third phase will be the utility of the scale for finding a solution for a defined problem related to teacher characteristics.

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Developing An Evidenced Chiropractic Curriculum

Stephney WHILLIER
Macquarie University, Australia
stephney.whillier@mq.edu.au

ABSTRACT

Many Chiropractic programs worldwide are standardised and audited by local accreditation bodies. International bodies such as The Councils on Chiropractic Education International (CCEI), The World Federation of Chiropractors (WFC) and The World Health Organisation (WHO) have a common intent to provide education and practice of the highest quality and service to the community. Tertiary education institutions are internally driven to assess practice and improve the quality of education. But nowhere is the specific content of the chiropractic curriculum standardised. Accreditation bodies provide guidelines of a core chiropractic syllabus and competency standards for the institutions that fall under their jurisdiction. The WHO provides global guidelines for a core syllabus but there is no evidence this guides educational practice. The actual research on what is truly useful both to the students once qualified and to the ongoing development of the profession, is scant. This goes beyond the metrics of student and faculty outcomes, to the core questions of relevance for the profession. The aim of this paper is to discuss the issue of evidenced curriculum content.

INTRODUCTION

What should chiropractic students be taught, how is the decision presently made, and what are the considerations that should be taken into account in this decision? This commentary explores the situation as it now is and looks towards possible solutions.

To begin with the present situation, the first chiropractic schools began in the United States, Canada, Australia and the United Kingdom, although chiropractic science is taught in many countries around the world today (Chiropractic, 2009). In some of these countries (for example, United States, Canada, Australia, some European countries), the chiropractic program is taught in a standardised way in university or college, and the status of chiropractic is legal, controlled either by legislation and chiropractic regulation or by general law (Chiropractic, 2012). In countries like Denmark and Switzerland, the chiropractic program is incorporated into the existing medical educational infrastructure (Myburgh and Mouton, 2008). In some countries the status is unclear (China, Vietnam, Greece, Hungary, Spain, Morocco, Syria and Turkey) and in South Korea and Taiwan there may be risk of prosecution (Chiropractic, 2012).

Many countries adhere to a common international standard of education through the collegiality of international accrediting agencies under the banner of the Councils on Chiropractic Education International (CCEI), which presently includes the Council on Chiropractic Education Australasia (CCEA), the European Council on Chiropractic Education (ECCE) and The Federation of Canadian Chiropractic (FCC) (International, 2016). In the US, The US Council on Chiropractic Education (CCE) is the sole accreditation agency, recognised by the US Office of Education since 1974 and the Council for Higher Education Accreditation (CHEA) and is a member of the Association of Specialised and Professional Accreditors (ASPA) (Brett et al., 2013). In Australia and New Zealand, study programs have been accredited by the CCEA since 2002, and this accreditation is approved by the Chiropractic Board of Australia (CBA) or New Zealand Chiropractic Board (NZCB). The CCEA is assigned this authority in Australia by the Health Practitioner Regulation National Law Act 2009 (Australasia, 2015, Australasia, 2009).

This standard has been adopted by the World Health Organisation (WHO), which entered into official relations with the World Federation of Chiropractors (WFC) in 1997. The WFC, established in 1988, encourages "improved standards of chiropractic education and practice in order to provide the highest quality of service to the community" (Chapman-Smith, 2013). The standards of education form the basis of the WHO publication, the Guidelines on Basic Training and Safety in Chiropractic (2005) (Chiropractic, 2012).

The CCEI stipulates the minimum requirement of at least five academic years of full-time study, but they acknowledge that "educational requirements may vary to a certain extent as they reflect the specific conditions and expectations of academic conventions and/or legislation in the region" (International, 2010).

In Australia, it is the policy of the CCEA that "the administration and faculty/academic staff must have freedom to design the curriculum", and that "all faculty should have a significant role in determining the content of the curricula and courses offered by the institution" (Australasia, 2009). It is therefore incumbent on institutions to research and revise the effectiveness of their programs constantly.

The principle aim of this commentary is to discuss how to make an evidenced decision on what should be taught in a chiropractic program.

DISCUSSION

It is beyond the scope of this commentary to consider individual programs worldwide. The purpose, however, which is to ponder the question of how content within a curriculum is chosen, can be served with an example. In Australia, chiropractic teaching began in a few private institutions in Victoria (1930's), New South Wales (1959) and South Australia (1963) (Devereaux et al., 2006, Ebrall and Molyneux, 2005). My Department of Chiropractic began in 1990, as a merger between the Sydney College of Chiropractic (SCC) and Macquarie University, making it the first teaching centre for Chiropractic at a publically funded university worldwide (Devereaux et al., 2006). Since 2009, the Department of Chiropractic has been part of the Faculty of Science and Engineering, and offers a three year Bachelor of Chiropractic degree, followed by a two year Master of Chiropractic program. This equates to 10 semesters full-time, or part-time equivalent, 72 credit points at the undergraduate level, and 64 credit points at the postgraduate level. Each undergraduate credit point requires 3h/wk of course load, and 4h/wk of course load at the postgraduate level. This totals 2808h of undergraduate, and 2496h of postgraduate workload (Department of Chiropractic, 2015). This is comparable to the programs offered at tertiary level at other Australian universities, and in the United Kingdom and the United States (Draper and Walsh, 2008).
But what should be taught in over 5000h of contact with students? The CCEI see that the "purpose of …. professional education is to prepare the chiropractor as a primary health care provider" (International, 2010). This requires a broad base of medical training in order to develop good differential diagnosis skills, and to know when to refer and to whom. It also necessitates excellent communication skills, both with patients and within medical teams. However, it can also be said that the role of a chiropractic education is to produce competent specialists, and the area of specialisation is principally the spine. Chiropractors, it can be justifiably said, are typically consulted to manage specific musculoskeletal conditions in practice, and this is what they should know best (Puhl et al., 2014, Coulter et al., 2002). According to the WFC, about 60% of these conditions are back pain, 20% are musculoskeletal pain conditions of the neck, shoulder, extremities and arthritic pain. Headaches make up about 10% of consultations (Chiropractic, 2012).

However, in this tug of war on teaching time, research skills have become a major necessity. Mainstream medicine has become evidence based, an approach chiropractic must yet fully embrace. This requires that clinicians ask focused questions, know how to systematically retrieve the best available evidence, critical appraise that evidence by testing it for validity, clinical relevance and applicability, apply the evidence in practice, and evaluate the results (Services, 2015). In the 1990's, somewhat behind allopathic medicine, the Research Agenda Conferences voiced the need for teaching chiropractic students research methodology in order to develop these skills (Shields, 2005).

The above attempts to rationalise what is best for students to learn, but how can this be evidenced? This goes beyond measuring student grades and levels of satisfaction, but rather speaks to measuring what is relevant for future practice, which would influence career prospects, successful integration into disciplinary teams, employment patterns and contribution of the profession to health care in the society.

One approach to finding this evidence is to map the curriculum content against certain criteria. A curriculum map records the course content, the timeline and scheduling and the congruence between teaching and assessment (Hege et al., 2010). An example of this was done at Macquarie University. The authors conducted their mapping of the Masters Programme (MChir) against two domains: musculoskeletal conditions commonly seen in practice, and for which chiropractic has been shown to be effective (Gorrell et al., 2015). They found the programme to be effective in that there was congruence between the assessment tasks within the curriculum and the two domains against which it was mapped. The authors concluded that completion of the curriculum provided training that was relevant to conditions commonly seen by chiropractors and musculoskeletal conditions for which chiropractic treatment is effective. However, does this mean the course provides the training students need to be successful practitioners? As discussed above, there are any number of areas of teaching that can be rationalised as important for successful training of clinicians.

Another approach would be to assess whether students, during their education, achieve set levels of competence. The CCEA, for example, have five competency standards students must attain to practice safely and ethically. They are: practising professionally; communication, collaboration and leadership; clinical assessment; planning care; and implementing, monitoring and evaluating care (Australasia, 2015). However, it is one thing to call for testing of competency standards in a program, and another to provide evidence that what is taught translates into relevancy and clinical success once the student has graduated and is a practising physician.

Another approach to this problem is to find out whether the teaching program has met the needs of graduates in their careers. In 2015, I set out to explore this by sending a questionnaire to past graduates. Ethics approval was obtained from the Macquarie University Faculty of Science Human Research Ethics Subcommittee (reference number 5201401167). The questionnaire was built online, using Qualtrics Surveys (Qualtrics Software Company, 225 George Street, Sydney, NSW, 2000). Letters were sent to the Chiropractic Alumni (graduates of the Sydney College of Chiropractic and Macquarie University), the Chiropractic Association of Australia (National) and the Chiropractic and Osteopathic College of Australasia (COCA) asking their help in disseminating the information to members to participate in the study.

The response rate, however, was disappointing. The total pool of Macquarie University graduate respondents was calculated as potentially 2400, based on the availability of the program since 1990, at an average of about 100 graduates a year (although numbers of graduating students in the early years would have been smaller). There were 76 responses, 3.2% of the estimated total pool. This is hardly representative of the graduate experience, but the findings were non-the-less interesting, and relevant here only in illustrating the type of information that can be obtained. Further larger studies are needed to obtain more reliable data.

Seventy one percent of the respondents were male. The mean age was 36±9.2 years. The mean year of graduation was 2005±6.7. The mean length of time in practice was 9.6±6.7 years. The mean number of hours per week the clinicians worked was 34.8±9.7h. On a scale from 0 to 100, the chiropractors were asked, in retrospect (from your perspective now), to rate your level of preparedness for clinical work at the time they graduated from the Chiropractic Master's program at Macquarie University (0 being completely unprepared for what was to follow, and 100 being very ready to practice). The mean response was 67.3±19.4. There was a similar response to whether they thought their clinic internship had been helpful in preparing them for practice (68.1±25). Not such an enthusiastic response to self-preparedness.

When asked about the specifics of the program, the response was interesting too. The diagnostic skills of history taking, general physical examination, functional analysis, neurological and orthopaedic examination and radiological analysis and skills, were all considered to be essential by over 90% of respondents in each case. The responses to the necessity for management skills teaching was more varied. Most could see the value of diversified (97.5%), sport injury management, and rehabilitation of the spine and extremities (91.9% each), terminal point technique (86.5%), nutrition (83.8%) and management of geriatric health conditions (81.1%). But skills such as flexion and distraction (59.5%), Gonstead (56.8%), and electrophysical therapy (45.9%) were far less favoured as necessary in the program. The respondents did also consider communication skills (97.3%) and research skills (critical thinking 94.6%, evidence evaluation 94.6%, and evidence identification 86.5%) as very important. Not surprisingly, clinicians saw practice management skills as a very necessary part of the program (94.6%). Knowledge of ethics and law and jurisprudence also rated highly (89.2% respectively).

A similar type of study was done by Barry Draper and Max Walsh at RMIT, Melbourne, Australia, in 2008, with a questionnaire sent to all chiropractors registered to practise in the state of Victoria (Draper and Walsh, 2008). They had a 33.6% response rate, equating to a total of 329 chiropractors. They found chiropractors most routinely used spinal, limb and neuroanatomy, plain film X-ray interpretation and communication skills, and over 50% felt they received too little training in communication skills. They also felt they received too little training in philosophy, psychology, nutrition, neurophysiology, and CT and MRI interpretation. In regard to what they used routinely, they felt many physical examination procedures (ophthalmoscopy, otoscopy, heart and lung examination, nose and throat examination) and physiological therapeutic procedures (laser, interferential, high voltage, TENS) were rarely if ever used, and many felt the latter should not be included in the program. In the comments given by Macquarie University students in response to what they believed should be increased in the curriculum, they said: communicating with other professionals, practice management, business skills, systems of practice, exposure to ill patients, real world protocols, and pharmacology.

Both the Draper and Walsh and Macquarie University results indicate that communication skills are highly rated and therefore greatly needed by clinicians. This is not only important for clinician-patient relationships, but for collaboration within interdisciplinary teams. Another is management skills. This was also a finding in a Danish study on the development of chiropractic education in their country. In the Danish and Swiss circumstance, chiropractic education is integrated into the medical education system in the University of Southern Denmark and the University of Zurich, a move that is beneficial in addressing interdisciplinary communication (Myburgh and Mouton, 2008).

The graduate perspective is however limited in the appraisal of the relevance of chiropractic education. Surviving or even thriving clinically as an individual practitioner may not necessarily equate to progressive chiropractic education that advances the profession along with other evidence based medicine. The ultimate aims of the profession should also be considered and translated into curriculum content. Globally there is a need for chiropractic education to address its evidence base to attain relevancy in evidence based medical care, and to network with other medical disciplines. These are pressures that should be directly addressed and translated into education practice. The metrics for its success would be the relevancy of chiropractic within the broad base of primary care, with research attainment evidenced by numbers of chiropractic PhD graduates, publications and the award of grants. Referrals and collaborations across medical disciplines would evidence the extent to which chiropractic has found its place among other health care professions.

LIMITATIONS

In reviewing the relevance of the chiropractic curriculum, this paper addresses the content of the course. However, what are also important are the methods of teaching and the role of the learning environment. This was found by Dijkstra et al (2015) to be of vital importance in investigating how ascribed competencies relate to preparedness for practice in postgraduate medical education (Dijkstra et al., 2015). Whilst this is acknowledged to be an important aspect of any teaching program, it has not been specifically investigated in this paper, as it adds an additional dimension beyond the scope and main objective here.

CONCLUSION

Although standards are set, and chiropractic programs are constantly audited by various accreditation bodies, these bodies do allow institutions to determine the details of their programs. The burning question is what evidence is used to determine those details, and could there be benefit in researching this further, perhaps even on a global scale? Relevancy relates to the many aspects of how much the graduated students feel the education system has prepared them for practice; how competently they practice, and what place chiropractic holds in the medical community, in terms of practising in an evidence based manner and collaborating in an interdisciplinary team. Just as chiropractic practice should be evidenced based, so too should the education program itself be based on good research as to what constitutes an effective curriculum that speaks to the relevance and usefulness of the education program for the chiropractor, and to the ultimate goals of global relevancy within the medical professions today.

CONFLICT OF INTEREST

The author has no conflict of interest to disclose

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Developing Multicultural Education Program From Middle School Curriculum In Korea

Kyomin NAM
Pusan National University, South Korea
trust0320@naver.com

Ayoung KIM
Dong-A University, South Korea
ayoung.kim@gmail.com

Hong Soo Kim
Pusan National University, South Korea
khsoo@pusan.ac.kr

ABSTRACT

The objective of this study is to design multicultural education program by backward approach for middle school students in Korea. The study employed 'Backward Design' with its templates by McTighe and Wiggins suggested. 'How was the developed unit of multicultural education by backward design?' was set up as the study question. Revised version of national curriculum documents of middle schools were collected and analyzed for the development. In the title of a unit 'Seeking virtue of variety', the first step of backward design, desired result was set up as follows: The students could understand characteristics of culture and respect its virtue of variety. Journal keeping, crafting a set of dolls' sample in theme of variety, and holding multicultural fair were designed as assessment evidences in the second step. Learning experiences such as an individual research on interested topics in culture and reading narrative fiction with variety issues were organized as the last step of backward design. Backward designed program suggests integrate several subjects and emphasize affective objectives program implementation.

INTRODUCTION

General school age has decreased annually but multicultural students tend to increase. In accordance with this trend, school education is gradually changing and multicultural education receive attention these days.

In 1980's, multicultural education's concept and contents were introduced by several scholars. At the time , Many Korean have cultural homogeneity and didn't feel the need about the way of multicultural education(Cho et al, 2010). After the 2000s, multicultural education was introduced in earnest. In 2006, the government announced 'measures to support multicultural familes education'. From 2007, 'Program to support multicultural familes education' was set annually. In accordance with this trend, many studies has been carried out.(Hwang, 2011). Especially, a training course that was announced in 2007 treated multicultural education as an cross curriculum and multicultural education was incorporated into the regular school curriculum.

Various studies focus on the regular school curriculum, at the beginning of the study concept and status of multicultural education in Korea was treated.(Yang, 2008; An et al, 2008) Studies about purpose and content of multicultural education(Kim, 2010; Jeon, 2012)and studies about the current status and the actual conditions were conducted.(Cho et al, 2010; Hwang, 2011; Jeon, 2011; Mun & Park 2009; Kim & Hong, 2016).

Although Multi-Model studies have been made, 68.6% of Middle school students and High school students answered that they didn't get multicultural education. In contrast to student's comments, 78% of teachers agreed with necessity of multicultural education (Heo & Choi 2011). Eventually, multicultural education as an cross curriculum depends on teacher's choice.

This study takes notice of this trend and conducts multicultural education unit design in middle school by using Backward's way. Teachers have to design with the aim of learner's understanding.

This study focuses on diversity respect among various sub theme. Because, diversity respect is the most basic step of multicultural education in the field of multicultural education goal.(Heo & Choi 2011; Park & Lee, 2010).

This research result will function as basic data with which teachers design multicultural education subject in an cross curriculum subject. 150 schools focusing on multicultural education will be designated and be run. Based on the trend emphasizing diversity respect and understanding of multiple cultures in the regular school curriculum, It carries an important meaning(Ministry of Education, 2015).

Method

Templates from backward design by wiggins and mctighe was used as a theoretical framework Backward Design have there feature. Wiggins and McTighe(2005, 2011) stressed the importance of assessments. Backward Design focuses on teaching method with which students utilize what they learn in the reality. Backward Design aims at learner's perfect understaing. Wiggnis and McTighe classified steps of understanding into six sections. (explanation, interpretation, application ,perspective, empathy, self-knowledge). Using these six sections of understanding depends on teacher's selection.

In Korea, Study which covers curriculum or unit design by using Backward design was conducted(Kim & Lee, 2013; Park, 2012; Lee, 2011; Kang & Yi, 2010, 2012; Cho, 2005). These days, another study that is interested in developing Backward design by applying to the reality for Korea can be found(Park, 2011; Yun, 2015; Kang & Yi, 2013; Lee, 2015).

An overseas trend of research associated with Backward design focus on utilizing Backward design for a university education such as education for nurse education curriculum, sanitation education curriculum, pre-teacher education to university students, and training for university professors instead of special education. (Boozer, 2014; Bowen & Graham, 2015; Linder, et.al., 2014; Lorenzetti & Patterson, 2014; Nelson, et. al., 2013; Smith, Cornelissen & Mitton, 2015; El-Jardali & Fadlallah, 2015).

FINDINGS

Stage 1, anticipated results after learners study 'Diveristy respect' chapter is that learners have an attitude of acceptance and respect about issues such as gender issues, religious discrimination by learning educations about cultural understanding.

<Stage 1> Respect the diversity of the section of desired outcome.

<table>
<tr><th colspan="3">Stage 1 – Desired Results</th></tr>
<tr><td rowspan="6">Established Goals ·
U1 The students could understand characteristics of culture and respect its virtue of variety</td><td colspan="2">**Transfer(T)**</td></tr>
<tr><td colspan="2">*Students will be able to independently use their learning to….*
T 1 Learners have an attitude of acceptance and respect issues such as gender issues, religious discrimination by learning educations about cultural understanding.</td></tr>
<tr><td colspan="2">**Meaning(M)**</td></tr>
<tr><td>**Understandings**
Students will understanding that…
U0 To understand the features of the culture, with an attitude of respect for the diversity as fortunate.</td><td>**Essential questions**
Students will keep considering
Q1 What is the culture?
Q2 South korea is a multicultural society?
Q3 How is the discrimination different from the difference?
Q4 How can various things be virtue?
Q5 How can students respect cultural diversity?
Q6 What do generous attitude and respect mean?</td></tr>
<tr><td colspan="2">**Acquisition(A)**</td></tr>
<tr><td>knowledge
Students will know…
K1 To know what a multi-cultural means
K2 To identify multicultural topics contained in ‘international markets.’ movie and ‘a Hen Into the Wild’ a fairy tale.
K3 To c larify what the concept of respect is
K4 To understand the traditional culture and the current culture of other countries in a particular topic.
K5 To introduce the proud culture of other countries.
.</td><td>**Skill**
S1 To analyze the information involved with cultural conflict in a video.
S2 To configure characteristics of a character representing a diversity.
S3 To criticize the outcome of each cultural subject.
S4 To write an article to support acceptance and diversity</td></tr>
</table>

Backward design assumes that anticipated result will reach the goal of perfect understanding by treating six sections of understanding. Likewise, this study in table 2 considers anticipated result of perfect understanding about diversity respect in view of Backward design's suggestion.

< Table 2 > Six aspects of understand

Explanation	U1 Students can explain why diversity is good for our society U2 Students can explain the conflict situation of "International market" and "hens coming out of the garden" in conjunction with one's experience.
Interpretation	-U3 Students can identify the characteristics of our culture. - U4 Students can infer the topic of the "international market", "hens coming out of the garden."
Application	- U5 Students can select an interesting cultural theme.
Perspective	U6 Students can have an specific attitude about cultural conflict situation in terms of respecting diversity
Empathy	- U7 Students can feel good about diversity. - U8 Students get interested in the past and present culture of other countries. Students have an interests. - U9 Students understand the feelings of the person who was put in conflict situation for me and the other cultures. - U10 Students envy a friend having a multi-cultural background. - U11 Students have an mind of helping one another who have an difficulty of adapting to a Korea culture. - U12 Students agree to the value of the social life.
Self-Knowledge	-U13 Students can criticize the problems about discrimination in everyday life. --U14 Students can find reality that has not been respected about diversity.

Because 'Diversity respect' chapter this study treats intends change of learner's attitude, as table 2 shows the way, sympathy section's many goals which is in affective characteristic of Backward design's six understanding section were set. Respecting the diversity, being proud of various cultural background, and agreeing with living together was set as an objective for sympathy.

Second section of Backward design is an evaluation. Because first section set an result that is anticipated after learners get an education, second section is an next step to decide whether an anticipated result is achieved.

Second section of Backward design consists of assignments, another way to identify the attainment of student's goal. This study designs three assignments. literature and movie appreciation treating diversity issues, making diversity-themed doll sets, and organizing mini-cultural expo which treats cultural theme. This study presents three assignments for each chapter, but using this way is at the discretion of the teacher. For example, this study in table 3 selects ‘A Hen Into the Wild’ as a literature treating diversity issues, students should read this literature, write an report and give an presentation about this work.

<Table 3> Performance tacks 1: presentation of ‘A Hen Into the Wild’

Stage 2 - Determine assessment evidence			
CODE	Criteria	Performance tacks **1**	
All Transfer Goals	• Validity • Logical •interpretation	.Performance tacks 1 Student, has been depicted in the assimilation read ‘a Hen Into the Wild’, after the you a conflict situation that was born on the differences through the group-specific discussion write a short new ending of the way you want to impressions statement, announcement to.	
		Goal(G)	Students, after a group-specific discussion write a short new ending the happened conflict situations you like method for reading the "hens coming out of the garden," "difference" in the work on the impressions sentence present.
		Role(R)	In the scene in which the hero appeared to read the situation that contains the problem that occurred for different looks, it is the role to speak their thoughts.
		Audience(A)	Teachers and students will be in the audience to hear the announcement of impressions statement.
		Situation(S)	Students understand the conflict situation that creates the different in the book and invented fairy tales and alternate endings to express situation in that situation.
		Product(P)	A conflict that differences produce from reading a book in the configuration of the new ending, is the impressions statement that student has been put meaning and attitude of this work.
		Achievement standards(S)	-Certain amount of votes from expressing their impressions of students did you get? -Do you have put the spirit of recognize their difference in a new ending?
Meaning(M) Acquisition (A)	Accuracy	**OTER EVIDENCE**	
		• To explain the contents of ‘a Hen Into the Wild’ • To do a quiz about characters and situation background.	

<Table 4> Rubric example the task

Self-evaluation and reflection				
2 STEP- Grading standard				
Category		Validity	Logical	interpretation
Significance		**40**	**40**	**20**
Scale	**3**	-To propose a concrete solution about respecting diversity.	To make an announcement that is proper in the situation and expertly lay out a logical basis	-To understand conflict situation in a fable and properly relate cause and effect in a report.
	2	To suggest some proposals about respecting diversity, but not concrete.	- To make an announcement that is proper in the situation, but logical basis is normal.	-To understand cause of conflict situation in a fable, but do not relate that in a report.
	1	- To do not suggest proposals about respecting diversity	- To do not make an announcement proper in the situation and to do not suggest logical basis.	-To do not understand cause of conflict situation in a fable and to do not relate that in a report.

<Talbe5> An example for students give performed tasks

Subject : Making a presentation about the report of "A Hen into the Wild"	
goal	- To have an generous attitude accepting conflict situation about diversity issues and respecting diversity.
roal	- Playing the role to talk and share ideas after reading the difficult situation caused by different looks and shapes which 'Ipssak ' or 'Greenhair' have
audience	- Audiences are other participant in a book discussion.
situation	- Students can understand 'being created differently', 'different looks', and 'other differences' by reading conflict situation and make alternate endings
The documents for submission	- To submit an report with one's opinion. - To submit quiz paper associated with the character and background.
guidelines	- To make a presentation about the report with one's opinion. - To have an attitude respecting other's opinion.

Secondly, Students assume that they are doll design developer in toy company. After that, students make doll set with other student as an group assignment. . This assignment can connect art subject's clay arts. So students combine with not only one's idea but also other student's idea and they consider how diversity idea can be put in diversity doll set. By using this assignment, participation in the class will get better.

Thirdly, Assignment selecting specific cultural subject, researching other country's culture and holding mini culture expo is designed like table 7. Mini culture expo is designed for reflecting student's interests. Students select one's interests for assignment subject and research same subject about other country. Students can feel cultural diversity by doing assignments. Finally, all students in a class can combine their research result in mini cultural expo.

<table 6> Performance tacks 3: Mini cultural expo in our class

Mini cultural expo in our class 3	Mini cultural expo in our class	
content	Students can choose from one of the following 10 topics. 1.Cartoon 2. Movie 3. Music 4. A historical event. 5. Characters 6. Language 7. Foods. 8. Tourist attraction. 9.Literature 10. Artwork. If students choose one subject, they research same subject of other country. Students can choose country in every continent (also every tribe.) In the day of assignment evaluation, Our classroom can be changed into place for putting our cultural subject poster.	
	Goal (G)	Students can introduce a topic of their interest in other country in cultural expo.
	Roal (R)	Students play a role in cultural expo as a person in charge of expo. They introduce one's proud culture.
	audience (A)	Students can get an information of specific proud culture.
	situation (S)	Half of students submit posters to an cultural expo. The other half of students can be introduced to culture in poster exhibition. And they take a vote by sticker.
	Product(P)	Poster results dealing with cultural introduction of one's interesting subject.
	Achievement standards(S)	How many votes do students get by audience? Are subject, detailed description and visual materials included in poster?

As table 6 presents assignments method, mini cultural expo in our class is an assignment dealing with various cultural subjects of one's same interests. Also students can feel diversity by doing mini cultural expo in our class.

3. Learning experience and instructional planning

Backward chapter development methods plan curriculum by considering student's learning activity and specific chapter in last 3 stages. After taking account of WHERETO's factors, this research suggest designed contents like table 7

<Table 7> **Stage 3 – Learning Plan**

Stage 3 – Learning Plan			
1/10	**2/10**	**3/10**	**4/10**
• The nurses and miners association of 'international markets.' film, which obviously watch a video editing. • Movie characters, why announce to discuss that in the face of such a conflict situation to another team	• Reading a fairy tale Hence Into the yard. • Ipssak use and green hair listening to a point in time chatting	• 'A Hen Into the Wild' impressions of reading a book and none other conflict situations involving its way you want, and writing in short to express a new ending	• To the world that consisted only of one kind of imagination (In the sea, tree, animal) • Clay Art 'diversity' topic in containing a doll set to announce after
5/10	**6/10**	**7/10**	**8/10**
• In order to see and experience the culture of diversity, the theme presentation of 10 of culture • studies corresponding to the 10 themes in Korean culture	• I found a case corresponding to the 10 themes in the culture of other countries • Examples are collected traditional culture and to compare current culture of separate	• Experience the cultural diversity: cartoons(palestine: mouse), music(USA-hip-hop: Eminem), art(Mexico-Diego Rivera), movies(Ireland-once), Human(Cuba-Che Guevara), Food(Indonesia-Nasi Goreng), History(It kept the independent Thailand), tourist attractions(Bali), language(dialect), literature(China-Heo Sam Kwan maehyeolgi)	Select interesting cultural topics, decorate the exhibition poster
9/10	10/10		
• Mini cultural exhibition hosting our classroom	•Mini cultural exhibition hosting our classroom		

Diversity respect chapter consist of 10 chapters in table 8. Watching movies and reading literature dealing with diversity subject, imagining one world with one cultural feature, making diversity doll set, holding other country cultural expo is designed in diversity respect chapter. In each chapter, learning activity contains assignments for evaluation.

Discussion

By using Backward design this study deals with diversity respect chapter of multicultural education as an cross-curriculum in middle-school curriculum.

First, diversity respect chapter developed in this study is designed focusing on affective characteristic. Multicultural education programs developed in Korea just treat other country's clothing, play, holiday, foods and etc, but the earlier studies don't treat bias and discrimination.(Kim & Hong, 2016). This study primarily focuses on diversity respect and places emphasis on change of student's value and attitude.

Secondly, this study designs assignments integrating various subjects in evaluation of Backward chapter design. Diversity respect chapter in this study consists of reading an literature, writing an book report, making an diversity-doll set and holding a mini cultural expo. Reading an literature treating diversity theme and writing an report about someone's surroundings can be connected with language department. Based on student's interests, teachers can connect various subject such as art department, history department, music department and etc with multicultural education.

Thirdly, diversity respect chapter developed in this study primarily focus on virtue of diversity. Most earlier studies in multicultural education just treat perceptional aspect of diversity respsect, but this study focuses on affective characteristic. Students selected in educational experience and instructional planning view television image, read text about diversity theme, feel the value of diversity by doll, and approach diversity based on student's interest. Virtue, interest and attitude are the prime object of this chapter design.

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Developing Personnel Competencies In Explosive Atmospheres For Electrical Engineers

Tsung-Chih Wu, Ed. D.
Professor
Department of Industrial Education and Technology
National Changhua University of Education, Taiwan
tcwu@cc.ncue.edu.tw

ABSTRACT

Competency of personnel working in explosive atmospheres is necessary. The potential for accidents in explosive areas is increasing if personnel are not competent. The objective of this study is to develop personnel competencies in explosive atmospheres for electrical engineers in industries. The authors modified IEC Units of Competence for working with electrical equipment for explosive atmospheres, and thus they developed five-dimension competency model: (1) apply basic principles of protection in explosive atmospheres, and classify hazardous areas; (2) install explosion-protected equipment and wiring systems; (3) maintain, overhaul, and repair explosion-protected equipment; (4) test and inspect electrical installations in or associated with explosive atmospheres; and (5) design and audit electrical installations in or associated with explosive atmospheres. The model developed could be a reference framework for developing electrical safety course in college education and industrial training. For verifying the model, the next steps will consist of exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and analytic hierarchy process (AHP).

INTRODUCTION

The International Labour Organization (2014) indicated that "*the health and safety of the world's workforce periodically attracts the attention of the national and international media. Industrial disasters, especially those resulting in multiple fatalities, make global headlines.*" In fact, thousands of workers die from work activities every day, and many of the fatalities remain unreported or ignored. Globally, an estimated 2.3 million workers die from occupational accidents or work-related diseases each year. In addition, millions of workers endure nonfatal injuries or diseases each year. This phenomenon generates substantial social and economic burdens for communities and countries; furthermore, it creates difficult humanity and financial problems for the laborers and their family members. Therefore, disaster prevention is necessary and urgent. Most accidents and diseases that occur in the workplace can be prevented.

Because explosion-related industrial accidents have caused unprecedented environmental damage and loss of life in recent years, the United Nations Economic Commission for Europe (2011) issued "A Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere." The objectives of this framework were to foster the use of relevant standards proposed by the International Electrotechnical Commission (IEC) and International Organization for Standardization (ISO) by the industry to promote globally harmonized legislation, confirm mutual acceptance of test procedures and test results among the test houses, and strive for comparable installation, maintenance, and repair procedures for the equipment.

The standards for hazardous sites stipulate that special equipment must be used to prevent hazardous gas ignition. However, if this special equipment is not installed correctly, then it cannot provide comprehensive explosion protection, thus causing unsafe conditions for the equipment. Employing competent personnel can ensure correct installation of the equipment as well as comprehensive explosion protection, thereby extending the useful life of the equipment. Competent personnel should be able to recognize the faults that can become ignition sources (Wigg, 2010; 2012). Several regulations have stipulated that competence is required; however, the competence is generally not specifically defined (IEC, 2013a). Competence is a potential characteristic of a person that can affect individual behavior and performance (Spencer & Spencer, 1993). Lacking competence causes a person to make severe mistakes and produce poor results (Axley, 2008).

In the local context, Taiwan has implemented an explosion-protected electrical equipment inspection system. However, no system for certificating the competence of the practitioners of explosion-protected electrical equipment has been established. For explosion-protected electrical equipment, Item 1 of Article 7 in Taiwan's Occupational Safety and Health Act (OSHA, 2013) stipulates that "Machinery, equipment, or tools specified by the central competent authority whose structures, functions, or safeguards do not fulfill safety standards shall not be manufactured and shipped from the factory or imported, rented out, supplied, or installed by manufacturers, importers, suppliers, or employers." For explosion-protected electrical equipment personnel, Item 1 of Article 32 in the Occupational Safety and Health Act (2013) stipulates that "Employers shall provide laborers with all necessary safety and health education and training to perform duties and prevent accidents." Obviously, no regulation or system has been established for the safety, health education, and training of the supervisors or operators in explosion-protected electrical equipment operation. Therefore, whether explosion-protected electrical equipment operation personnel possess sufficient competence to accomplish assignments and tasks safely is a noteworthy topic.

PERSONNEL COMPETENCE IN EXPLOSIVE ATMOSPHERES

When exposed to combustible gases, the vapor of flammable liquid, and dust, sparks or heat generated by electrical equipment can ignite the aforementioned gases, vapor, or dust. Therefore, in all businesses that require sites to store, process, or use these gases, vapor, or dust, explosion-protected electrical equipment is needed. Explosion-protected electrical equipment refers to safe equipment that is specifically designed or manufactured to prevent electrical equipment from becoming an ignition source (Su, 2006). When combustible gases, vapor, or liquids are ignited by electric arcs or sparks, explosion-protected electrical equipment encloses them to inhibit explosion. Only cooled gases can be discharged to the surrounding hazardous site through gaps.

The International Association of Electrical Inspectors (2014) indicates that classification and scope definition of hazardous areas is essential to guaranteeing the safety of electrical installations in hazardous sites. Before installing electrical circuits and equipment at hazardous sites, the class of these hazardous areas must be determined. Through risk analysis, areas are classified by their likelihood of containing explosion hazards. Hazardous areas include sites that have ignitable or potentially ignitable concentrations of substances such as flammable gases, flammable liquid vapors, combustible liquid vapors, flammable liquids, combustible liquids, combustible dust, fibers, or catkins, or sites that exhibit the accumulation of other explosive or fire hazards.

Personnel who work in explosive atmospheres should possess appropriate competence because incompetent personnel can increase accident occurrence in these sites. Although competence is mandated in several regulations, it is generally not defined specifically. Compared with the requirements of ordinary regulations and installation processes, competence also includes the ability to perform specific tasks (IEC, 2013b). Lacking this competence can cause errors that generate disasters. For example, a worker who lacked equipment maintenance competence in explosive atmospheres was determined to be likely to fail to tighten all the screws of explosion-protected equipment (Arnhold, 2014). Therefore, there is the risk of having an external explosion occur when a flammable gas enters the enclosure and is ignited by the arcs. Another example is that a switch should be completely rewired because the wire was too long to fit into the enclosure. However, incompetent installer cut a hole in the back of the enclosure to accommodate the switch. This eliminated the explosion-protection property of the equipment (Wigg, 2010).

The Organization for Economic Co-operation and Development (2012) claimed that the framework of Corporate Governance for Process Safety comprises five basic elements: leadership and culture, risk awareness, information, competence, and action. Specifically, the element of competence requires that high-ranking managers and leaders of an organization confirm that it possesses the competence to manage hazards derived from operation; moreover, the managers and leaders should confirm that managers, engineers, and operators at every level of the organization possess necessary competence. In addition, engineering and technical courses have increasingly emphasized developing student competence (Lohmann, Rollins, & Hoey, 2006). Wigg (2010; 2012) noted that explosion-protected electrical knowledge and skills can be obtained through higher education or training held inside or outside of enterprises.

IECEX SCHEME FOR CERTIFICATION OF PERSONNEL COMPETENCE FOR EXPLOSIVE ATMOSPHERES

The IECEx scheme for certification of personnel competence (CoPC) provides practitioners in explosion-related industries with an internationally recognized certification that assesses personnel competence in the following dimensions: site classification and the design, selection, installation, maintenance, auditing, inspection, overhaul, and repair of explosion-protected equipment. Certified personnel exhibit sufficient competence to work safely in the explosion-protected industry, complete tasks by using explosion-protected equipment, and confirm safe operation of the equipment through protection techniques (Selamat, 2014). Certified practitioners comprise responsible people and operators. Specifically, responsible people or operations supervisors refer to those who are responsible for the design, selection, installation, inspection, maintenance, repair, and overhaul of explosion-protected equipment. Operators refer to those who are involved in the selection, installation, inspection, maintenance, repair, and overhaul of explosion-protected equipment (Baseefa, 2014).

For the IECEx scheme for CoPC for explosive atmospheres, IECEx operation document (OD) 502 sets documentation and information requirements for all applicants, specifying that all applicants should satisfy the minimum requirements for knowledge and skills. Possessing corresponding competence is mandatory for personnel who work in explosive atmospheres. Without adequate competence, the personnel are likely to increase the probability of accidents at explosive sites when engaging in related activities. Although several regulations have specified that competence is mandatory, few regulations have clearly defined this competence. Competence is determined by knowledge, skills, experience, and training. Competence evaluation is a difficult task that requires specific assessment methods. Moreover, periodically monitoring the performance of certified personnel is necessary because competence must be maintained (IEC, 2013a).

IECEx OD 504 presents the specification of the units of competence assessment outcomes for the IECEx scheme for CoPC in explosive atmospheres, which comprises 10 units (Table 1) (Arnhold, 2014; IEC, 2013b; Selamat, 2014). The specification for the units of competence assessment outcomes mainly apply to personnel that handle explosion-protected and associated equipment for explosive atmospheres, covering the following work functions: (1) classification of hazardous areas; (2) production, processing, or servicing functions in a hazardous area and not directly involved in installing, maintaining, or repairing explosion-protected equipment and systems; (3) installing and maintaining explosion-protected equipment and systems in the hazardous area; (4) overhauling, repairing, and modifying explosion-protected equipment; (5) developing, designing, and maintaining explosion-protection strategies; and (6) inspecting hazardous area equipment, systems, and installations. IEC (2014) later published a revision of the OD 504 (i.e., Edition 3.0), adding a competence unit (i.e., Ex 000): basic knowledge and awareness of a hazardous site (the safety responsibilities and minimum basic knowledge of people entering a site that has classified hazardous areas, such as adaptability to a hazardous site and compliance with safety instructions and procedures).

Table 1: List of units of competence for explosive atmospheres

Unit	Title
1. Ex 001	Apply basic principles of protection in explosive atmospheres (Elements: prepare to work in a hazardous area, observe the conditions of an explosion-protected system area, and engage in actions to limit risk of an explosion)
2. Ex 002	Classify hazardous areas (Elements: determine the type and extent of an explosion hazard, establish the type and extent of zones, and document classification and delineation of zones)
3. Ex 003	Install explosion-protected equipment and wiring systems (Elements: prepare for installation of equipment and wiring, install the equipment and wiring systems, and confirm that the installation is complete)
4. Ex 004	Maintain equipment in explosive atmospheres (Elements: prepare to perform maintenance, perform maintenance, complete maintenance work inspections and documentation, establish maintenance requirements, develop and implement a maintenance schedule, and evaluate the maintenance program)
5. Ex 005	Overhaul and repair of explosion-protected equipment (Elements: prepare for overhaul or repair of equipment, perform the overhaul or repair work, and document overhaul or repair work)
6. Ex 006	Test electrical installations in or associated with explosive atmospheres (Elements: prepare to conduct testing, conduct testing, and confirm and document test results)
7. Ex 007	Perform visual and close inspection of electrical installations in or associated with explosive atmospheres (Elements: prepare for inspection, conduct inspection, report inspection results, and evaluate records system)
8. Ex 008	Perform detailed inspection of electrical installations in or associated with explosive atmospheres (Elements: prepare for inspection, conduct inspection, and report inspection results)
9. Ex 009	Design electrical installations in or associated with explosive atmospheres (Elements: establish a design brief, design the system and installations, and check and finalize the design)
10. Ex 010	Audit and inspect electrical installations in or associated with explosive atmospheres (Elements: audit hazardous area documentation [verification dossier] and prepare to audit as-built installation, conduct auditing, and report audit results)

Source: IEC (2013b; 2014)

PERSONNEL COMPETENCE MODELS FOR EXPLOSIVE ATMOSPHERES

According to the specification for units of competence assessment outcomes included in IECEx OD 504 (2014), in the IECEx scheme for CoPC for explosive atmospheres, competence refers to the ability to apply knowledge and skills to achieve a desired outcome. Competence focuses on the tasks that employees are expected to achieve in the workplace instead of on the learning process. Moreover, competence covers the ability to transform and apply skills and knowledge to new situations and environments. The specification comprises the knowledge and associated skills that are required in each competence unit, showing that different competence units require common knowledge and associated skills. For example, both competence in applying basic principles of protection in explosive atmospheres (Ex 001) and in classifying hazardous areas (Ex 002) requires applying principles of explosive atmospheres and explosion protection. The result indicates overlaps between the elements (knowledge or skills) of these competence units. Therefore, integrating these competence types is necessary.

According to the industry classification standard (DGBAS, 2016) and occupation classification standard (DGBAS, 2010) of Taiwan and the content of competence units for explosive sites, the competence of personnel in explosive atmospheres that is required in Taiwan can be integrated into the following five dimensions:

A. To apply basic principles of protection in explosive atmospheres and classify hazardous areas (Unit Ex 000, Unit Ex 001, and Unit Ex 002).
B. To install explosion-protected equipment and wiring systems (Unit Ex 003).
C. To maintain, overhaul, and repair explosion-protected equipment (Unit Ex 004 and Unit Ex 005).
D. To test and inspect electrical installations in or associated with explosive atmospheres (Unit Ex 006, Unit Ex 007, and Unit Ex 008).
E. To design and audit electrical installations in or associated with explosive atmospheres (Unit Ex 009 and Unit Ex 010).

Table 2 presents the required knowledge or skills in each dimension of personnel competence. The model developed could be a reference framework for developing electrical safety course in college education and industrial training. For verifying the model, the next steps will consist of exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and analytic hierarchy process (AHP).

Table 2: Required knowledge or skills in all dimensions of personnel competence for explosive atmospheres

Personnel competences in explosive atmospheres		Knowledge or skills required
A. Apply basic principles of protection in explosive atmospheres and classify hazardous areas	A1.	Understand the nature of explosive hazards and hazardous areas
	A2.	Understand occupational health and safety responsibilities related to hazardous areas
	A3.	Understand explosive atmospheres and explosion-protection principles
	A4.	Understand explosion-protected equipment and certification schemes
	A5.	Understand explosion-protected equipment and principles
	A6.	Understand explosive atmosphere classification techniques
	A7.	Perform hazardous area classification work
B. Install explosion-protected equipment and wiring systems	B1.	Understand explosion-protection techniques
	B2.	Understand common characteristics of explosion-protection techniques
	B3.	Understand explosive atmosphere installation requirements
	B4.	Perform explosive atmosphere cable termination techniques
	B5.	Perform hazardous area installation work
	B6.	Understand hazardous area maintenance work performance
	B7.	Perform hazardous area operations reporting work
C. Maintain and repair explosion-protected equipment and wiring systems	C1.	Understand explosive atmosphere maintenance requirements
	C2.	Understand explosive atmosphere management
	C3.	Perform hazardous area maintenance work
	C4.	Understand explosion-protected equipment overhaul and repair - general requirements
	C5.	Understand explosion-protected equipment overhaul and repair specific to each technique
	C6.	Perform explosion-protected equipment overhaul and repair work
D. Test and inspect explosion-protected electrical installations	D1.	Understand explosive atmosphere installation testing
	D2.	Perform hazardous area installation testing work
	D3.	Understand explosive atmosphere visual and close inspection requirements
	D4.	Perform hazardous area visual and close inspection work
	D5.	Understand explosive atmosphere detailed inspection techniques
	D6.	Perform hazardous area detailed inspection work
E. Design and perform audit inspection of explosion-protected electrical installations	E1.	Understand explosive atmosphere installation planning
	E2.	Understand common classified explosive atmospheres
	E3.	Understand explosion-protected electrical system design
	E4.	Perform hazardous area installation design work
	E5.	Perform explosion-protected electrical system design work
	E6.	Understand hazardous area auditing processes
	E7.	Perform hazardous area audit inspection work

Source: revised from IEC (2013b; 2014)

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Developing Talna: A Numeracy Learning Application For Children With Autism

Muhamad Fairus KAMARUZAMAN
Formgiving Design Research Group, Faculty of Art & Design, Universiti Teknologi MARA,
40450 Shah Alam, Selangor, Malaysia
muhamadfairus@salam.uitm.edu.my

Harrinni Md NOOR
Faculty of Education, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, Malaysia
harrinni@salam.uitm.edu.my

Mustaffa Halabi Haji AZAHARI
Faculty of Art & Design, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, Malaysia
mustaffa@salam.uitm.edu.my

ABSTRACT

There is a growing trend in the academic research area in designing innovative interactive technologies based interventions for children with autism. This technology could be a unique platform for facilitating and encourage the learning process environment of children with autism. This paper presents and discusses the design and development techniques of touchscreen-assistive learning numeracy application (TaLNA). The TaLNA project aims to create an environment that scaffolds the learning process development of children with autism. Series of related work are reviewed, where children with autism have been included in the design process, and series of design activity implemented in TaLNA are described. TaLNA consist of three topics section 1) learn and discover the numbers 2) tracing numbers by using dots images and 3) learn and solve the addition arithmetic problem. Embedded with multicoloured, animated and interactive learning will feasibly keep the autism children engaged. It is an aspiration that TaLNA could uplift the instructional learning environment for children with autism, which could avail boost in early childcare education (ECCE) and thus foster the quality of life for children with autism.

Keywords - Children with Autism, Tablet Technology, Learning Process

INTRODUCTION

Touchscreen-assistive learning numeracy application (TaLNA) was developed as a supporting tool in teaching basic numeracy and counting skills to children with autism. As counting skill is a basic skill for each to live an independent life, thus, it is vitally important for children with autism, too, to master this skill to promote an inclusive future proposed by the Malaysian government towards Vision 2020. Individual with autism possesses different cognitive abilities compared to typically developing the individual. Autism individual experiences delays throughout their development and faces problems in numerous skills that are normally very essential for other typical individuals to go through their daily life. The cognitive abilities of individual with autism are often very slow in progress. These individuals are very well known with the deficit of three different cognitive abilities, which are social skills, communication skills and limited imagination (Hasnah Toran, 2013), although each may show diversified symptoms. Because of its varied symptoms and causes of autism, clinical cure has yet to found. Despite all that, symptoms of a child with autism may be reduced through non-clinical methods such as special education. Educational methods designed specifically for individual with autism is a growing research area. Through the special education, visual support plays a significant role in communications, instructions and engagements of the students. This kind of method encourages the children to become more self-reliance as well as increasing their self-determination. When it comes to special education, Applied Behaviour Analysis (ABA) is the method design that was most talked about. As it has been academically established, it has become one of the most trusted methods to benefit not just student with autism, but also other students with or without special needs. One of the structured teaching methods that are making use of ABA is Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH) program (Rao & Gagie, 2006).

Nowadays, there are a lot of computer software and mobile application developers try to embed the conventional special education method into digital mediums. However, to embed these methods into digital devices means new medium(s) is/are involved. Conventional methods that were established to be effective were found effective when the methods were used conventionally. Thus, when a new platform takes place, a whole new academic proof is needed to establish whether this method may still be effective for the users. Digital devices such as computers and tablets were undoubtedly created to make life easier. As the mobile technology industry grows to a whole new level every time a new model of variety kinds of devices were developed, the content developments were also catching up to live up to the standard. The importance of such devices has also expanded to new target consumers. It has not only become a necessary assistive tool in an everyday basis, but its role has become significant to assist not just typical individual, but also individual with special needs. Besides, it has also been reported that a lot of children with autism were immersed with visually based media and had more tendency to learn through this kind of media such as computer (M. Kamaruzaman & Azahari, 2014; M. Kamaruzaman, Rahman, Abdullah, & Anwar, 2013; Nally, Houlton, & Ralph, 2000). TaLNA is not meant to replace the existing conventional method, but to support and assist the process of teaching and to learn to keep the children with autism engaged in the learning process. In designing TaLNA, certain guidelines were considered to suit the preferences and to encourage interactions with the students with autism in the learning process. Designed based on the concept of ABA intervention, this application compels positive fortifications for every correct response. It is built as a platform for parents, educators, and caregivers to help the children to learn, discover as well as developing their skill to achieve self-determination. This paper will discuss further in the design process of TaLNA.

REVIEW OF RELATED RESEARCHES

Due to the instantaneous development of mobile technology, great deals of researches were made concerning human-computer interaction (HCI). These studies were made not only to typical users of the mobile technology but also to individuals with special needs such as autism. Over the past few years, scholars, scientists and developers have collaborated to develop computer software and mobile applications to aid the learning and development of children with autism (Chien et al., 2015; Hourcade, Bullock-Rest, & Hansen, 2012; M. F. Kamaruzaman, Rani, Nor, & Azahari, 2016; Pavlov, 2014). It has been widely agreed that user interface (UI) design is an important part in HCI as it may indicate the effectiveness of the developed software or application (Pavlov, 2014). Effective UI design allows the end user to perform tasks as well as encouraging effortless, unrefined, and irresistible interaction between the user and the system. Individual with autism were often blessed with fairly distinct visual processing ability as they were often referred to as visual thinkers (Frauenberger, Good, & Alcorn, 2012). A lot of researchers have found that children with autism showed better reaction through visual compared to other sensory (Hayes et al., 2010; McKone et al., 2010; Milley & Machalicek, 2012). Interactive visuals were also said to be highly useful to support the learning process of children with autism. With the use of mobile technology as self-instructor, there is a good possibility that children with autism may acquire an admirable level of self-determination thus, made self-managing personal task possible. Mobile devices such as tablets are examples of devices with eminent Computer Assisted Instruction (CAI) with appropriate software. Devices of this sort make it feasible for individual with autism who possesses severe speech impairment to express their needs (M. Kamaruzaman & Azahari, 2014; Mejia-Figueroa & Juárez-Ramírez, 2014; Nurdalilah Mohd Rani, Siti Humaira Ramli, Rafeah Legino, Mustaffa Halabi Haji Azahari, Muhamad Fairus Kamaruzaman (2016);Torii, Ohtani, Shirahama, Niwa, & Ishii, 2012) It is necessary to follow certain established guidelines while designing applications for autism users. UI have a strong relationship to its demographic of target users and users with autism are target groups that are atypical as they may have a different worldview than the researchers and designers. In designing UI, an attempt to complexity reduction of software or application is crucial to make the product easy to use, systematic as well as enjoyable to work with (Darejeh & Singh, 2013). Therefore, it is the utmost important for software or applications to be developed grounded by the users' cognitive ability, in this case, children with autism. Hence, TaLNA was designed to comply with the need of children with autism as supporting material in learning basic numeracy and developing counting skill.

DESIGN PROCESS AND PRINCIPLES

The design of TaLNA had undergone nine stages of design process. These processes were crucial to establishing proper guideline for the UI design of the application. In order to design the interface, layout and content of the application, it is noted that minimalism expects need to be emphases for the ease of children with autism to digest all the information. All tasks were chosen early in the design effort, which then is used to raise issues concerning the design so design decisions may be made as well as to evaluate the design as it is being developed (Abras, Maloney-Krichmar, & Preece, 2004; Muhamad Fairus Kamaruzaman, Harrinni Md Nor, Mustaffa Halabi Haji Azahari. (2016); Lewis & Rieman, 1993). According to M. F. Kamaruzaman et al. (2016), the design processes involves:

1. Task user analysis

2. Choose representative tasks
3. Find Existing Interfaces
4. Rough Out the Design
5. Analyse User Interaction
6. Create Prototype
7. Test Design to Users
8. Iterate
9. Build the Design

Through the mentioned processes, TaLNA's architecture was designed after various discussions and careful considerations with the autism experts. TaLNA consists of three major activity stages consist of recognising the number, identify the number, and number calculation. Each stage was separated into two sections. The two sections under the recognising number and identify number are both separated into '1-5' and '6-10'. Meanwhile, the two sections under number calculation involve 'plus' and 'minus'. Activities under identifying number involve 'connecting the dots'. Five important principles to design the UI was involved in designing TaLNA. These five principles were necessary to design an application that would be suitable for its target user, in this case, children with autism. The five principles involve were (M. F. Kamaruzaman et al., 2016; Lewis & Rieman, 1993).

1. Clustering Principle - organising the screen into visually separate blocks of similar controls.
2. Visibility Reflects Usefulness Principles - makes frequently used controls visible for the users to access and hide the less frequent controls.
3. Intelligent Consistency Principle - encourages using the similar screen for similar functions.
4. Colour as a Supplement Principle - supplementary to emphasise information through other means.
5. Reduced Clutter Principle - as simple as possible without leaving out attractive touch to it.

FORMING THE TALNA DESIGN

TaLNA was built using Adobe Flash CS5.5 with action script 3.0 in app.xml format. The script target setting used the template setting of AIR for Android 3.2. Thus any mobile device with Adobe AIR will be able to play this application. Figure 1 shows the general settings of AIR for Android 3.2 to build this application. Standard screen size to build an application for Android was used as per set by the AIR for Android 3.2 template, which is either 480 x 800 for portrait view or 800 x 480 for landscape view. For TaLNA, the screen size was set to 800 x 480 for landscape viewing.

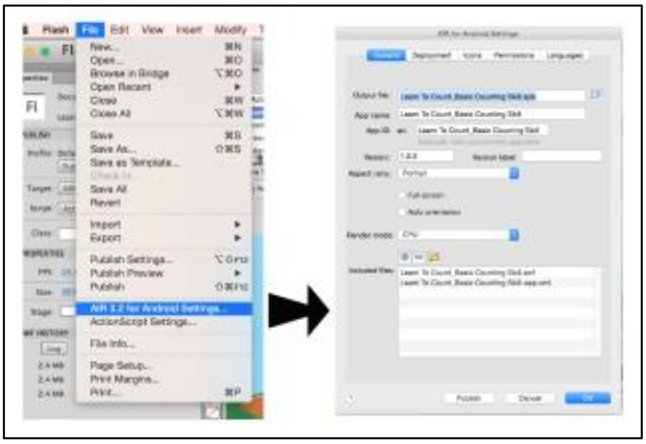

Figure 1: General setting of AIR for Android 3.2 in building TaLNA

The TaLNA design structure building started by building the homepage. Upon entering the homepage, the user will be greeted with cheery background music to draw the attention of young target users towards the application. The homepage consists of five functional buttons. These buttons include three activity buttons, one information button and one exit button. The three activity buttons are 'Recognising', 'Identify' and 'Calculation'. The three activity buttons and information button navigate the user to a different page. The homepage building is as shown in Figure 2

Figure 2: Building the homepage

The first activity button leads to and activity called recognising numbers. In this level, user has to listen to the voice over that says the number in word and the user is required to repeat after the voice over. This level teaches the user to recognise the number and learn how to pronounce the basic numbers. Recognising numbers activity contain ten linear page flows that teaches number one to number ten. Starting from page one, there are two navigating buttons. One button navigates to the homepage, and the other one navigates the next page. Meanwhile, there are three navigating buttons from page two until page nine. One button navigates to the homepage, one navigates to the previous page, and the other one navigates to the next page. Lastly, there are two navigating buttons in page ten that consist of one button to the homepage and one button to the previous. Each of the ten pages was divided into two sections. Instruction section was placed on the right side of the page followed by learning section on the left side of the page as shown in Figure 3. The learning section consists of the number in Arabic form, the picture example of the quantity on the left of the number, and the spelling of the number in roman writing below them.

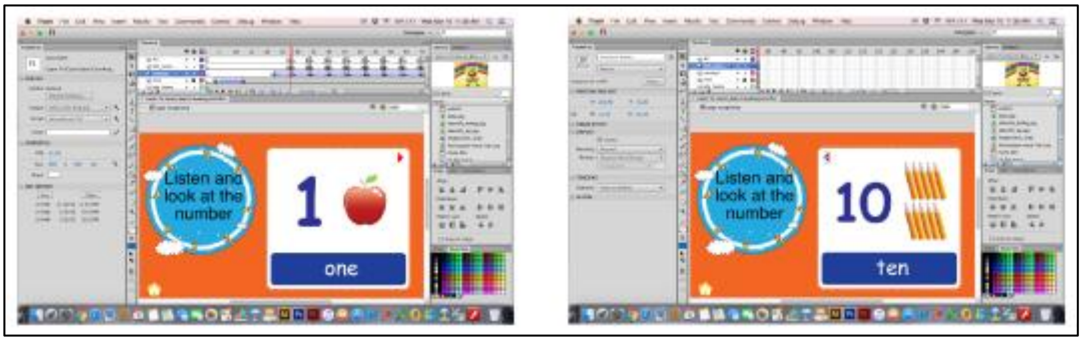

Figure 3: Recognising number page 1 and page 10

The second activity button navigates to an activity called identifying numbers. In this page, the user will learn to identify the numbers while playing one puzzle of each number. Once the user chooses one number on the activity screen as shown in Figure 4, the user will be lead to the puzzle page. The puzzle is called connecting the dots, as the user has to connect all dots to form the number. The user will have to connect the dots following the sequence of the small number on each dot as shown in Figure 5 to form the number.

Figure 4: Identify activity's main page where user will have to choose a number to play the puzzle

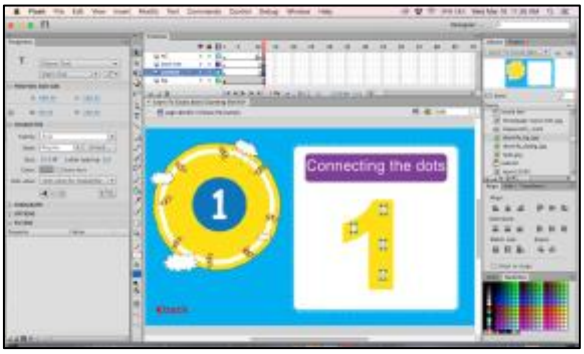

Figure 5: Puzzle page where the user will have to connect the dots in sequence based on the number shown on each dot to form the one whole shape of a number

The third activity, calculation, was divided by two sections, which are plus, and minus operations as shown in Figure 6. In this page, there are three navigating buttons consist of homepage button, plus operation button and minus operation button. In each of plus and minus operation button, there are ten linear calculation quiz pages with different level of difficulties. The plus and minus operation pages are as shown in Figure 7. Each quiz answered with a correct answer will be navigated to the praising page as shown in Figure 8 and will be able to advance to the next question. For questions that are answered wrongly will be navigated to inducement page The praising page is necessary as a form of award system that is normally used in autism's conventional education method as recommended in ABA. Reward system increases the student's determination in completing a task in the correct manner. The student will attempt to answer the same question again afterwards.

Figure 6: Calculation page

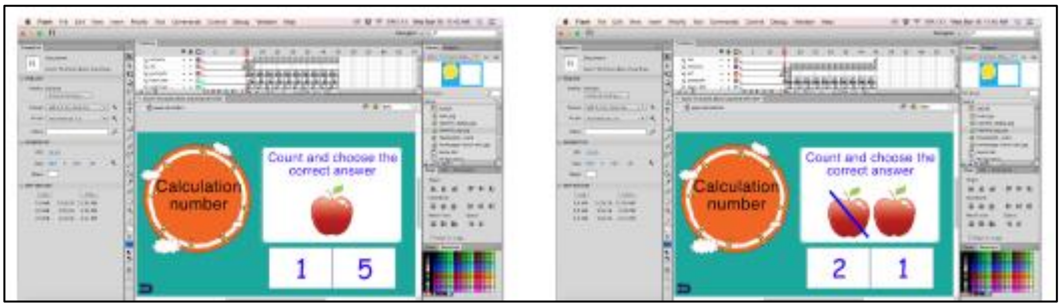

Figure 7: Plus, and minus page

Figure 8: Praising page appears when the question is answered correctly

TALNA PARTICIPATORY DESIGN DEVELOPMENT

After TaLNA had been built, it was tested to users with autism to analyse their interaction with the application's design. In gathering data for the analysis, a participatory approach was used to gain a better understanding of requirements, to build realistic expectations for target groups, and to empower marginalised groups (Frauenberger et al., 2012). Two types of participatory design involve participation via proxy and full participation. While participation via proxy involves people with intimate knowledge of the students such as parents, caretakers and teachers, full participation directly involve children with autism (Frauenberger et al., 2012). Using full participatory research design, this paper reports the involvement of teacher and caretaker as well as children with autism in the application's development, which allows them to have a direct impact on the outcome. With the cooperation of Sri Muda Primary School, Shah Alam, Puncak Alam Primary School, Autism Centre, Rawang and Autism Lab, Faculty of Education, Universiti Kebangsaan Malaysia (UKM). 6 teachers and 2 caretakers were involved in this investigation which to determine TaLNA apps practicality and functionality including the user experience (UX). This is vital to ensure the apps can be use and utilise by the children with autism. This data can be view in Table 1. For full participatory design development, 15 children with mild autism from Autism Lab, UKM has been participated in this experiment. The result from Table 2, shows the engagement of children with autism towards the application. The participatory investigation also looks on the smooth browsing and the acceptance of the layout and interface by the children with autism. According to the result shown in Table 2, only two of the students were not engaged to the application, while the rest of the children were very engaged. The two students, who were not engaged, were both able interact with the first activity just as fine as the other students. However, both of them fall apart to interact with the second and third activity. This is due to the sense of fatigue (Alias, 2014). The overall result of the experiment shows that almost all of the students managed to interact and engage in all three numeracy activities in the application. The engagement of the students was observed from the aspect of colour scheme as well as layout and interface design of the application. The result indicates that, so far, the design of TaLNA is user-friendly and practical for the use of students with autism.

Table 1. Teacher and caretaker respond towards TaLNA apps

Number of Teacher / Caregiver	Centre / School	Teacher / caregiver respond towards the TaLNA apps	Not Engaged	Neutral	Very Engaged	Teacher / Caretaker participatory on TaLNA apps development. 1. **User Experiment** 2. **Apps practicality** 3. **Apps Functionality**	Activity 1	Activity 2	Activity 3
Teacher 1	SK Sri Muda, Shah Alam	Yes			√	Very Engaged	√	√	√
Teacher 2	SK Sri Muda, Shah Alam	Yes			√	Very Engaged	√	√	√
Teacher 3	SK Puncak Alam	Yes			√	Very Engaged	√	√	√
Teacher 4	SK Puncak Alam	Yes			√	Very Engaged	√	√	√
Teacher 5	Autism Centre, Rawang	Yes			√	Very Engaged	√	√	√
Teacher 6	Autism Lab, UKM	Yes			√	Very Engaged	√	√	√
Caretaker 1	Autism Centre, Rawang	Yes			√	Very Engaged	√	√	√
Caretaker 2	Autism UKM Lab, Selangor.	Yes			√	Very Engaged	√	√	√

Table 2. Children with autism level of engagement towards the TaLNA application

Number of Children with ASD	School	Children with ASD, behaviour respond towards the touchscreen apps	Not Engaged	Neutral	Very Engaged	Participatory on TaLNA application development. 1. **Colour Scheme** 2. **Layout & Interface** **(user-friendly)** **(practicality)**	Activity 1	Activity 2	Activity 3
ASD Children 1	Autism UKM Lab, Bangi.	Yes			√	Very Engaged	√	√	√
ASD Children 2		Yes	√			Not Engaged	√	x	x
ASD Children 3		Yes			√	Very Engaged	√	√	√
ASD Children 4		Yes			√	Very Engaged	√	√	√
ASD Children 5		Yes			√	Very Engaged	√	√	√
ASD Children 6		Yes			√	Very Engaged	√	√	√
ASD Children 7		Yes			√	Very Engaged	√	√	√
ASD Children 8		Yes			√	Very Engaged	√	√	√
ASD Children 9		Yes			√	Very Engaged	√	√	√
ASD Children 10		Yes			√	Very Engaged	√	√	√
ASD Children 11		Yes			√	Very Engaged	√	√	√
ASD Children 12		Yes			√	Very Engaged	√	√	√
ASD Children 13		Yes			√	Very Engaged	√	√	√
ASD Children 14		Yes	√			Not Engaged	√	x	x
ASD Children 15		Yes			√	Very Engaged	√	√	√

CONCLUSION

This paper discussed the building of TaLNA design and its direct impact on engagement towards the target group. TaLNA was designed based on five principles that include Clustering, Visibility Reflects Usefulness, Intelligent Consistency, Colour as a Supplement, and Reduced Clutter. These principles are the key foundation in designing multimedia content for children with autism or children with disabilities with the traits closely similar to children with autism. Using Adobe AIR setting for Android 3.2, TaLNA was designed suitable to be used in Android mobile device so long it has Adobe AIR installed in it. In this research, TaLNA was installed in Samsung Galaxy Tab 4, and its functionality was tested before the actual experiment was conducted towards the students. After making sure that the application works well, the engagement experiment took place to observe interactions of students with autism towards TaLNA. The result shown from the experiment indicated that most students did not have any problem operating the application. Most students also seemed to be very engaged in the application as 13 out of 15 managed to complete all three numeracy activities in the application. In conclusion, the creation of TaLNA apps design is on the right track which it may be used as a supporting medium in encouraging students with autism in engaging with mathematical lessons.

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Development Model Of Integrated Ict Learning Package By Using Personal Knowledge Management To Enhance Learners' 21st Century Skills

Nattaphon RAMPAI
Department of Educational Technology, Faculty of Education
Kasetsart University, Bangkok, Thailand
drnattaphon@gmail.com

ABSTRACT

This research aims to develop and evaluate the model of integrated ICT learning package by using Personal Knowledge Management for enhance learners in 21st century skills that divide into 3 stages: first stage is to study the appropriate model of ICT skills learning package, second stage is to develop ICT skills learning package for learners, and third stage is to study the use of ICT skills learning package form learners. The participants were master degree students that study in Department of Educational Technology in 2015 academic year. Research tools were: matrix analysis data form, satisfaction questionnaire, 21st century skill evaluation. Data were analyze by Arithmetic mean and Standard Deviation (S.D.) Research findings showed that the model of ICT skills learning package in 21st century for learners that analyze and syntheses are include the 3 main parts: 1) Personal Knowledge Management (PKM) are included the activities: Activation (Community of Interests), Demonstration (Before Action Review), Application (Community of Practices), and Integration (After Action Review) and designed activity in to the Online Learning Environments: OLEs and Virtual Learning Environments: VLEs, 2) Self-Directed Learning: SDL are included the 5 elements: Set Goal, Plan, Learn, Show, and Reflex. Driven by "Seek & Sense" activity, 3) Collaborative Learning: CL are included the 5 elements: Collaboration, Discussion, Community, Brainstorm, Interaction, and Share Idea. Driven by "Show & Share" activity, and 4) Monitoring and Evaluation are included the 3 elements: 1) Critical Thinking and Problem Solving, and 2) Communication and Collaboration. Finally, the model showed the quality evaluation by 3 experts found that "appropriated level" which is the "Prototype model" that can be use and apply into the learning activity in the next future.

INTRODUCTION

Educational and communication technology shaped the facilities and services of teacher and learner. The way of teaching and learning, the way of sharing experiences has been changed. ICT becomes integral of our lives and it promises opportunity for learners to gain equality in education within diverse contexts and services. The needs for ICT skills professional development that can meet today's educators' demanding schedules, that uses quality content and resources that are available to teachers from any place and any time, and that can deliver relevant, accessible, and ongoing support has stimulated the development of online teacher professional development programs. Online teacher professional development programs make it possible for educators to communicate, share knowledge and resources, and reflect via asynchronous interactions. Moreover, Rabah (2015) suggests that the benefits and challenges of ICT integration is a powerful and flexible tool for learning, it is needed and desired to meet globalization challenges in particular knowledge and communication breakthroughs that the world can achieve using information communication technologies (ICT) are so numerous that educational institutions are striving to invest in ICT tools in an attempt to help raise citizens who are ready to face the challenges of the 21st century where media, manufacturing industries as well as commerce have become increasingly technology-oriented. In addition, Omar and Noordin (2013) supports that the uses of Information and Communication Technology (ICT) have been developed tremendously in order to assist the operations for daily business and education throughout the world. Technological advancements today have passed beyond cables and wires where the means of communication now can be done from just about anywhere. Office works can be done from home, meetings can be conducted virtually and educational classes can be handled from thousands of miles away without having to have the students to sit in front of their teachers in the same classrooms. However, there is a concern recently that such technological advancements would not be possible to be continued without the sufficient supplies of human capitals. The condition of education in Thailand today still has several problems. Especially, the quality of learners seems shortages (Secretariat of the Council of Education- Thailand, 2010). Along with the lack of pedagogy skills that is not match in the actual practical needs for higher education. Particularly, Lee (2010) have suggests that the common difficulties and limitations regarding the implementation of knowledge management into classrooms cultures. In addition, the concept of social media that based on the appropriate tool and the medium to deliver knowledge, and helps learners can communicated with each other (Catherall, 2008) especially in teaching and learning using the potential of internet network to access with various sources of learning (Belleghem, 2011).

The main purpose of this study is to research and develop activities to be appropriate with the learners that integrated with the concept of knowledge management and social media. The question then becomes, "How to design and develop the appropriate design the model of Information and Communication Technology learning package". The expected benefits are the appropriate model that is the systematic approach to enhance graduated students in 21st century skills. More over the results of quality assessment of model that is body of knowledge to develop the learning skill of graduated students. In addition the results can be the information to support the higher education systems policy maker.

THE STUDY

This research aims to 1) design the model of Information and Communication Technology learning package for enhance graduated students in 21st century skills, and 2) develop and evaluate the Information and Communication Technology learning package for enhance graduated students in 21st century skills. The methodology provide into 2 phases, the details are as following:

The first phase focus to design the model of Information and Communication Technology learning package for enhance graduated students in 21st century skills.

1. Analyzing the elements of Personal Knowledge Management (PKM) are included the activities: Activation (Community of Interests), Demonstration (Before Action Review), Application (Community of Practices), and Integration (After Action Review) and designed activity in to the Online Learning Environments: OLEs and Virtual Learning Environments: VLEs.
2. Analyzing the elements of Self-Directed Learning: SDL are included the 5 elements: Set Goal, Plan, Learn, Show, and Reflex. Driven by "Seek & Sense" activity.
3. Analyzing the elements of Collaborative Learning: CL are included the 5 elements: Collaboration, Discussion, Community, Brainstorm, Interaction, and Share Idea. Driven by "Show & Share" activity.
4. Analyzing the elements of Monitoring and Evaluation are included the 3 elements: 1) Creatively and Innovation, 2) Critical Thinking and Problem Solving, and 3) Communication and Collaboration.
5. Integrating the elements of Personal Knowledge Management, Self-Directed Learning, Collaborative Learning, and Monitoring and Evaluation by the matrix analysis technique
6. Studying the appropriate quality of model of Information and Communication Technology (ICT) learning package for students in 21st Century by the 3 experts (Educational technology and Knowledge Management field)

The second phase go for develop and evaluate the model of Information and Communication Technology (ICT) learning package and assessment tools.

1. Developing the model of Information and Communication Technology (ICT) learning package and quality evaluated by the 3 experts (Educational technology and Knowledge Management field).
2. Try-out model of Information and Communication Technology (ICT) learning package by the 45 graduate students who study in semester, 2015 for study the research tools quality (try-out stage).
3. Preparing the all of research tools that using in the next step.

Finally, the third phase go for study the use of ICT skills learning package form learners.

1. Research design: by following the One-Group Posttest Design.
2. Population and samples:
    2.1 Population are the graduate students who study in semester, 2015 academic year at Faculty of Education, Kasetsart University, Thailand.
    2.2 Samples are 36 graduate students that collected by random sampling technique and learn by the model of Information and Communication Technology (ICT) learning package.
3. Research tools:
    3.1 The Information and Communication Technology (ICT) learning package.
    3.2 The Information and Communication Technology (ICT) skills test.
4. Data analysis:
    4.1 Descriptive statistics were Arithmetic Mean and Standard Deviation (S.D.) are used to describe the basic features of the quantitative data.
    4.2 Qualitative data were analyzed by category group and issuing data technique.

FINDINGS

1. The model of model of Information and Communication Technology learning package for enhance graduated students in 21st century skills was appropriated with the criterion of quality, detail are as follow:

1.1 Personal Knowledge Management (PKM) are included the activities: Activation (Community of Interests), Demonstration (Before Action Review), Application (Community of Practices), and Integration (After

Action Review) and designed activity in to the Online Learning Environments: OLEs and Virtual Learning Environments: VLEs.

1.2 Self-Directed Learning: SDL are included the 5 elements: Set Goal, Plan, Learn, Show, and Reflex. Driven by “Seek & Sense” activity.

1.3 Collaborative Learning: CL are included the 5 elements: Collaboration, Discussion, Community, Brainstorm, Interaction, and Share Idea. Driven by “Show & Share” activity.

1.4 Monitoring and Evaluation are included the 3 elements: 1) Creatively and Innovation, 2) Critical Thinking and Problem Solving, and 3) Communication and Collaboration.

1.5 Integrated elements of Personal Knowledge Management, Self-Directed Learning, Collaborative Learning, and Monitoring and Evaluation by the matrix analysis technique, details see on fig. 1

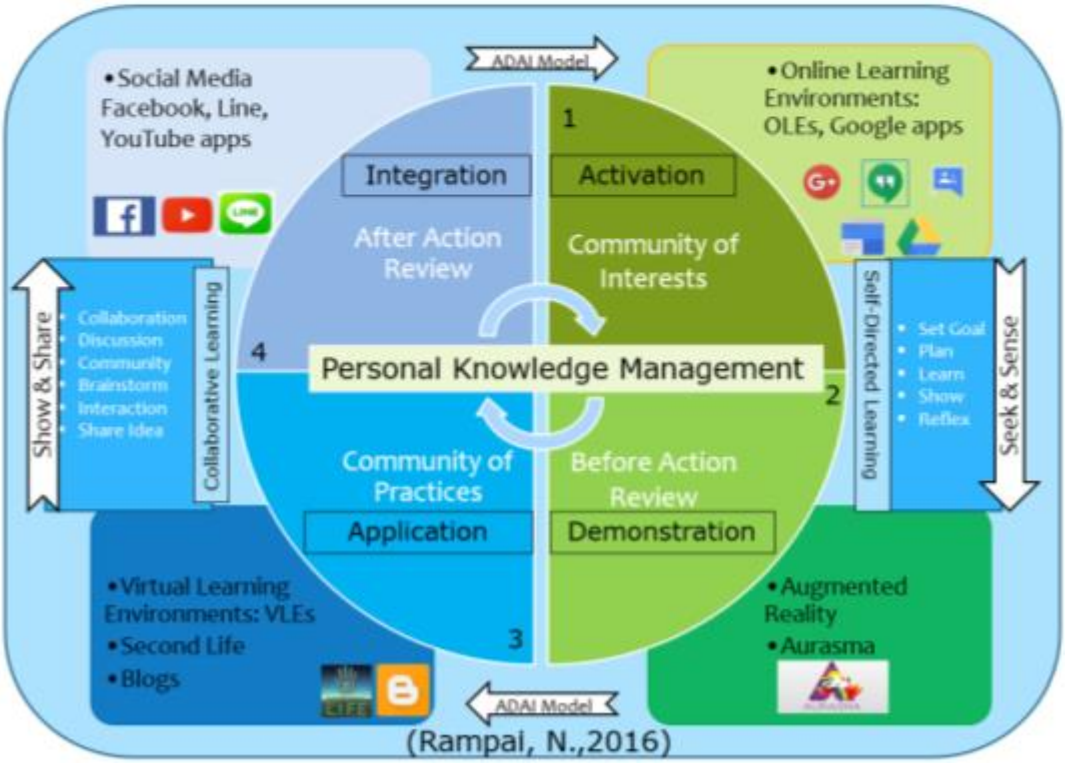

Fig 1: The model of model of Information and Communication Technology learning package for enhance graduated students in 21st century skills.

2. The quality of the model of Information and Communication Technology (ICT) learning package in 21st century for graduated students by the 3 experts was appropriated with instructional media showed overall results quality at highest level (mean=4.51, S.D.= 0.54), details are following: the highest level showed at process step (mean=4.61, S.D.= 0.54), the overview of the basic elements of the model (mean= 4.52, S.D.= 0.59), the overall of productivity (output) step (mean= 4.50, S.D.= 0.56), the overall of the input step (mean=4.40, S.D.= 0.58) and totally, model that mean the model of Information and Communication Technology (ICT) skills learning package in 21st century for graduated students can supports the student to learn and enhance their self-directed learning skill on the next steps, details see on table 1

Table 1: the quality of the model

Quality issue	Arithmetic Mean	Standard Deviation (S.D.)	Level
the basic elements of the model	4.52	0.59	highest
the input step	4.40	0.58	high
the process step	4.61	0.54	highest
the output step	4.50	0.56	highest
the overall results quality	4.51	0.54	highest

3. The evaluation of ICT skills learning package form learners.

3.1 The learner's score of ICT skills showed overall results at highest level (arithmetic mean=3.50/4.00), details are following: 1) the quality of product especially in appropriately design step (arithmetic mean=3.58/4.00), the quality of product especially in continue design step (arithmetic mean= 3.50/4.00), and the quality of creatively product especially in new technique/methods application (arithmetic mean= 3.42). (See in table 2)

Table 2: The learner's score of ICT skills

ICT skills issue	Arithmetic Mean (4.00)	Level
the quality of product especially in appropriately design step	3.58	highest
the quality of product especially in continue design step	3.50	high
the quality of creatively product especially in new technique/methods application	3.42	highest
the overall results	3.50	highest

3.2 The learner's score of self-directed learning skills showed overall results at highest level (arithmetic mean=4.34, S.D. = 0.11). Totally, the ICT skills learning package can supports the student to learn and enhance their self-directed learning skill on the next steps.

CONCLUSIONS

Research results exhibited that the model of Information and Communication Technology (ICT) skills learning package in 21st century for graduated students was appropriated and fit to the quality of instructional media system design and development principal. Online learning skills development is an emerging trend it is still a "new frontier". Educators around the world experience many demands on their knowledge, time, and professional development. Developing and sustaining an effective online learning community can be challenging even in the midst of an era of much technological advancement.

Moreover, developing and sustaining an effective large-scale online community is even more challenging. In addition, professional development has mainly centered on learning processes that involve updating knowledge, yet it has made little headway as a construct that includes both the professional and personal characteristics and working conditions. It has also focused more on developing. Finally, the online learning technologies have the potential to transform the professional development of students; penetrate cultural, discipline, and other barriers; bring educators together to learn, share successes and challenges; and co-construct and transfer learning.

RECOMMENDATIONS

1. Online Learning Environments (OLEs) and Virtual Learning Environments (VLEs) are important tools to teaching and learning for graduated study.
2. Applications to design and development that using web-based instruction for graduate students appropriately which guide the application of the next future to teaching in higher education institutions.
3. Guidelines to online teaching & learning especially in "Seek & Sense" and "Show & Share" process among learners in the "Community of Interest" and "Community of Practices".
4. Best practice to use Personal Knowledge Management process with Self Directed Learning and Collaborative Learning in the Graduated study courses.

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Development Of A Research Competence In University Students Through Blended Learning

Lagunes, AGUSTÍN
Faculty of Accounting and Management
Veracruzana University, Mexico
aglagunes@uv.mx

Judikis, Juan CARLOS
Faculty of Education and Social Sciences
Magallanes University, Chile
juan.judikis@umag.cl

Flores, Maria ALICIA
Faculty of Accounting and Management
Veracruzana University, Mexico
maflores@uv.mx

ABSTRACT

This paper reports the need to develop a research competence in undergraduate students. This has been studied from different perspectives, so the paper aims to show a proposal by using a strategy called Blended Learning.
To achieve this goal, it is first important to seek out the knowledge, skills and values that the research competence must contain, according to numerous authors; and then, identify the knowledge and skills that a university student must possess to be considered with the competence.
Although efforts have been made to develop research competence, such as the mentoring of research, research summers, the STAR project and the thesis for obtaining the degree, this goal has not been achieved in the students.
In this work, Blended Learning is seen as a strategy and not as a method. The difference lies in the point of view. When seen as a strategy, it allows strategic planning for its implementation; whereas as a method, uploading material to an educational platform turns out just being a waste of time.
Finally a proposal for a model, which includes virtual classroom strategies and taking advantages of the best strategies, is shared.

Keywords: Blended Learning; Higher Education; Research Competence; Student

INTRODUCTION

This research presents a proposal to develop the research competence in university students. To do this; firstly the authors define what the research competence is; followed by a review of the efforts that have been made to develop this competence; and lastly a proposal is shared.

1. The research competence

According to the Tuning Project the research competence is identified, within systematic generic skills, known as Research skills (Sierra Alonso, 2011). According to Gonzalez and Wagenaar (2003) they are also considered specific skills related to research.

All competences must have knowledge, skills and values. For this reason, a review of literature was conducted to determine the authors that included these three elements of the research competence. As a result of this review, the research group determined what would be the competence regarding knowledge, skills and values included in the competence to be developed by university students.

Knowledge for University Students

Scientific and technical knowledge (Landazábal, Claro, & Cruz, 2007).
Methodological knowledge (Molina & Hernandez, 2013).
Knowledge of technological means to make optimal research results (Toro & Tejeda, 2010).
Correct punctuation, grammar and spelling (Landazábal, Claro, & Cruz, 2007).
Procedures for asking and identifying issues of the research project (Mena & Lizenberg, 2013).
Procedures for planning the time needed to work on the research / Formulation of research projects (Bolivar, 2005).
Procedures for registering, making designs, and validating of research instruments (Bolivar, 2005).
Procedures for analyzing quantitative and qualitative data included in the research (Bolivar, 2005).
Have full control of general, technical, and graphic language (Landazábal, Claro, & Cruz, 2007).

Skills for University Students

Advanced search for relevant and adjacency information (Bolívar, 2005; Toro & Tejeda, 2010).
Identifying and writing scientific hypothesis for the research project (Molina & Hernandez, 2013).
Developing goals and purposes (Carlos, 2001).
Developing communication skills (Camargo & Bonilla, 2015).
Ability to learn (Camargo & Bonilla, 2015).
Ability to develop strategies (Camargo & Bonilla, 2015).
Ability to solve problems (Carlos, 2001; Rodriguez, Bertone, & Garcia, 2009).
Academic skills (reading, seeing, hearing, take notes, graph, interpret documents, design) (Carlos, 2001).
Research skills (observe, hypothesize, analyze, search for information, evaluate, use instruments) (Carlos, 2001).
Social skills (Cooperate, know discuss, defend own ideas, teamwork, conflict resolution) (Carlos, 2001).
Observation skills (Cuevas, Guillen & Rocha, 2011; Landazábal, Claro, & Cruz, 2007).
Cognitive Skills (Charles, 2001).
Self-management capacity (Charles, 2001).
Skills for teamwork (Campos, Madriz, Rivera, & Roads, 2012).
Methodological skills (Campos, Madriz, Rivera, & Roads, 2012).
Skills to manage research (Campos, Madriz, Rivera, & Roads, 2012).
Technological skills (Campos, Madriz, Rivera, & Roads, 2012).
Logical organization of ideas (Landazábal, Claro, & Cruz, 2007).
Analytical thinking (Molina & Hernandez, 2013).
Thinking (Velez, 2006).
Use of personal scientific knowledge to describe, explain and predict phenomena of their field of expertise (Mena & Lizenberg, 2013).

Values according to various authors

The review of the literature showed that values are the same for any research done regardless if it is for undergraduate or graduate students. Values or standards selected were the following.

- Autonomy
- Collaboration
- Commitment
- Discipline
- Ethics
- Flexibility
- Honesty
- Interest
- Originality
- Perseverance
- Respect
- Responsibility
- Rigor
- Solidarity
- Transparency

2. Efforts to achieve the research competence

The research competence has been worked for many years at universities around the world, and there have been many efforts to achieve it. The results have been varied, as some universities have had significant progresses and others have not been able to develop it.

To mention some efforts, summer research courses conducted by Hunter, Laursen, and Seym (2006) where made, where they discussed in four US universities how to turn students into future scientists. The analysis was based on the four research programs of summer courses.

The results were positive, given that both students and teachers perceived that they had a very good experience and universities felt that they were good programs.

The main problem of the research summer course had to do with the fact that there was no follow-up of the competences learned. The students returned to their studies and there was no connection with the competence they learned in terms of research.

The good thing is that the seed planted in the program might produce results in the near future if there is a follow up or related activities in their original or core programs.

A second effort was designed by Finn and Crook (2003) called Scientific Training for Student Assignment for Research, for ITS acronym in English, STAR Project. This project provided the experiential part, as the student learned by doing, in addition to their official website that provides tips, short exercises and case studies.

A third effort, are the tutors of research. This activity is known by different in different names: advisor, counselor and tutor research. Authors Igea Del Rincon (2000), Monge Crespo (2010), Sanchiz Ruiz, Martí Puig, and Cremades Soler (2011), Galician and Riart (2010) and Sanz Oro (2009), have investigated tutorials from the point of view of students. They depart from the importance of the students in the research activity. They have the target in the research they are working on. This activity is called orientation.

3. Blended Learning

Once the research competence has been addressed, it is necessary to review the literature related to Blended Learning, and as a result, show the benefits and jobs that have been made in Higher Education.

There are countless advantages of Blended Learning according to Bonk and Graham (2006), where the main three are:

In first hand, it serves students from diverse communities. Unfortunately when students go to college, they do not do it with the same level of knowledge and skills. They also bring different ways and styles of learning.

For this, Blended Learning offers new ways to personalize the learning experience and engage students.

To discuss the reduction of graduation time, it is important to mention that students face new and more demanding pressures every day, like for example, their work and family. The percentage of working students is higher than ever, besides being a full time student.

Blended Learning allows universities to provide more programming options for students enrolled completing their required courses.

As for the ultimate benefit, the advantage is the better understanding of the student progress, as a blended learning mode platform allows the collection of detailed data on student activity and learning behavior in the online environment used. The availability of these data helps in two key aspects for Higher Education, improving the quality and improving student outcomes.

Using Blended Learning in Higher Education is not something new. Universities have used it in Saudi Arabia, Spain, United States, Scotland, England, Finland, the Netherlands, Malaysia, New Zealand, Taiwan, Turkey, Switzerland and of course Mexico, among others.

Universities have done studies on the advantages and disadvantages of blended Learning. For example, the Faculty of Forestry, University Putra Malaysia in 2009 (Kamaruzaman & Khodabandelou, 2009), the University of Ballarat and the University of Western Sydney in undergraduate and postgraduate (O O'Connor, Mortimer, & Bond, 2011), US universities, Indiana University, Bloomington, Portland State University, the University of Georgia and The University of Illinois at Urbana-Champaign (Curtis, Kyong-Jee Eun, Ya -ting, & Su, 2007).

Another topic that interests a lot to universities is the perception of students and teachers about the use of blended learning. The universities which have researched the subject are the University of Cordoba and Granada (Hinojo, Aznar, & Cáceres, 2009), Croatia, University of Rijeka (Zuvic-Butorac, Roncevic, Nemcanin, & Nebic, 2011), the Ahi Evran University, Kırıkkale University and Hacettepe University in Turkey (Akkoyunlu & Yilmaz Soylu, 2004; Usta & Mehmet Ozdemir, 2008), and of course the Universidad Veracruzana in Mexico (Arras Vota, Torres Gastelú, & Fierro Murga, 2012).

In addition, some universities have done studies on the implementation of Blended Learning in some careers in particular, such as Brigham Young University, a private university in Utah, United States

(Cottrell & Robison, 2003) and the Complutense University of Madrid (Arrabal Ortiz, Fernández Barbero, Barrio Otero, Ros Rodriguez, Santos & Gilabert, 2009).

One of the most important areas to investigate their pedagogical Blended Learning is partly why universities such as the Open University of Israel (Precel, Eshet-Alkalai, & Alberton, 2009), the University of Tabuk in Saudi Arabia, Assiut University Egypt (Farrag Badawi, 2009) and Anadolu University in Turkey (Caner, 2010) have done studies on this aspect.

As for the results of Blended Learning in learning the University of Seville, Spain and the PUCMM University of the Dominican Republic (Cabero, Llorente, & Bridges, 2010), also the University Zurich in Switzerland (Gerber, Grund , & Grote, 2007), just as the Thames Valley University in the United (Hughes, 2007) and the University of Stuttgart in Germany (Steffens & Reiss, 2010), have done studies related to the impact of blended learning on learning.

As you can see, there are many investigations concerning the implementation, the pedagogical aspect and the outcomes or results of using Blended Learning with university students.

BLENDED LEARNING PROPOSAL

The proposal is a teaching method that includes virtual classroom strategies and strategies where the event receiving more importance is the process of interaction, whether in the classroom or virtual.

The difference with other proposals is that this one is a didactic strategic planning that considers each of the strategies for each classroom activity, and enhances virtual and each didactic material. This increases knowledge and improves skills to achieve the research competence.

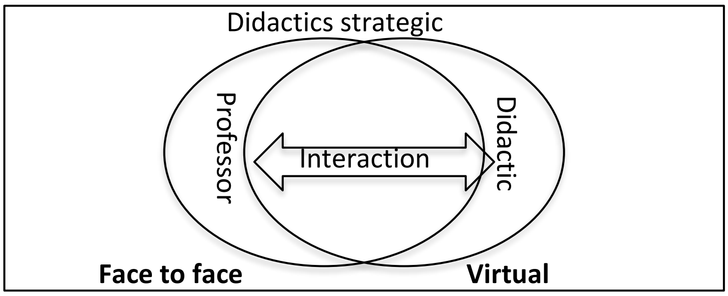

Figure1. Blended Learning proposal.

Applying Flipped Classroom allows better contact through the activities with the professor and the teaching materials and assembled in the educational platform.

As for teaching materials it is important to focus on four main areas: research, word processing, and quantitative and qualitative software.

As for the investigation, a creative process of materials must be developed. This process must explain the scientific method, finding reliable information, the research protocol, validity and reliability, and the types of academic research, among others.

In relation to the word processor, you must create screencasts showing management of APA format, how to create a master document, the preparation of the table of contents, use and management of sections and others.

The software for quantitative set of videos should cover a number of actions for example may import data from a spreadsheet, calculate frequencies and determine correlation between two variables.

Although qualitative research is more complex for students, consideration should be given to conduct an investigation of this type. Therefore, at least two materials should be developed: data reduction and the provision and processing of data.

This is the general proposal for the development of research competence in university students by applying the Blended Learning Flipped Classroom teaching model.

CONCLUSIONS

We have three conclusions, the first is that for many years there have been efforts to achieve research competence but these efforts have not been enough.

The second, blended learning is a viable alternative to develop research competence because the blended learning has been successful in several areas and in various countries.

Finally, we propose to use the blended learning as didactic strategic planning that considers each of the strategies for each classroom activity, and enhances virtual and each didactic material. This increases knowledge and improves skills to achieve the research competence.

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Development Of Conceptual Understanding Of Acid-Base By Using Inquiry Experiments In Conjunction With Particulate Animations For Grade 8 Students

Saksri SUPASORN[1,2,*]

Maliwan AMATATONGCHAI[1]

[1]Department of Chemistry, Faculty of Science, Ubon Ratchathani University,
Ubon Ratchathani, 34190, Thailand
[2]Research and Innovation in Science Education (RISE) Unit, Faculty of Science,
Ubon Ratchathani University, Ubon Ratchathani, 34190, Thailand
saksri.supasorn@gmail.com

ABSTRACT

The main purpose of this research was to develop conceptual understanding of acid-base by using 5E inquiry experiments in conjunction with particulate animations, also called molecular animations. The participants of this study were 36 students, purposively selected from the populations of grade 8 students studying at Srimuang Wittayakhan School in Ubon Ratchathani Province during the second semester of 2015. The treatment tool was the intervention of 5E inquiry learning activities of chemistry experiments in conjunction with particulate animations of acid-base for 10 hours. The data collecting tools consisted of a conceptual test including 16 five-choice items and mental model drawings at particulate level of acid-base. The dependent samples t-test analysis of students' conceptual test scores indicated that the post-conceptual test score (mean 23.94, SD 3.17) was statistically significantly higher than the pre-conceptual test score (mean 10.19, SD 4.91) at the 95% confidence level. After the intervention, the percentages of students in mis- and alternative conceptual understanding (MU and AU) categories were decreased by 32.29 and 23.96, while the percentage of students in the sound conceptual understanding (SU) category was increased by 56.25. In addition, the dependent samples t-test analysis of students' scores of mental model drawing at particulate level indicated that the post-mental model score (mean 9.07, SD 1.85) was statistically significantly higher than the pre-pre-mental model score (mean 3.17, SD 1.58) at the 95% confidence level. After the intervention, the percentages of students in the no and mis- conceptual understanding (NU+MU) and in the partial with mis-conceptual understanding (PMU) categories were decreased by 62.51 and 9.26, while the percentage of students in the partial and sound conceptual understanding (PU+SU) categories was increased by 72.22. This verified that the intervention of inquiry experiments in conjunction with particulate animations was effective to develop students' conceptual understanding and mental models at particulate level of acid-base.

INTRODUCTION

Acid-base is one the key concepts that all secondary school students are required to study, while many students revealed that it is one of the difficult chemistry topics since it involves intangible concepts. This could lead them to hold alternative conceptual understanding – conceptual understanding that are not consistent with the consensus of the scientific community which may be partially right but incomplete, or just simply wrong (Mulford and Robinson, 2002). Students' mis- or alternative conceptions is considered as one of the most important issue in learning Science (İşman, Willis, and Donaldson, 2015a). Since students' alternative conceptual understanding, also called mis- and alternative conceptions, cannot be measured by traditional instruments (Stears and Gopal, 2010), the use of activities that promote students' conceptual change should be applied (Demirbaş and Ertuðrul, 2014). Requiring students to draw and explain molecular representations of some acid-base phenomena, such as theories and dissociations of some acids or bases, may reveal their conceptual understandings and identify some of their alternative conceptions.

Previous research studies revealed that the topics that many students tended to hold alternative conceptions, such as acid-base theories (Artdej et al., 2010; Sheppard, 2006), pH and neutralization of acid-base (Sheppard, 2006), acid-base reactions (Cokelez, 2010) and when they had difficulty understanding one of these concepts, they also experienced difficulties in related subjects and had mis- or alternative conceptions (Bayrak, 2013) and wrong mental models (Lina and Chiua, 2007). Some studies revealed that even prospective chemistry teachers accommodate some alternative conceptions, such as neutralization concept, the distinction between strength and concentration of acids, and linking the acids and bases topic to daily life (Boz, 2009).

THREE LEVELS OF REPRESENTATIONS AND MENTAL MODELS IN CHEMISTRY

Previous research studies revealed that many alternative conceptions in some invisible concepts stemmed from the fact that students had difficulty in understanding the link among three levels of representations in chemistry (Çalik et al, 2010). Çalik et al (2010) investigated some studies involving students' alternative conceptions in such topics as acid-base and chemical equilibrium, and summarised that some alternative conceptions appeared because many students encountered difficulty to visualize chemical phenomena and/or processes at the sub-microscopic level and to link the macroscopic, sub-microscopic (or particulate), and symbolic levels to each other. Representations in chemistry involves three levels as follows (Johnstone, 1993): 1) macroscopic representation, describes bulk properties of tangible and visible phenomena in the everyday experiences of learners when observing changes in the properties of matter, such as color changes, formation of gases, and precipitates in chemical reactions, 2) sub-microscopic representation, also called particulate or molecular representation, provides explanations at the particulate level in which matter is composed of atoms, molecules and ions, and 3) symbolic representation, involves the use of chemical symbols, formula, and equations, as well as molecular structure drawings, diagrams, and models to symbolize matter. It can provide information for both macroscopic (relative amounts or moles of involved substances) and molecular levels (numbers of formula unit of involved substances).

Students' conceptual understanding, especially intangible concepts involves the ability to link among three representations in chemistry. The term 'mental model' was introduced to illustrate how students create a model of understanding of a specific process by the incorporation of new received information into their prior knowledge (Johnstone, 1993). If their models fail to assimilate new experiences, students may modify their existing models or generate alternative models. Mental models play a potential role in learning chemistry at the particulate level because much of the chemistry involved at this level cannot be accessed by direct perception (Briggs and Bodner, 2005). Sound understanding of chemistry involves the ability to connect information at a macroscopic level with information at the particulate level (Johnstone, 1993) or transform these invisible information into equivalent mental models, mostly difficult for many students (Doymus, Karacop and Simsek, 2010). The term 'mental models' in this study context could be defined as the models of understanding (in form of drawings) that students use to relate and describe their understanding of how a process or system functions at a macroscopic, symbolic, and particulate levels. Learning chemistry in the digital age has many visualization learning tools to support students to relate among three levels of representation in chemistry; for example, models (Supasorn, 2015), animations, simulations, and other computer supported or assisted methods (Morgil, Özyalçin Oskay, Yavuz and Arda, 2003) as well as analogies (Supasorn and Promarak, 2015). These tools can be adapted and used to support students' learning in chemistry.

INQUIRY LEARNING ACTIVITIES

Inquiry learning activities have been verified that they possess more advantages over traditional approaches including the encouragement of students to practice using learning resources to enhance their conceptual understandings, and the opportunities for teachers to play roles as facilitators who encourage students to perform the activities through an inquiry process (Deters, 2005). The 5E learning cycle has been proven to be one of the most effective inquiry learning in chemistry (Bybee et al., 2006). It involves students through the following steps: 1) engaged in scientific oriented questions, 2) explore important data to answer the questions by carrying out corresponding experiment, 3) make explanations from the experimental data to answer the questions, 4) elaborate or apply their findings in other contexts, and 5) evaluate their experimental processes and results in a variety of ways. This learning cycle is effective to support students to correct their alternative conceptions (Bybee et al., 2006).

Based on the literature review above, the implementation of corresponding experiments through the 5E inquiry learning approach is effective to enhance conceptual understanding of the corresponding concepts for secondary school students in Thailand who shared the same problems about alternative conceptions and difficulty in understanding acid-base as students in other countries. The use of inquiry experiments in conjunction with a corresponding particulate animations could be more effective to enhance students' conceptual understanding and mental models. As a result, the combination of 5E inquiry experiments and particulate animations was used as the intervention tools in this study to minimize students' difficulty in visualizing and relating what occurs at the particulate level to the macroscopic and symbolic levels of acid-base.

RESEARCH QUESTIONS

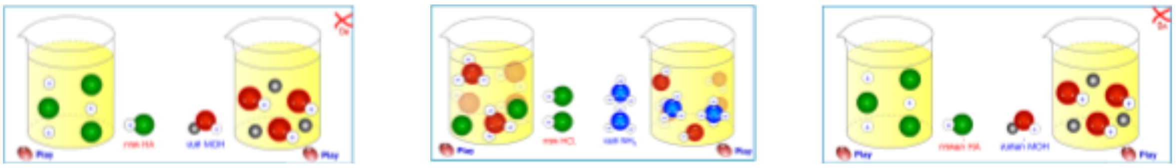
These research questions were posed when the developed experiments and particulate animations based on 5E inquiry learning activities were implemented: 1) How do students' scores on the conceptual test and on the mental model drawing of acid-base change before and after performed the corresponding experiments in conjunction with the particulate animations?, and 2) How do the percentages of students in each conceptual understanding category in the conceptual test base and in the mental model of acid-base change before and after they performed the corresponding experiments in conjunction with the particulate animations?

METHODOLOGY

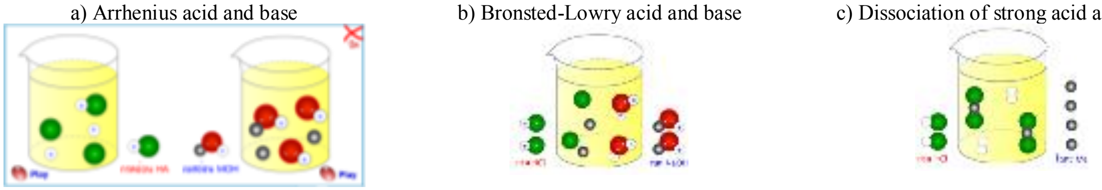
This one group pre-test/post-test study used a quantitative method in its research paradigm. However, some informal interview regarding students' mental models was applied to fulfil the quantitative part.

Treatment Tools:

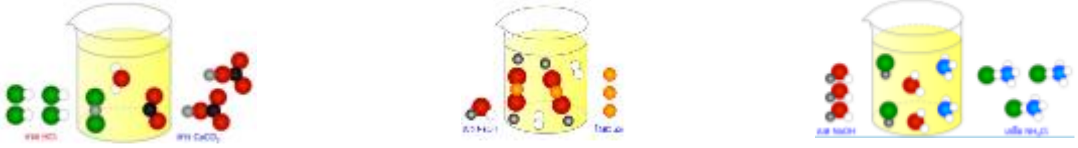
Two types of treatment tools were developed in this study, small-scale experiments and the particulate animations of acid-base. The small-scale experiments consisted of 1) definitions/theories of acid-base, 2) acid-base dissociation, 3) reactions of acid, and 4) reactions of base. The experiments were designed with regard to some 'green' chemistry principles, such as reducing the amounts of chemicals used, toxic chemicals, and generated wastes (Poliakoff and Licence, 2007). The particulate animations of acid-base for secondary school chemistry (Supasorn, 2015a) were developed by using Macromedia Flash 8. The animations consisted of 1) definitions/theories of acid-base (Figure 1a-b), 2) acid-base dissociation (Figure 1c-d), 3) reactions of acid (Figure 1e-g), and 4) reactions of base (Figure 1h-i). These are now available through http://chem.sci.ubu.ac.th/e-learning/AcidBase2015/.



a) Arrhenius acid and base b) Bronsted-Lowry acid and base c) Dissociation of strong acid and base



d) Dissociation of weak acid and base e) Reaction of acid with base f) Rxn of acid with metal



g) Rxn of acid with carbonate salt h) Rxn of base with Zn metal i) Rxn of base with ammonium salt

Figure 1: Examples of screen captured images of the particulate animations of acid-base

The chemistry experiments were in conjunction used with the particulate animations based on 5E inquiry learning cycle (Bybee et al., 2006; İşman, Willis, and Donaldson, 2015b). As a result, four lesson plans of acid-base (total 10 hours) were developed (Table 1). In each lesson plan, the learning activity began with engagement of students to scientific oriented questions concerning acid-base, then students were requested to explore (mostly macroscopic and symbolic) data for answering the engaged questions through a corresponding chemistry experiment, next they formulated explanations from their macroscopic and symbolic data for answering the engaged questions, they then had a chance to elaborate and relate their macroscopic and symbolic information to the particulate information by studying a corresponding particulate animations, finally they evaluated their understanding at macroscopic, symbolic, and particulate levels.

Table 1: Key learning activities of acid-base

Topic	Experiment	Particulate animation	Time (hour)
1. Definitions of acid-base	Determination of pH of Arrhenius, Bronsted-Lowry, and Lewis acid and base	Arrhenius, Bronsted-Lowry, and Lewis theories of acid and base	2
2. Acid-base dissociation	Dissociation of strong and weak acids and bases, and determination of conductivity of acid and base solutions	Dissociation of strong and weak acids and bases	2
3. Reactions of acid	Reactions of acid with base, magnesium metal, and carbonate salt	Reactions of acid with base, magnesium metal, and carbonate salt	3
4. Reactions of base	Reactions of base with zinc metal and ammonium salt	Reactions of base with zinc metal and ammonium salt	3

Data Collecting Tools:
There were two types of data collection tools in this study. The first one was the conceptual test of acid-base containing 16 five-choice with two-correct-choice items (Figure 2). Each item was worth 2 points so the available score was 32 points. The students were classified as ‘good or sound (SU)’, ‘alternative (AU)’, and ‘mis- (MU)’ conceptual understanding categories based on their answers (see Figure 3), in which the criterion was adapted from Çalik, Ayas and Coll (2009) and Supasorn and Promarak (2015). If their answers were both correct, one correct and one incorrect, and both incorrect, they were then classified as SU, AU, and MU, respectively.

QUESTION: Which substances are classified as base (choose two best choices)?
☒ a) Substance that receives proton (H^+) ☐ b) Substance that receives hydroxide ion (OH^-)
☐ c) Substance that dissociates proton (H^+) ☐ d) Substance that donates proton (H^+)
☒ e) Substance that donates hydroxide ion (OH^-)

Figure 2: Example of a test item in the conceptual test of acid-base

The other tool was the three mental model drawings at particulate level of acid-base containing Arrhenius and Bronsted-Lowry acids and bases, dissociations of strong base and weak acid, and reactions of acid with base and base with zinc metal. Each mental model was worth 4 points so the available score was 12 points. The students were classified as ‘sound (SU)’, ‘partial (PU)’, ‘partial with specific mis- (PMU)’, ‘specific mis- (MU)’, and ‘no (NU)’ conceptual understanding categories based on the percentage of correctness in their drawings. If the percentages of correctness were in the range of 0-19, 20-39, 40-59, 60-79, and 80-100, they were then classified as SU, PU, PMU, MU, and MU, respectively (see Figure 3), in which the criterion was adapted from and Sözbilir, Pınarbaşı and Canpolat (2010) and Supasorn (2015b).

<table>
<tr><td colspan="5">Categories of student conceptual understanding in conceptual test</td></tr>
<tr><td rowspan="2">Sound (SU):
Sound understanding, all conceptions aligned to scientific consensus</td><td colspan="2">Alternative (AU):
Incomplete or partial understanding, on the right track but incomplete.</td><td colspan="2">Mis- (MU):
No understanding, illogical or incorrect information, simply wrong.</td></tr>
<tr><td>Partial (PU):
Partial understanding, incomplete conceptions</td><td>Partial with mis- (PMU):
Partial understanding and partial mis-understanding</td><td>Mis- (MU):
Wrong understanding, illogical information</td><td>No (NU):
No understanding, not related to the concepts</td></tr>
<tr><td colspan="5">Categories of student conceptual understanding in mental models</td></tr>
</table>

Figure 3: Categories of student conceptual understanding or conceptions, adapted from Supasorn (2015b)

Participants:
With prior permission from the school principal and the instructor of the science course during the second semester of academic year 2015, 36 grade-8 students (one classroom) at Srimuang Wittayakhan School in Ubon Ratchathani of Thailand who attended all activities in this study were purposively selected as the participants of this study. Please notice that all research tools (lesson plans and activities, experiments, particulate animations, conceptual test, and mental model drawings) were in Thai in which all examples in this article involved translation into English.

Implementation:
The four lesson plans were implemented as one of the science course learning activity. All participants participated in the following process. They began the process by completing the pre-conceptual test and the pre-mental model drawing of acid-base. They then spent 10 hours for learning four lesson plans based on 5E

inquiry learning cycle in which chemistry experiments were used in conjunction with the particulate animations of acid-base. Finally, they completed the post-conceptual test and the post-mental model drawing of acid-base.

Data Analysis:
The data collected in this study were pre- and post-conceptual scores and pre- and post-mental model scores. The paired samples T-test analysis was applied to identify the differences between the means of pre- and post-conceptual test scores and between the means of pre- and post-mental model scores at the 95% confidence level. Class normalized learning gain or <g> was applied to identify the level of learning gain. The topics with <g> ≤ 0.30, 0.30< <g> > 0.70, and <g> ≥ 0.70 were classified into low-, medium-, and high gain categories, respectively (Hake, 1998). In addition, the percentages of students in each conceptual category of conceptual test and mental models both before and after the intervention was also analyzed.

RESEARCH FINDINGS

The results of this study were divided into two parts, conceptual test scores and mental model scores.

Conceptual Test Scores of Acid-Base:
The paired-samples T-test analysis of students' conceptual test scores indicated that they obtained post-test score (mean 23.94, SD 3.17, 74.81%) higher than pre-test core (mean 10.19, SD 4.91, 31.84%) at the 95% significant level of confidence (Table 2). It also indicated that they obtained post-test scores over 70% in all topics and the normalized learning gains or <g> were in the medium level in all topics. This finding indicated that the intervention was effective to enhance students' conceptual understanding of acid-base.

Table 2: Students' pre- and post-conceptual test scores of acid-base

Topic (total score)	Pre-test			Post-test			Learning gain		T
	mean	SD	%	mean	SD	%	%	<g>	(T-test)
1. Acid-base theories (10)	3.53	1.84	35.30	7.39	1.36	73.90	38.60	0.60	16.74*
2. Acid-base dissociation (10)	2.69	1.33	26.90	7.75	1.32	77.50	50.60	0.69	19.60*
3. Reactions of acid-base (12)	3.97	2.05	33.08	8.81	1.45	73.42	40.33	0.60	14.15*
Total (32)	10.19	4.91	31.84	23.94	3.17	74.81	42.97	0.63	20.95*

* Statistically significantly different at the 95% confidence level ($p<0.05$)

Notice that 'acid-base dissociation' was the topic that they obtained the highest percentage of post-test score and <g>. This could stem because the particulate animation for this topic can clearly illustrate that strong acid/base will completely dissociate, while weak acid/base will incompletely dissociate so their understanding in this topic was almost in the high level.

Consider the percentages of students' in each conceptual category for the conceptual test scores of acid-base (Table 3). Noticed that 'reactions of acid-base' was the topic with the highest and smallest percentages of students in the AU and SU categories, which was aligned with the previous study that reported that many students tended to hold alternative conceptions in reactions of acid-base (Cokelez, 2010). However, after the intervention, the percentages of students in the MU and AU categories were respectively decreased by 32.29 and 23.96, while the percentage of students in the SU category was increased by 56.25. This finding indicated that the intervention was effective to promote students to notice their mis- or alternative conceptions and changes them to the more correct conceptual understanding of acid-base.

Table 3: Percentages of students' in each conceptual category for the conceptual test scores of acid-base

Topic (frequency = no. items x no. students)	Pre-test (%)			Post-test (%)			Change (%)*		
	SU	AU	MU	SU	AU	MU	SU	AU	MU
1. Acid-base theories (5x36)	0.00	68.33	31.67	57.22	42.78	0.00	57.22	-25.55	-31.67
2. Acid-base dissociation (5x36)	0.00	68.89	31.11	59.44	40.56	0.00	59.44	-28.33	-31.11
3. Reactions of acid-base (6x36)	0.00	66.20	33.80	52.78	47.22	0.00	52.78	-18.98	-33.80
Total (16 x 36)	0.00	67.71	32.29	56.25	43.75	0.00	56.25	-23.96	-32.29

* + and – indicate the increase and decrease changes

Mental Model Drawing at Particulate Level of Acid-Base:
The paired-samples T-test analysis of students' mental model drawing scores of acid-base at particulate level indicated that they obtained post-test score (mean 9.07, SD 1.85, 75.58%) higher than pre-test core (mean 3.17, SD 1.58, 26.42%) at the 95% significant level of confidence (Table 4). It also indicated that they obtained post-test scores over 75% and the normalized learning gains or <g> were in the medium level in all images. This finding indicated that the intervention was effective to enhance students' mental model at particulate level of acid-base.

Table 4: Students' pre- and post-mental model drawing scores of acid-base

Drawing (total score)	Pre-model			Post-model			Learning gain		T
	mean	SD	%	mean	SD	%	%	<g>	(T-test)
1. Acid-base theories (4)	1.03	0.58	25.75	3.03	0.63	75.75	50.00	0.67	13.57*
2. Acid-base dissociation (4)	1.08	0.65	27.00	3.00	0.82	75.00	48.00	0.66	14.66*
3. Reactions of acid-base (4)	1.06	0.62	26.50	3.04	0.80	76.00	49.50	0.67	14.94*
Total (12)	3.17	1.58	26.42	9.07	1.85	75.58	49.17	0.67	26.52*

* Statistically significantly different at the 95% confidence level ($p<0.05$)

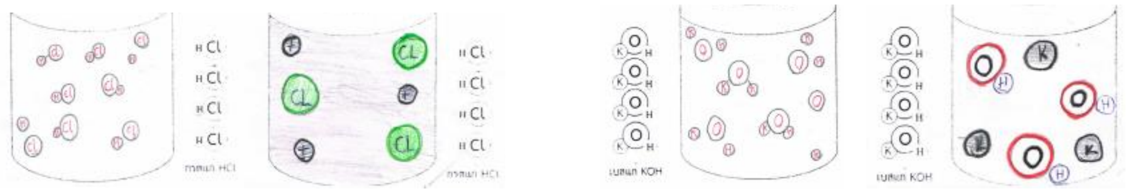
Consider the percentages of students' in each conceptual category for the conceptual test scores of acid-base (Table 5). Noticed that 'acid-base-base theories', especially Bronsted-Lowry theory, was the topic with the highest and smallest percentages of students in the PMU and SU categories, aligned with the previous studies that reported that many students tended to hold mis- or alternative conceptions about acid-base-base theories (Artdej et al., 2010; Sheppard, 2006). However, after the intervention, the percentages of students in the NU+MU and PMU categories were respectively decreased by 62.51 and 9.26, while the percentage of students in PU+SU category was increased by 72.22. This finding indicated that the intervention was effective to promote students to notice their mis- or alternative conceptions and changes them to the more correct mental model at particulate level of acid-base.

Table 5: Percentages of students' in each conceptual category for the mental model drawing scores of acid-base

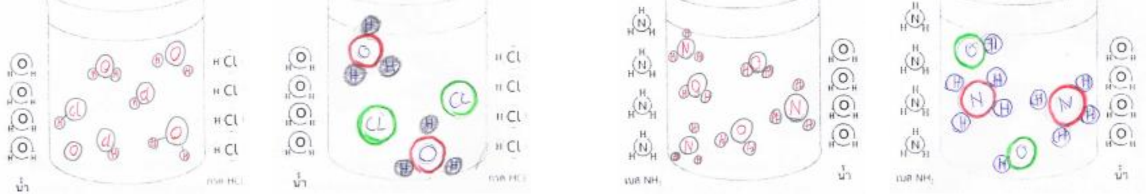
Drawing	Pre-model (%)					Post-model (%)					Change (%)*		
	SU	PU	PMU	MU	NU	SU	PU	PMU	MU	NU	PU+SU	PMU	NU+MU
1. Theories	0.00	1.39	30.56	37.50	30.56	33.33	40.28	22.22	4.17	0.00	72.22	-8.34	-63.89
2. Dissociations	0.00	0.00	27.78	52.78	19.44	40.28	30.56	18.06	11.11	0.00	70.84	-9.72	-61.11
3. Reactions	0.00	0.00	26.39	52.78	19.44	40.28	33.33	16.67	9.72	0.00	73.61	-9.72	-62.50
Total	0.00	0.46	28.24	47.69	23.15	37.96	34.72	18.98	8.33	0.00	72.22	-9.26	-62.51

* + and – indicate the increase and decrease changes

Examples of Students' Mental Model Drawings of Acid-Base:
Some examples of pre- and post-mental model drawings at particulate level concerning acid-base illustrate in Figure 3. Please notice that all participants were told that all acids and bases presented in the mental model drawings are indicated if they are strong or weak acids or bases prior to drawing. Student A confused that Arrhenius acid (HCl) dissolved in water as molecules prior to the intervention, but he noticed that the acid dissociates as protons (H^+) and anions (Cl^-) in water after the intervention (Figure 3a). He also confused that Arrhenius base (KOH) dissolved in water as molecules prior to the intervention, but he noticed that the base dissociates as hydroxide ions (OH^-) and metal ions (K^+) in water after the intervention (Figure 3b). So did Student B, he misunderstood that Bronsted-Lowry acid (HCl) dissolved in water as molecules, but he realized that the base acts as a proton donor after the intervention (Figure 3c). He also misunderstood that Bronsted-Lowry base (NH_3) dissolved in water as molecules, but he realized that the base acts as a proton receiver after the intervention (Figure 3d). Student C misunderstood that strong base (KOH) dissociates as molecules in water, but he noticed that the strong base dissociates as hydroxide ions (OH^-) and metal ions (K^+) completely in water after the intervention (Figure 3e). So did Student D, he misunderstood that weak acid (HF) dissociates as molecules in water, but he realized that the weak acid dissociates as protons (H^+) and anions (F^-) incompletely in water after the intervention (Figure 3f).



a) Pre- and post-mental models of Arrhenius acid (HCl) b) Pre- and post-mental models of Arrhenius base (KOH)



c) Pre- and Post-mental models of Bronsted-Lowry acid (HCl) d) Pre- and Post-mental models of Bronsted-Lowry base (NH_3)

e) Pre- and post-mental models of dissociation of strong base (KOH) f) Pre- and post-mental models of dissociation of weak acid (HF)

Figure 3: Examples of students' pre- and post-mental model drawings at particulate level of acid-base (Please notice that H_2O molecules can be skipped in some drawings for students' convenient)

The findings form this study is corresponding to the previous studies that combination of learning tools that illustrate corresponding information at all three levels of representations in chemistry can support students to gain more conceptual understanding and change their mis- or alternative conceptual understanding to the more correct ones in some intangible concepts (Bayrak, 2013; Çalik et al, 2010; Doymus, Karacop & Simsek, 2010; Suapason and Promarak, 2015). In addition, once students extract relevant information from corresponding particulate learning tools (animations, models, or simulations), they will be able to reconstruct or change their particulate mental models to be the more complete or correct mental models (Briggs and Bodner, 2005; Cokelez, 2010; Doymus, Karacop & Simsek, 2010; Lina and Chiua, 2007; Supasorn, 2015b).

CONCLUSION

This study verified that that the intervention of inquiry experiments in conjunction with particulate animations was effective to develop students' conceptual understanding and mental models at particulate level of acid-base as their post-conceptual test score and post-mental model score were statistically higher than the pre-conceptual test score and pre- mental model score. In addition, the percentages of students in the less correct conceptual categories (MU and AU in the conceptual test and NU, MU and PMU in the mental model drawings) were much decreased, while the percentages of them in the more correct categories (SU in the conceptual test and PU and SU in the mental model drawings) were much increased. This indicated that the use of inquiry experiments in conjunction with particulate animations was effective to promote students' conceptual changes from the less to the more correct conceptual understanding both at macroscopic and symbolic levels, as well as particulate level.

This study may have implications for chemistry instructors in that performing an experiment might be not enough to help students understand key concepts at the particulate level. Chemistry instructors should apply some corresponding models, animations or other visualization tools featuring particulate level to help students visualize concepts at the particulate level and relate these concepts to the corresponding macroscopic experiment observations and symbolic level (Doymus, Karacop & Simsek, 2010; Supasorn, 2015b; Supasorn and Promarak, 2015) and then obtain full conceptual understanding of chemistry.

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Development Of Scale Of Attitude About Social Studies Class, Citizenship, Human Rights, Respect For Diversity And Tolerance Issues For Middle School Students

Murat TEKİROĞLU
Denizli Pamukkale University, Faculty of Education
Social Studies Education Department, Turkey
mtekiroglu@pau.edu.tr

ABSTRACT

The main aim of social science education is to brought up active citizens. Active citizen means an individual who can criticize, investigate, can look at the situations with different perspectives, can renew himself according to changing world conjucture, have national and universal values. National values can show differences according to the social, economical and cultural conditions which countries in. However, having basic values like respect for human rights and diversity, tolerance, democracy have importance for both national citizenship and world citizenship. To be able to live in peace and serenity in the world, world citizenship concept's inside has to be filled within the frame of international values. Individuals, who have citizenship sense, have adopted basic universal human values, can show democratical attitude and behaviour in every area, are tolerant, have assimilated that diversity is not a discrimination factor but a cultural wealth, has to be brought up. In this respect, in what way intended population perceives the social science class and the subjects which are class's contents has to be identified. In the wake of the detections that has been done, supporting the positive conditions and finding out the cause and result of negative conditions then remedying them have importance. The main aim of this work is that. One of the most important elements in the stage of scale improvement is factor analysis. In factor analysis, the distribution of the values which measure the same structure is examined. The detection of the matters which have the same features, which will measure the same structure is done by examining these values one by one. It can be interpreted as classification and ranking of those, which are included in the same group, in a bag of mixed nuts. In the process of scale's improvement necessary infrastructure preparations have been completed and 70 matters have been prepared within the program regarding the expert opinion. In the scope of the study, with the permission of Izmır Governorship, Eserkent, Akşemsettin İmam Hatip, Fevzi Çakmak, Cemil Meriç, Şehit Gazeteci Hasan Tahsin, Mustafa Baykaş, Şehit Halit Taş Middle Schools have been regarded as the target population of the study and in these schools pilot scheme has been performed. In this pilot scheme which has been performed on behalf of the scale improvement to 600 people have been reached. In the selection of 600 students disproportionate sampling element method has been used. The data obtained has been analyzed in SPSS 23 program. Scale matters have been evaluated by using factor analysis, by looking the matter's relationships with each other and matter's validity and reliability the main scale has been prepared. The prepared scale with with it's final state consists of 24 matters and 4 subscales.

Keywords: Social Studies, Citizenship, Human Rights, Tolerance

1.INTRODUCTION

Education and teaching are prerequisite for society's building, are main elements in it. In the societies where ignorance levels escalate high the fact that everyday inhumane events are happening is transmitted to humanity each day by media organs. Besides the inhumane activities staying neutral to the events that are taking place unfortunately has become a condition which people adopted. In the countries which have democratical values, in face of the injustices and persecutions that are experienced reactions are being voiced by a specific part of the society comparatively and what is happening are being protested with democratical ways. However, in the countries which are named as ''Third World'', in other words, in the countries where there is no democracy, human rights, tolerance and respect for diversity, where these values are not taught good enough in the education system, the state is deplorable.

Education training have been seen as the biggest power from past to the present for world to be a livable world and to make it free from the negative situation it is in. It is a fact that in the days to come these two elements will be effective. When evaluated in this respect country's education and teaching have importance. While some countries design these education and teaching applications in order to protect their powers, some of them use these to keep pther nation's governments under control. We see the changes and improvements occurring in the world also in the fields of education and training. Country's training programs can be designed again according to the age's conditions. The importance of the education of the individuals who consist of the society is understood better day by day. At the same time, education systems change constantly. As well as the numerous innovations in this process, different methods and techniques also enter into the education system.

In Turkey, from the day of the proclamation of the republic until today, it is seen that there have been significant changes in the education-training programs. These changes provide positive contributions to the education and training, also it has been observed that negative conditions and efficient results couldn't have been get. That the people in a constant conflict with each other is on top of the problems that have been faced today. Living in a peace and tolerance environment, away from this conflict is something humanity long for. In order to provide this environment, especially teaching the citizenship, democracy and human rights notions well, making the lifestyle that this notions require a life philosophy must be the basic purpose. When the humane values get ahead of the material values then hopes for the humanity salvation can be green again. It is possible for the hopes fort he humanity to be constantly green with the transferring of the universal human values in a solid structure from generation to generation without getting lost in the constant changing and drawing away from the main purpose.

Today people's, society's not showing respect to each other's differences is one of the most important problems about communication. As a result of this, the environment of conflict is appearing. In annihilating of the conflicts education is an important power. With this aim, accepting everyone as they are, calling people to the journey of peace and leaving nobody outside of the atmosphere of the peace must be the main purposes. Subjecting every individual to learning living suitable for their position's, bringing them to human values and sense of humanity is a must. For this, especially curriculums of schools importance is significant. Especially social studies taught in 4, 5, 6 and 7th grades are one step ahead of the topics it includes. Various definitions related to social studies have been made. Some of these are:

İnan (2014: 2) In the ''Introduction To Social Studies Education Book'', social studies are defined as follows: Social Studies; is a lecture which includes the social science's chosen topics considering the level of understanding related to the real life and the society.

It is defined as a work area where students gain basic knowledge, skills, attitudes and values based on the data selected from Social Sciences disciplines to educate responsible and good citizens in elementary schools (Erden,1996: 8).

Social studies is integrating the social science and skill concepts with a interdisciplinary approach with the aim of implementation of citizenship skills in critical social issues (Barth, 1991: 7).

That social studies cover fundemantal issues such as democracy and human rights which in particular play an important role in shaping citizenship, has been stated above. When the society is viewed it is clearly seen that there are nuisances in the teaching of these subjects. Unfortunately, when transmission of the subjects to the students is viewed, that the topics and values such as citizenship, democracy, human rights, respect for diversity, tolerance are given to students only as a concept, therefore students struggle transferring mentioned topics into life and when the society is viewed, the news examined in the media is clearly seen. Continuation of the classical rote education despite the change of program can be showed as a cause of this. As a result of this, it is examined that students make an effort just to get the mark they need to get to pass the social studies class. Instead of this understanding applying activities which will really make the students love social studies, so ensuring that students will give importance to the course topics and their concents are required. From the program in 2005, it is aimed for students to squirm out of the rate logic and become individuals who ask, question, analyze, evaluate, make inferences, look to the events with different perspectives.

1.1 The Purpose and Importance of The Study

To raise a generation, which assimilates the values specified in the content rather than the teaching of citizenship, human rights and democracy which constitutes a large part of the concents of the social studies, which can apply these values to all areas of life, has an utmost importance for the future of the country. The individuals who has citizenship sense,has adopted main universal human values, can show democratical attitude and behaviour in every area, has assimilated that differences are not discrimination elements, but a cultural wealth, has to be brought up. In this respect, understanding the student's attitudes towards social studies and issues involved in social studies such as citizenship, human rights, democracy, tolerance, respect for diversity in the teaching of the social studies have importance in mapping new roads in line with the data obtained. In this study, this issue is focused on and the process of developing a scale about the issue is operated.

2. METHOD

In this section, there are informations about the model of the research, working groups, data collection, data analysis and interpretation of data.

2.1 The Model Of Research

In this study, methods which are applied in order to improve scale have been used. ''Scale of Attitude Towards Social Studies, Citizenship, Human Rights, Respect For Diversity and Tolerance Issues For Middle School Students'' while being prepared, this scale has been complied with scale development criteria. The most important of these, validity, reliability operations. Scale development process is operated by doing factor analysis.

One of the most important elements in the stage of scale improvement is factor analysis. In factor analysis, the distribution of the values which measure the same structure is examined. The detection of matters which have the same features, which will measure the same structure is done by examining these values one by one. It can also be interpreted as classification and ranking of those included in the same group in a bag of mixed nuts.

Factor analysis is a multivariate statistics which aims to explore, to find few unrelated and conceptually meaningful new variables by bringing interrelated 'p' pieces variables together. There are two types of factor analysis approaches, exploratory and confirmatory. In the exploratory factor analysis, a process aimed at finding factors based on the relationships between variables; in the confirmatory factor analysis, the testing of a hypothesis or theory which is determined before about the relationship between the variables is involved (Büyüköztürk, 2011: 123).

In some sources, exploratory factor analysis also used as explonatory factor analysis. While Costella and Osborne (2005) see the explonatory factor analysis as a study to understand the existing structure, explain the confirmatory factor analysis as a study to test the existing structure (Cited by: Erkuş, 2014: 94).

2.2 Study Group

In order to do factor analysis, which is one of the most important elements at the stage of scale development, sample size have importance. There are different opinions about sample size. Tabachnick and Fidell (2001) gave figures on how much the sample size should be in factor analysis. They pointed out that in factor analysis for sample size 50 is too weak, 100 is weak, 200 is medium, 300 is good, 500 is too good and 1000 is perfect. According to these figures, the rulet hat in factor analysis there has to be at least 300 samples has been proposed. (Akt. Çokluk, Şekercioğlu ve Büyüköztürk, 2012: 206).

Kline emphasizes that in factor analysis a sample which consists 200 people as an absolute criteria usually would be enough to extract reliable factors, that where the factor structure is open and in small numbers this figure can be lowered up to 100, but it would be more appropriate to work with a big sample. (Cited by: Çokluk, Şekercioğlu ve Büyüköztürk, 2012: 206).

Sample size is also estimated on the basis of relative measures like matter and factor numbers. Kline (1994) suggests that sample size should be up to 10 times of the number of variables. Bryman and Cramer's (2001) recommendation for sample size is making applications as the number obtained by multiplying the number of variables by 5 or 10. (Cited by: Çokluk, Şekercioğlu ve Büyüköztürk, 2012: 206) As seen in this issue various methods are used. The common result is sample sizes should be in sufficient numbers. Otherwise, in the validity and reliability of the obtained data low values will appear.

The primary one among the important issues touched on by Şencan about the factor analysis is the evaluation of the load factor point. The low load factor point of a material indicates that it is not related to the factor mentioned strongly enough. There is widespread opinion in the literature that the minimum size for a load factor point of a substance should be .30, however there are also theorists who defend that this magnitude should be .40. In deciding the size of the load factor point, the size of the sample must be taken into account (Cited by: Çokluk, Şekercioğlu ve Büyüköztürk, 2012: 206).

According to what Şencan quoted from Kin-Yin, sample sizes are proposed to decide for a substance to remain on the scale (Cited by: Çokluk, Şekercioğlu ve Büyüköztürk, 2012: 206). The criteria of load factor and sample size belonging this, are as in the Table 1 below.

Table 1. *Evaluation of The Load Factor and Sample Size*

Faktor Load	*Sample Size(Person)*
.30	*350 Person*
.40	*200 Person*
.50	*120 Person*
.60	*85 Person*
.70	*60 Person*

In scope of the study, with the permission of Izmir Governorship, in Eserkent Akşemsettin İmam Hatip, Fevzi Çakmak, Cemil Meriç, Şehit Gazeteci Hasan Tahsin, Mustafa Baykaş, Şehit Halit Taş Middle Schools which are located in Izmir's Karabaglar district pilot scheme has been performed. In this pilot scheme which has been performed on behalf of the scale improvement to 600 participants have been reached.

2.3 Data Collection Tools

2.3.1 Personal Information Form

The personal information form developed by the researcher is used to obtain the personal information of the participants and is provided with the developed ''Scale of Attitude Towards Social Studies, Citizenship, Human Rights, Respect for Diversity and Tolerance Subjects For Middle School Students''. In the personal information form, to the participants questions about the age, gender,education level of parents,family's monthly income,number of siblings,social studies class notes,social studies education are asked.

2.4 Article Writing Process and The Creation of The Form of Scale

The preparation stage of a scale that can identify the attitudes of middle school students towards the social studies, citizenship, democracy and human rights subjects is created. In the process of the development of scale necessary infrastructure preparations are completed, social studies curricula and books are examined. 70 articles have been prepared within the program according to expert opinion. This 70-article pool is designed within the frame of expert opinions to apply pilot scheme to participants.While this 70-article pool is being prepared, participant's level of readiness and their state of development have been taken into consideration. In other words, preparing articles suitable for particicipant' standard has ben given attention to.

In the scale developed by researchers quintet Likert-type rating has been used. The method developed by Likert (1932) to measure attitudes also known as 'scaling with grading totals'. In this method, individuals are presented with a series of attitude statements. Indivudials usually can give answers to these statements by using 'I Totally Agree', 'I Agree', 'I Am Hesitant', 'I Agree' and 'I Totally Agree'. These categories can be in the triplet, quintet,septet and hendecasyllable forms (Erkuş, 2014: 78-79).

According to Tabachnick and Fidell, as a basic rule, each variable's load point must be judged as 0.32 and more. Comrey and Lee's evaluation is given in Table 2. (Tabachnick nd Fidell, 2001; Cited by: Çokluk, Şekercioğlu and Büyüköztürk, 2012:1 94).

Table 2. *Comrey and Lee's Scale Variance Evaluation Criteria*

Criteria	*Evaluation*
Being .71 explains %50 of the variance	*Perfect*
Being .63 explains %40 of the variance	*Very Good*
Being .55 explains %30 of the variance	*Good*
Being .45 explains %20 of the variance	*Mediocre*
Being .32 explains %10 of the variance	*Weak*

2.5 The Process of Data Collection and Analysis of Data

In the study, in the groups where datas are applied voluntariness is taken into consideration. In the collected data to determine whether the sample size is sufficient Kaise-Meyer-Olkin test and to seperate data into factors

Bartlett Sphericity test have been used. In the exploratory factor analysis, for the detection of factors eigen-values-must-be-higher-than-1 rule and slope-debris graph have been used (Kalaycı: 2010: 324). For the reliability of scale's articles Cronbach Alpha internal consistency coefficient has been based on. Obtained data has been analyzed in SPSS 23 program.

Scale articles have been evaluated by using factor analysis, basic main scale has been prepared by paying attention to article's validity and reliability and their relationship with each other.

3. FINDINGS AND COMMENT

In this section, the validity and reliability studies conducted during the development of scale is described. Therefore, exploratory factor analysis and internal consistency coefficient results are included (Cronbach Alfa).

One of the methods used to test the content validity is consulting to an expert's opinion who has general information on research and who can examine the various aspects of research (Yıldırım and Şimşek: 2013: 290). In the study that has been conducted for this purpose, an article pool which in total consist of 70 article has been created according to expert opinion.

In Kalaycı (2005) factor analysis, in determining the sample size one of the important criteria is Kaise-Meyer-Olkin test results. Kaiser-Meyer-Olkin (KMO) is a test that compares the magnitude of the partial correlation coefficient with the size of the observed correlation coefficient. After the results of the test, a comment, that the factor analysis can't be contunied in case of lower ratings than .50, is made. The values for the sample size are given in Table 3. (Leech, Barrett and Morgan, 2005, Cited by: Çokluk, Şekercioğlu and Büyüköztürk, 2012: 207).

Table 3. *Kaiser-Meyer-Olkin (KMO) Values Belonging To Developed Scale*

Criteria	***Evaluation***
.50 - .60	*Bad*
.60 - .70	*Weak*
.70 - .80	*Medium*
.80 - .90	*Good*
.90 - more	*Perfect*

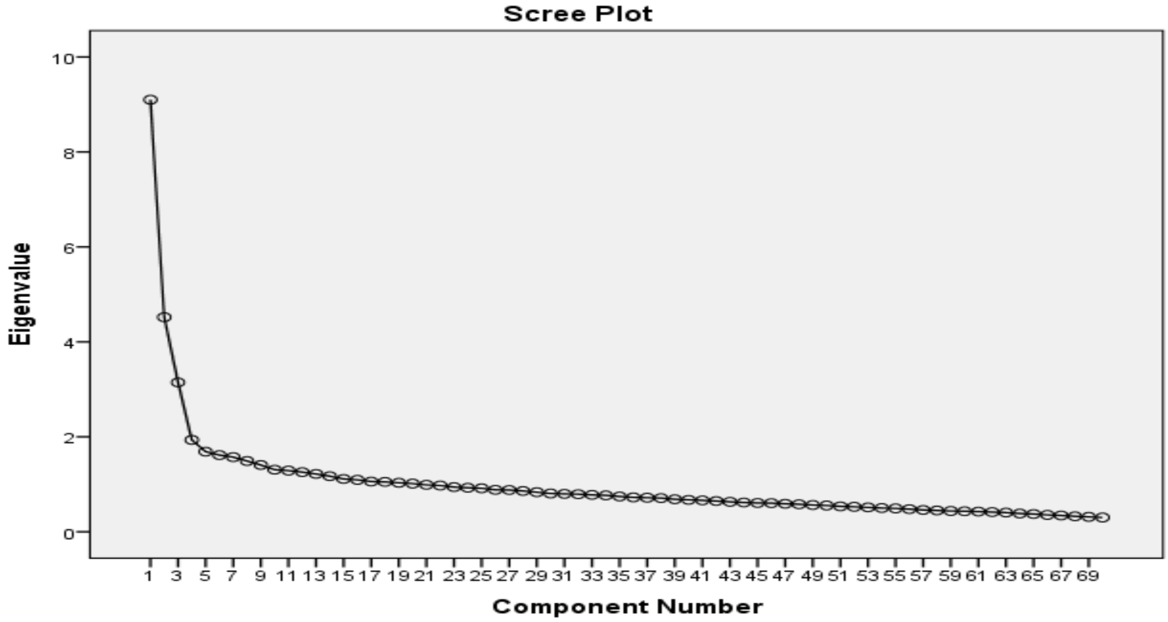
There are interpretations and the values of the scale devloped within the frame of the criteria below.

Tablo 4. *KMO and Bartlett's Test (Developed Scale Values)*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		*0,859*
Bartlett's Test of Sphericity	*Approx. Chi-Square*	*10020,934*
	df	*2415*
	Sig.	*0*

When Table 4 is examined, at the scope of scale validity study, factor analysis and construct validity has been surveyed. Kaiser-Meyer-Olkin coefficient has been calculated as .859 and Barlett's Sphericity test has been statistically found meaningful. It is seen that survey article's factor load points range between .424 and .683. It i found that first factor's eigenvalue is 9.099 and the variance that it explains is % 12,999, second factor's eigenvalue is 4.519 and the variance that it explains is % 6,456. That the variance explained by the first factor is notable and the first factor's eigenvalue is less than three times that of second factor's can be considered as a proof that the scale is multi-dimensional. (Büyüköztürk, 2010: 137)

Graph 1. Factor Sizes According To The Developed Scale's Article Factor Loads



When Graph 1 is examined, it is seen that there are four different dimensions within the frame of factor analysis that has been made. After the vertical rotation of obtained data with 'varimax' the data below is obtained.

Table 5. *KMO and Bartlett's Test (Matters Which Have Load Factor Less Than .30 Are Removed From The Scale and The Analysis is Re-Made)*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	*0,859*
Bartlett's Test of Sphericity Approx. Chi-Square	*10020,934*
df	*2415*
Sig.	*0*

When Table 5 is examined, at the scope of scale validity study, factor analysis and construct validity have been surveyed. Kaiser-Meyer-Olkin (KMO) coefficient has been calculated as .859 and Barlett's Sphericity test has been statistically found meaningful. It is seen that survey article's factor load points range between .126 and .501. It is found that first factor's eigenvalue is 9.099 and the variance that it explains is % 12,999, second factor's eigenvalue is 4.519 and the variance that it explains is % 6,456; third factor's eigenvalue is 3.146 and the variance that it explains is % 4.495; fourth factor's eigenvalue is 1,934 and the variance that it explains is % 2,763 .That the variance explained by the first factor is notable and the first factor's eigenvalue is less than three times that of second factor's can be considered as a proof that the scale is multi-dimensional. (Büyüköztürk, 2010: 137) With the evaluation of this data, it has been concluded that the scale is four-dimensional.

If the decision that articles will be removed from exploratory factor analysis is mad, then aticles must be left out of the analysis one by one. Because with the removal of an article a change may occur in other article's factor load point and this change can meet the order of article acceptance. In this respect it is logical to start the removal of articles with the one whose factor load pont is lowest. (Çokluk, Şekercioğlu and Büyüköztürk, 2012: 223).

In accordance with this explanation, the scale is rearranged and analysises are made again by removing the articles with low factor loads on scale one by one. As described above, in particular, with paying regard to the relationship between factor load point and sample size, the articles which have lower factor loads than .30 are removed from the scale and analysis is made again. There is information about the acquired data in Table 6.

Table 6. *KMO and Bartlett's Test (Matters Which Have Load Factor Less Than .30 Are Removed From The Scale and The Analysis is Re-Made)*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	*0,903*
Bartlett's Test of Sphericity Approx. Chi-Square	*5904,861*
df	*861*
Sig.	*0*

When Table 6 is examined, at the scope of scale validity study, factor analysis and construct validity have been surveyed. Kaiser-Meyer-Olkin (KMO) coefficient has been calculated as .859 and Barlett's Sphericity test has been statistically found meaningful. It is seen that survey article's factor load points range between .160 and .540. It is found that first factor's eigenvalue is 8.331 and the variance that it explains is % 19.835 second factor's eigenvalue is 2.781 and the variance that it explains is % 6.621; third factor's eigenvalue is 1.649 and the variance that it explains is % 3.926; fourth factor's eigenvalue is 1,514 and the variance that it explains is % 3.604 .That the variance explained by the first factor is notable and the first factor's eigenvalue is less than three times that of second factor's can be considered as a proof that the scale is multi-dimensional. (Büyüköztürk, 2010: 137). With the evaluation of this data, it has been concluded that the scale is four-dimensional. Also, in the scale 5, 12, 14 and 24th articles are in the status of ''reversing entry''. While doing assessment this case has been paid attention to. Prepared scale's dimensions and the numbers of articles are given below in Table 7.

Table 7. *Matter Numbers and Dimensions Of Class Student's Attitude Scale About Social Studies Class, Citizenship, Respect for Human Rights and Diversity, Tolerance Issues*

Scale Dimesnions	**Article Numbers**
Attitude Toward Social Studies Class	7
Attitude Towards Citizenship Subjects	4
Attitude Towards Tolerance Value	4
Attitude Towards Human Rights and Respect For Diversity Values	9
Total Article Number	**24**

4.RESULT

At the scope of work, in order to determine middle school student's attitude towards social studies class and citizenship, respect for diversity,tolerance subjects which are included in social studies education ''Scale of Attitude Towards Social Studies,Citizenship,Human Rights,Respect For Diversity and Tolerance Subjects For Middle School Students'' is developed.As the study's result a four-factor scale which is consisted of 24 articles is nobtained. Based on expert opinions it is detected that scale's extent validity has exploratory factor analysis and scale's structure validity. Reliability analysis which is made by calculating Cronbach Alpha internal consistency coeffícent as .86 shows that the scale has sufficient reliability coefficient. This study i carried out with 600 students who receive education in the middle schools which are located in Izmir's Karabaglar district. The number of participants is considered sufficient. However, the validity and reliabilty of the scale can also be confirmed with students in other cities and towns. Factor analysis can be made again by collecting data from larger study groups. Consequently, validity of the presented quaternary structure can be tested again.

The data obtained in the study seems reliable. Especially today, in order to place the fact that human life is valuable to all societies, citizenship, human rights, tolerance, respect for diversity values must be processed in a good way and passed on to the future generations. In this respect, more studies are needed which identify the situation and find out the shortcomings in the education of subjects like active citizenhip, global citizenship,human rights,democracy. One of these studies is more space work bout the subjects and scale development. As a result of the investigations, it is seen that especially in the field of attitude scale there isn't much work. The works that are done about this can bring about the disease's diagnosis and as a result, the treatment with it. At the end of the diagnosises, in which direction the negative conclusions are, is determined. What kind of plans and programs will be made for the improvement of these conclusions can be revealed.

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Addition-1: Scale of 7th Grade Students Attitudes Towards Social Studies, Citizenship, Human Rights,Respect For Diversity,Tolerance Subjects

Article No	**SCALE ITEMS**	**I Totally Don't Agree**	**I Don't Agree**	**I Am Hesitant**	**I Agree**	**I Totally Agree**
1.	Social studies is one of my favourite courses.					
2.	Being an active citizen by learning my citizenship rights and responsibilities is important to me.					
3.	Even a scientist from another nation and culture makes a technological innovation, I respect him.					
4.	I think in societies that have democratical values respect and tolerance in people's relations with each other will be in the forefront.					
5.	I get bored when I am studying social studies.					
6.	Being tolerant is an important power for the solution of social problems.					
7.	Cultural differences are like ashurb; every culture creates a seperate flavor without losing its properties.					
8.	I am interested in issues related to our civic dutie and responsibilities taught in social studies class.					
9.	Social studies class is important to me because it teaches our historical and cultural values.					
10.	I care about learning subjects about citizenship because they are related to life.					
11.	For peace and prosperity in society I think that respect for diversity is important.					
12.	I wouldn't attent to class if I didn't have to.					
13.	I don't hesitate being friends with people who have different skin colors.					
14.	I prefer to take another class rather than taking social studies.					
15.	I am glad that people around me are tolerant.					
16.	I respect friends who have different opinions than mine.					
17.	I enjoy studying social studies in my spare times.					
18.	I respect diversity because a person's pleasures are specific to him.					
19.	As a citizen of the Republic of Turkey, our civic rights and responsibilities mut be taught to all citizens.					
20.	I evaluate the fact that, believers of different religions were left free to live their religions in Ottaman Empire, as a positive political policy.					
21.	I am interested in subjects taught in soacial studies.					
22.	I respect diversity to create a living-together culture.					
23.	Tolerance is a glue that holds the language, religion,race,different nationalities together in peace and tranquility.					
24.	A country can become stronger by fostering its diversity.					

Development Of Student Team Competences With Potential To Be Utilized In Practise

R. ČOCKOVA
Tomas Bata University, Czech Republic
cockova@fmk.utb.cz

O. JURASKOVA
Tomas Bata University, Czech Republic
ojuraskova@fmk.utb.cz

ABSTRACT

Modern approaches to education at universities press for an increase in the proportion of independent work of students and their participation in real-life tasks and scientific procedures. This effort is directly proportional to increasing demands on students, their experience and practical skills. On the other hand the need for development of scientific and research activities together with requisite economic behaviour of universities is on the increase.

This paper is a report on the study focused on determination of differences, common behavioural characteristics and attitudes of students in various stages of a project processing. Further the study is concerned with competences of students in different grades of education, their motivation and attitude to work on the assigned tasks. It also detects an impact of students´ study structure on their performance and quality of their work and analyses students´ behaviour. On the basis of the qualitative analysis the study deduces incentives for an optimization of student team structure as a self-contained unit qualified for working on the real-life tasks taking into account specifics in arts oriented schools.

Keywords: team co-operation, student competence, team optimization, higher education

INTRODUCTION

Collaboration of universities with practice i.e. commercial and public administration entities is one of the important means leading to the increase in student employment rate in the labour market. The upward tendency to interconnect knowledge with practice is well promoted by the government, university managements and the entities of practice themselves.

This effort is protected including by the Strategic plan for educational, scientific, research, development and innovation, artistic and other creative activities of higher education for the period 2016- 2020, which was released by the Ministry of Education, Youth and Sports. Here is among the priority objectives mentioned increasing the skills of students and the university staff for the transfer of knowledge between academic and application spheres and develop cooperation with external partners in order to improve the relevance of research to practical applications and, ultimately, strengthen the capacity for commercialization of knowledge. Relevant aiming of university development undoubtedly resides in economic behaviour and collaboration with practice which works as a quality indicator of university through the mediation of indicators of employment rate, references, external communication etc. By involvement of students in these activities we can accomplish higher economic performance, interconnect students with practical sphere and raise their employment rate.

The faculty of Multimedia Communications of Tomas Bata University in Zlin closely cooperates with commercial companies and public sector. There exists a great amount of levels and forms of co-operation. Students throughout the faculty gain a whole range of practical experience during their studies. Mostly they cover educational stays, internships in agencies, participation on commercial projects, experience acquired within a taught subject Communication Agency and various competitions, etc. Such professional experience and contacts are both key factors in the employment rate of graduates and also an added value of study at the Faculty of Multimedia Communications.

In 2010 Centre for environmental issues of Charles University in Prague issued a publication titled "Methodology of team work and team creation for tertiary education" which focuses on processes, relationships and team dynamics in team co-operation. In the publication the team of authors addresses theoretical solutions and possible team creation approaches, their assessment, team dynamics and therefore it can serve as a methodological guide for coordination of team processes at university. This proposed study makes use of some of the theoretical solutions of the publication and at the same time it is grounded in other authors´ publications. In qualitative research it verifies the theoretical solutions in practice on the sample of students from two universities which are both art oriented. Primary data gathered from the research should be utilized for a formation of basic theoretical solutions contributing to a foundation of organization units consisting of students, alternatively guarantors and educators. The meaning of these units resides in engaging students in science-research and economic activities at the university. „Also contributing to the increase in undergraduate student participation in research with faculty members is the fact that this activity has been widely proclaimed as highly desirable by various national organizations. Equally important, recent research has underscored the value of having a research experience as an undergraduate." (Shouping Hu, George D.Kuh, Joy Gaston Gayles, 2007).

Tertiary education is a sector which has a high share on society and economy development. Simultaneously it represents a foundation for a sustainable growth in the given state. In the Czech Republic the year 2014 was a turning point in era during which the quantitative expansion in the sphere of tertiary education took place. Nowadays a rapid decrease of students sets in due to the demographic slump and universities commence rather on quality of their activities and strengthening a value and relevance of the education perceived by students. In 2015 the Ministry of Education of the Czech Republic (hereinafter referred to as MŠMT) issued a document "A framework of tertiary education development up to the year 2020" which is a strategic document adjusting the basic development priorities of the Czech tertiary education; (2015) Rámec rozvoje vysokého školství do roku 2020 [On-line]. Besides that the document is concerned with so called transmissible competences which are one of the concepts of ascertainment of university graduate readiness to enter the labour market. In the long term MŠMT has been monitoring this aspect which helps to understand why some groups of graduate students prove more successful in the labour market (or in public life) and others do not. Among the transmissible competences we rate those skills and abilities which are required from the graduates by the Czech employers across the sectors far the most. With regards to the particular competences they are namely: ability to communicate and negotiate with people (communication skills), skill to identify and solve problems, ability to bear responsibility, skill to decide individually and ability of creative and flexible thinking and behaviour. The research which is a part of this document shows that there is a high number of university graduates with insufficient level of highly demanded competences required by employers which are the abilities to communicate and negotiate with other people. According to the assessment of the graduates themselves the university prepared them on the average level of these competences. The presented study follows on the "Framework of tertiary education development up to the year 2020" and deals with one of the aspects which is considered an important indicator of university graduates readiness to enter the labour market by MŠMT.

THE STUDY

This particular study was financed from the Internal Grant Agency of Tomas Bata University in Zlin. The aim of the study is to deduce impulses for student team structure optimization, as an autonomous functional unit competent to real assignment or task solving with regard to the specifics in focus of art oriented university, on the basis of qualitative analysis. The main objective of the study is a determination of differences and common characteristics in student behaviour and attitudes in different stages of project development. Other objective is ascertainment of student competences in different education levels, finding out the student motivation and attitudes to work on the assigned task, revelation of study structure influence on the performance and work quality, student behaviour analysis. The carried out research aimed to determine the range of competences, knowledge, abilities of students working in teams across various levels of education, their optimum number, composition and roles of those students engaged in the project, rate of educators or guarantors involvement and influence on successful project completion, influence of student study plan structure on project processing, student motivation and motivation factors, influence of experience gained at school and necessity of technical facilities and equipment for the successful project completion. The study was accomplished via a qualitative research by utilizing research methods of observation and group interviews. The research was performed with students from two universities by name University of Economics in Prague, the Faculty of Informatics and Statistics and Tomas Bata University in Zlin, the Faculty of Multimedia Communications. The study of the specialization of Marketing Communications at the Faculty of Multimedia Communications of Tomas Bata University in Zlin is purely focused on marketing, marketing communications, PR and other relating fields. On the other hand the students from the Faculty of Informatics and Statistics of University of Economics in Prague are educated in the field of multimedia in the economic practice. Apart from the basics of marketing they are educated in the area of multimedia which means that during their studies they attend subjects such as JAVA programming, audio-visual communication, principles and application of 3D graphics and the like. Their studies are more concentrated on multimedia, communication and information technologies. From the reason of a similar specialization of these study fields and due to the intersection of several study subjects the students of these study branches were selected for the research although their specializations are dissimilar by the diverse depth and width of marketing or multimedia orientation. In November 2015 a workshop was organized and during its course students worked on a creative assignment in teams consisting of the students of both universities. Students were chosen into the teams by the means of a random drawing but each team had to be created by representatives of both universities. Each team comprised 5 students where two or else three students were from the same university and vice versa. In the process of their work and following outcomes presentation on the second day of the workshop a participant observation of the student teams took place. This procedure was followed by group interviews which were lead in accordance with a pre-set scenario.

The presented research was the first phase of a long-term research of students teamwork above mentioned universities, of which total duration is more than a year. During this time there will at least two other investigations within other joint creative workshops.

METHODOLOGY

Before the commencement of the research the target groups were defined as 2nd an 3rd grade students of the study field Multimedia in Economic Practice_from the Faculty of Informatics and Statistics of the University of Economics in Prague and students from the 2nd to 4th grade from the study branch of Marketing Communications from the Faculty of Multimedia Communications of Tomas Bata University in Zlin. The total number of students participating in the research was 21. A scenario for the student team interviews was formed; instructing of observers was undertaken and at the same time the observation criteria were set: process and form of team roles division, frequency of team roles representation (Belbin, 2012), occurrence of conflicting situations in teams (in which phase, reason, solution), phases of team development (Adair, 2004), involvement of educators.

Adair´s system model, from which the complete construction of action leadership results, is comprised of three reciprocally influencing segments: task - team - individual in the context of environment. According to the author the main difference between a team and a group is that individual members of the team mutually complement each other whereas in the group the members are mostly interchangeable. In a well formed team a diversity and dissimilarity in a team is minded. A different status is appreciated; it will help the team group to achieve a goal. In accordance with Adair there are five methods of conflict solving - confrontation, cooperation, compromise, withdrawal or adaptation. These methods were monitored and recorded during the interview of all the student teams. Each of the teams goes through the phases of development in the course of their work. Various authors state different numbers and titles of the individual stages and characteristic features of the group development process. As a general rule from four to six stages are presented. Although the particular phases follow one after the other in a given order, they are distinctive by their length but with no clear borders. In this study B. Tuckman´s theory, which presents four phases of team development: forming, storming, norming and performing, was utilised. By the first phase he characterises dependency on a team leader, people meet and introduce among themselves, get to know an assignment and its objectives. During the phase of storming individual members try to make the group to satisfy their personal needs which is a reason for conflicts and emotional streaming emergence and a dispute over influence in the group may appear. Norming phase is distinctive by cohesion and exchange. In order to overcome a conflict a rule setting and group communication can aid. Collective attitudes, values and expectations are formed. In the last phase the team is capable of productive problem solving. The group works as one to achieve the goal. Individual relationships are stabilised. Those team development phases were recorded all the time during the student team work process within the observation method. The study makes use of a theory of Dr Meredith Belbin who is an author of team roles theory, which is described by the author as a "tendency to behave, contribute and enter the relationships with others in a certain way". Belbin distinguishes altogether nine roles - implementer, shaper/leader, coordinator, plant/innovator, resource investigator, monitor evaluator, team worker and finisher. The output of the Belbin´s study is besides other things a finding that a balance in a team is a key factor of success, not the level of intellect. The most successful teams are those with team members holding the most varied spectre of the roles mentioned above. In the proposed study Belbin Team Role Inventory was applied and filled in by the students before the group interviews were held. Concurrently the observers assigned the team roles to the students during their work on the task in accordance with the methodology. To achieve the pre-set goals - realisation of outcomes - following qualitative research methods were employed.

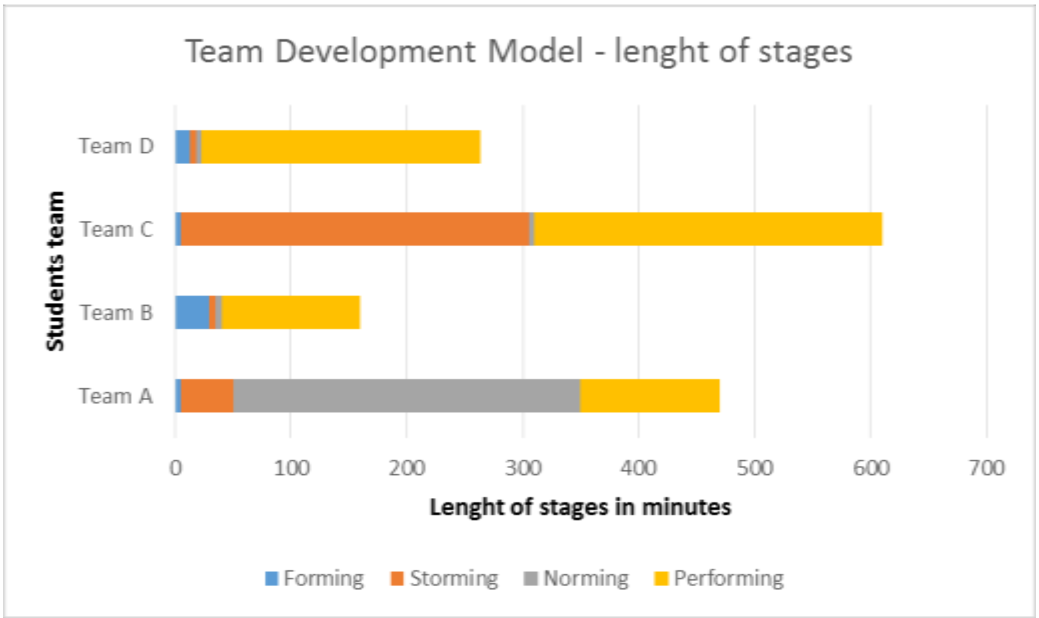
- hidden participant observation during the workshop including taking of an audio-visual record for the purpose of findings analysis and verification
- group interview - interviews with individual student teams participating on the workshop including taking of an audio-visual record for the purpose of findings analysis and verification

FINDINGS

From the realized study consisting of the observations and the group interviews it is evident that all four teams worked without any serious conflicts and dissimilarities. If the conflict appeared it was solved by a method of compromise. Members of all the teams reached a consensus regarding the necessary steps, set the deadlines naturally and in all cases just one, final, was set and met. All the teams preferred to continue working in a form of personal meetings. They all presented the completed task at full strength on which they agreed too. The study did not affirm assumption that the students would allocate particular tasks according to their specialization or different focus of study plans of their university but quite the other way around they all co-operated in each phase of the project and complemented each other. Three out of four teams consulted a participating educator about the course of their work. They evaluated the consultation as very seminal. The majority of consultations occurred in the phase of performance and were related to the steering their course of actions the right way. As emerged from the interviews the motivation to the workshop participation was an opportunity to meet new people, acquire experience, visit new environment and gain new contacts. A diagnostics of team roles by Belbin resulted in findings that compositions of the teams were very heterogeneous regarding the team roles which was not premeditated but it resulted from casting lots. Merely in one team a leader who led the team was agreed upon. His team role was also affirmed by the Belbin Inventory. In the rest of the teams the leadership was taken over by students who were identified as implementers, plants/innovators or coordinators by the Belbin Inventory. Nevertheless despite the absence of the team role "leader" the teams worked effectively and reached as a high quality result as the team with the present team leader (according to the Belbin´s methodology).

The excerpt of interviews records after the workshop represents the point of view of participating students who acknowledge the possibility of cooperation with students from another university: "[female student UTB], I agree with you that because we were mixed in teams it was more beneficial also by the reason that when we were working in the teams where we did not know each other so well and therefore we were forced to improvise, co-operate, get to know. But I suppose that it is good that it was done this way and that we just do not plow our own furrow in Zlin because later we will come to the real job and find out that it is a bit different and this way we can put these perspectives together."

The development phases of each student team were recorded from the hidden participant observation. The Bruce W. Tuckman´s model was used for this purpose (Tuckman, 1999). From the graph below it is clear that the longest lasting time period was "performing" whereas the "norming" phase stretched for the shortest time (except the team A). The team A is remarkable by the longest norming phase and at the same time the fact that it was the only team with a leader confirmed also by the Belbin Inventory. In the cases where the phase of norming and standardization is too powerful the decrease in team creativity can appear. But this was not the case of this study. The high level of creativity typical for students from art oriented university probably suppressed or reduced the phase of norming to a minimum.



The qualitative research did not reveal a difference in approach of the students to the assigned task in relation to their study field or university where they study. It implies that members of all the teams worked in all of the phases together. The research confirmed that students acknowledge co-operation with students from other university. This opportunity enables them different perspective on problematics, enriches them of various experience and practical knowledge, and complementing with others. In addition to other group interview questions the students were also asked for an opinion on an optimum number of team members. This is dependent on the task assigned. Nevertheless the average number suggested is 4 members. The higher number of members would make it impossible to communicate flowingly and effectively in the team and would disrupt decision processes. On the other hand a lesser number of team members would lead to ineffective and insufficient creative work results. Students stated that at the beginning of their studies respectively in the first grade of the university they lacked a skill to create a complete and constructive concept without leaving important details out. From 1st to 3rd grade of their studies they broadened their knowledge of processes and methods in the field of marketing or utilizing of multimedia in practice.

Prior to and after the workshop all the participating students filled in a table "A perceived differences method" in which they checked their expectations (before the workshop) and their real impression from the workshop after its completion. The results of this method based on frequency of answers showed that: prior to the cooperation the students stated that it is dependent on a particular persons - students from which the team will be built. In accordance to their opinion the type of university and study field does not matter. After the workshop the majority considered the co-operation with other university students very positive. Their final impression from the collaboration with other university students exceeded their expectations. Regarding their expectations of conflicts the students were rather sceptic - they checked the option that the conflict may happen but the team will be able to solve it. At the end they evaluated the co-operation as effective and without complications. The same applies to the consultations with educators. In the tablet field "expectations" they admitted that they will probably make use of consultations and in the real assessment they not only consulted with educators but also evaluated that as very beneficial. In the assessment of the team work quality level they were very positive prior to the initiation of their work and believed that their team has a great chance to succeed. In the backward assessment they confessed that despite the overall satisfaction everything did not come up to their expectations.

A Perceived Differences Method – Expectations (prior to a wokshop)

Influence of co-operation with other university students	Co-operation with other university students will be a benefit (9x)	I do not care whether we are mixed or from the same university - it depends on particular people (11x)	Co-operation with other university students will rather decelerate and weaken our team
Occurrence of conflict situations in a team	Team will work without complications and effectively (3x)	Some conflict may appear but we will solve it (16x)	I expect that we will argue a lot and that we will hardly reach a consensus (1x)
Influence of knowledge and experience gained from university studies	We will for sure apply what we have learnt extensively (7x)	We will probably apply what we have learnt but we will mostly use common sense (13x)	I doubt that we will apply what we have learnt at university
Influence of educator/ consultant	We will certainly need consultation or advice (5x)	We may use possibility to consult (13x)	We will be self-sufficient (2x)
Tem co-operation quality level	Our team has a great chance to succeed (12x)	Sometimes it will not go well but it will not let us down (8x)	I cannot imagine that it will work

A Perceived Differences Method – Reality (after a wokshop)

Influence of co-operation with other university students	Co-operation with other university students was a benefit (16x)	It was not important from which university we were - it depended on results of individual work (3x)	Co-operation with other university students rather decelerated and weakened our team
Occurrence of conflict situations in a team	Team worked without complications and effectively (12x)	Although a conflict appeared we solved it (6x)	We argued a lot and it was hard to reach a consensus (1x)
Influence of knowledge and experience gained from university studies	We applied what we have learnt extensively (6x)	We applied some knowledge we have learnt but primarily we used common sense (13x)	We applied almost nothing from what we have learnt
Influence of educator/ consultant	The possibility to consult was beneficial (14x)	We used possibility to consult but it did not help much (3x)	We were self-sufficient (2x)
Tem co-operation quality level	Our team succeeded in every respect (7x)	Something did not go well but we are satisfied with a result (12x)	The team did not work as it was meant to

CONCLUSIONS

The study presents the results of qualitative research realized in pursuance of co-operative workshops of students from University of Economics in Prague, the Faculty of Informatics and Statistics and Tomas Bata University in Zlin, the Faculty of Multimedia Communications. The total number of participants was 21 from both universities. "Relevant prepared analysis of the students needs demonstrated already preallocated potential demand for education in particular areas and form but also the possibility of a synergistic effect of educational activities at their subsequent implementation in practice of the cooperating companies and institutions." (Šedová, Juříková, 2014, p. 18)

From the results it is evident that the student team co-operation is an essential element of university studies which cannot be underestimated and at the same time great importance is attached to so called transferable competences of students. Those competences help the students to be employed more easily, collaborate with colleagues at the workplace and to cope with everyday work responsibilities. Possible conclusions for optimization of work teams comprised of university students are support and development of team work and its dynamics from the side of tertiary education providers.

It is requisite to stimulate the student practice, study visits, internships not only at the Czech institutions, companies and universities but also abroad. The motivation for students which should be appealed to is meeting with their peers from different specialization or study fields, acquiring new experience and practical skills, visiting new environment - see other places/cities and last but not least gaining contacts. The study affirmed affinity of study fields and consequent similar or identical working procedures of students. The student attitudes and work approach was very alike and the differences minimal although they had various theoretical base. Potential dissimilarities in opinions and approaches were considered very beneficial and useful for the team as same as for individuals. The study also validated that interdisciplinarity is a current trend and the right way to the student potential development and the universities themselves. Students stated that in the first year of their studies they were not skilled enough to create a complete and constructive concept and they did not know marketing and multimedia field processes and their theoretical base. They were taught these not earlier than in the first study year. We can therefore deduce that a student becomes competent to an individual creative activity at the earliest in the second grade of studies. And of course the longer the study the more considerable knowledge and experience is and also the more self-confidently and professionally the students perform. According to the results of the study optimal student team should encompass 3 to 5 students. In ideal case the Belbin team roles should be represented in the widest scope possible and the role of a leader, whose contribution to the team is mainly coordination, discipline and keeping the team´s balance, should be present primarily.

The qualitative research was a pretest the results of which cannot be generalised from the reasons of assignment and student specialization variability and variableness in many other factors which can influence the outcomes of the research. This study allows for specifics of a study at art oriented university. At different type of university dissimilar findings can be predicted. A similar study continuation with other university students with other specializations suggests itself. The process of the research is also influenced by a form and type of the assignment. Interesting and useful data would be brought by a research - comparison of student approach to the team co-operation on an international scale.

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Belbin Team Role Inventory

implementer, shaper/leader, coordinator, plant/innovator, resource investigator, monitor evaluator, team worker and finisher

Development Of Support Strategies For Students With Disabilities Through The Swot Analysis: A Case Study Of The Center For Students With Disabilities At The P University In Korea

Jakyoung KIM
Department of Special Education
Pusan National University, Korea
Jakyoung@pusan.ac.kr

Sungwook JANG
Department of Special Education
Pusan National University, Korea

Bohee SHIN
Department of Special Education
Pusan National University, Korea

ABSTRACT

Although the needs to support post-secondary education for students with disabilities are increased, the educational environment is still not enough. The purpose of this poster is to analyze the internal environment and external environment of a support center for students with disabilities using SWOT analysis and present the developmental strategies. The development strategies from SWOT analysis are to expand center's expertise, increase cooperation between the authorities, strengthen the notification and publicity campaign, expand production of useful information and accessibility, and establish the identity and mission of the center.

Key words: SWOT analysis, strategic analysis, support for university students with disabilities, Support Center for Students with Disabilities.

INTRODUCTION

Importance of education has been emphasized ever since due to the rapid changes in the educational environments and technology(D. Kim, D. Lee, S. Son, & H. Koh, 2015). However, the educational attainment of people with disabilities is still lower than nondisabled people(B. Hong, 2009). Only 43.4% of people with disabilities get a high school or higher education, whereas 71.1% of nondisabled people do in Korea (Ministry of Health and Welfare, 2014). Low educational attainment of the people with disabilities makes them socially disadvantaged.

The post-secondary education support policies for students with disabilities were established in the mid-1990s in Korea and the rates of university acceptance have increased steadily. But the support for students with disabilities is not satisfactory yet(T. Lee, Y. Oh, 2015). Education for People with Disabilities Act - 2007 mandates that universities establish a Support Center for Students with Disabilities to provide services to meet the needs of individuals with disabilities. However, more than half of the universities are still evaluated to be insufficient by the Assessment of Education Welfare Support for College Students with Disabilities (Ministry of Education, 2015). It is necessary to analyze the current support system for students with disabilities in the university and explore the ways to establish better school environments for them.

Method and Goals

The purpose of this study is to identify strategies to provide better services for students with disabilities by analyzing internal/external environments of the Support Center for Students with Disabilities (which is a legally-supported official organization) on the basis of the case study of the P university.

The SWOT analysis was used to determine the factors such as strengths, weaknesses, opportunities, and threats of the Support Center for Students with Disabilities at the P university. Various materials were collected for the analysis such as laws, government policies for special education, survey reports, self-evaluation of the P university on the support for students with disabilities, and previous research etc. We developed our future directions for the center on the basis of the SO strategy, the WO strategy, the ST strategy, and the WT strategy, which are obtained from the SWOT analysis.

Results

Under the SWOT analysis, the factors on opportunities, threats, strengths, and weaknesses were identified. Any conditions on the external environments outside the Support Center for Students with Disabilities are analyzed as opportunities and threats. The factors as opportunities include expansion of laws, development of government policies, etc. The factors as threats include the location of school (accessibility problem), lack of understanding of school members, lack of operational manuals, etc.

The internal conditions of the Support Center for Students with Disabilities are analyzed as strengths and weaknesses. The factors as strengths include the center as a legally-supported independent organization, professional qualification of the center staff, arrangement of assistive technology equipment, assistance for studying and campus living, etc. The factors as weaknesses include the lack of identity and unclear future plans (mission) of the center, communication problems about service information, etc.

The various strategies for the Support Center for Students with Disabilities were developed from the SWOT analysis. The main strategies include the following: First, the SO strategies include expanding the Center's expertise and increasing the active cooperation among the school authorities. Second, the WO strategies involve strengthening the notification of the center and increasing the publicity campaigns to improve awareness of disabilities. Third, the ST strategies include expanding the production of useful information and the accessibility to the center. Finally, the WT strategies include establishing the identity of the center and setting up the specific plans (mission) of the center.

Discussion

This study investigated the factors, such as strength/weakness/opportunities/threats, from the internal and external environments of the Support Center for Students with Disabilities at the P university, and derived the strategies from the SWOT analysis. Application of the strategies would improve the support system of the center. The results are expected to guarantee the quality of the university life of students with disabilities. Further research will be in order with respect to the execution, control, and feedback of conducted strategies.

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Development Of The Success Rate In Mathematics 1 At The College Of Polytechnics Jihlava (Czech Republic) In 2006–2015

Martina ZÁMKOVÁ
College of Polytechnics Jihlava, Czech Republic
martina.zamkova@vspj.cz

Martin PROKOP
College of Polytechnics Jihlava, Czech Republic
Martin.Prokop@vspj.cz

Radek STOLÍN
College of Polytechnics Jihlava, Czech Republic
radek.stolin@vspj.cz

ABSTRACT

This paper addresses the development of the exam success rates in Mathematics 1 at the College of Polytechnics in Jihlava –CPJ (Czech Republic). The analysis used data from the school information system. We have observed the trends in development of the success rates with regard to individual CPJ study programmes in 2006-2015. Obtained material consists predominantly of categorical data, that is why the contingency tables analysis and correspondence analysis were used to assess the dependencies. The research showed that in these years the success rate in Mathematics 1 has been decreasing in all of the monitored study programmes. In general, technically oriented programmes (Applied Computer Science and Computer Systems) showed lower success rate in mathematics, while the success rate in the economic programmes (Finance and Management and Travel and Tourism) is higher. To reverse the trend of the growing failure rate we introduced the course called Seminar in Mathematics for students who failed the entrance test from high school maths. At the same time, we have been innovating the e-learning modules and working on the textbooks for Seminar in Mathematics that can be completed even within intensive summer and winter schools in mathematics.

INTRODUCTION

It is often said nowadays that the level of mathematical knowledge is decreasing in the Czech Republic. The same applies to the College of Polytechnics in Jihlava (CPJ), where students encounter mathematics in the following courses –Applied Computer Science, Travel and Tourism, Finance and Management and Computer Systems. One may expect future economists and computer experts to be equipped with some basic mathematical knowledge, which is a necessity for such professions. The objective of our research was, therefore, to assess the development of success rates in Mathematics 1 at the College of Polytechnics in Jihlava in the past 9 academic years. A detailed success rate analysis was carried out with regard to the respective CPJ courses. We used contingency tables analysis and Pearson's test of independence to test the dependencies. Row relative frequencies and the graphic outputs of correspondence analysis (correspondence maps) were used to test the character of dependence.

A paper by Zámková and Blašková (2014) focused on similar issues. The paper's objective was to assess the Mathematics-1 exam success rate at the Faculty of Business and Economics of Mendel University in Brno. Another article (Fonteyne et al, 2015) assesses the impact of mathematical knowledge and skills on Ghent University students' success rate in a statistics course. Similarly Kučera, Svatošová, and Pelikán (2015) analysed the relationship between the admissions mathematics test results and the success rate in Mathematics, and Mathematical Methods in Economics. A publication by Sonnert, Sadler, and Bressoud (2015) deals with the students' attitude toward mathematics in relation to the introductory calculus course and other relevant influential factors.

The impact of the decreasing quality of high school mathematical education on university success rates in mathematics was addressed by Kučera, Jindrová, and Vydrová (2013). Universities are accepting less talented students due to the fact that there are fewer eligible candidates. This is a result of decreased population. The authors examined the success rate on courses that require mathematical skills (statistics, operations research) via a questionnaire survey. Kouřilová and Bebčáková (2015) concluded that the mathematical knowledge of students coming from high schools is decreasing each year. Uysal (2007) compared the success rate in mathematics at selected schools in Turkey.

MATERIALS AND METHODS

Primary data was taken from the College of Polytechnics information system. The categorical data includes students' success rates in Mathematics 1 for the years 2006-2015 and relevant identification variables. Mathematics 1 is supposed to provide students with basic knowledge of mathematical analysis and linear algebra.

Contingency tables present an easy way of displaying relations among categorical data. Depending on the character of the data we then used applicable tests of independence. According to Řezanková (1997), for the case of a contingency table of the r x c type (r is the number of rows, c is the number of columns) we most often use the test statistic:

$$\chi^2 = \sum_i \sum_j \frac{\left(n_{ij} - e_{ij}\right)^2}{e_{ij}}, \tag{1}$$

where e_{ij} is the expected frequency and n_{ij} the observed frequency. We use the statistic χ in Pearson's chi-square test with asymptotically $\chi^2_{(r-1)(c-1)}$ distribution. The null hypothesis of the test assumes independence. For further details see Hindls (2003). The condition that maximum 20% of the expected frequencies are less than five must be met in order to use the Pearson's chi-square test, see Hendl (2006) and Agresti (1990). We use Fisher's exact test in other cases or we calculate the simulated p-value of χ^2 statistic, see Anděl (2005).

Correspondence analysis that was used for this study is a multivariate statistical technique, which allows the display and summary of a set of data in two-dimensional graphic form. It is traditionally applied to contingency tables –correspondence analysis decomposes the chi-squared statistic associated with this table into orthogonal factors. The distance between single points is defined as a chi-squared distance. The distance between ith row and i'th row is given by the formula

$$D(i,i') = \sqrt{\sum_{j=1}^{c} \frac{\left(r_{ij} - r_{i'j}\right)^2}{c_j}}, \tag{2}$$

where r_{ij} are the elements of row profiles matrix **R** and weights c_j are corresponding to the elements of column loadings vector c^T, which is equal to mean column profile (centroid) of column profiles in multidimensional space. The distance between columns j and j‘ is defined similarly. The aim of this analysis is to reduce the multidimensional space of row and column profiles and to save maximally original data information (Hebák et al., 2007). The total variance of the data matrix is measured by the inertia, (see, e.g., Greenacre, 1984), which resembles a chi-square statistic but is calculated based on relative observed and expected frequencies. Unistat and Statistica software was used for primary data processing.

FINDINGS

In the surveyed period of time there were more women than men enrolled in the study programmes that include maths courses see [Table 1].

Gender	Number of students	Percentage
Men	3 216	39.2%
Women	4 988	60.8%
Total	**8 204**	

Table 1: Students of CPJ according to gender.

The frequency table see [Table 2] shows that when comparing the programmes that include maths, the majority of students enrolled in Finance and Management (FM) (57.8%), followed by the Travel and Tourism (TT) programme (24.4%). The lowest number of students enrolled in the technically oriented programmes of Computer Systems and Applied Computer Science, approx. 9%.

Study programme	**Number of students**	**Percentage**
Applied Computer Science (ACS)	703	8.6%
Travel and Tourism (TT)	1 998	24.4%
Finance and Management (FM)	4 743	57.8%
Computer Systems (CS)	760	9.3%
Total	**8 204**	

Table 2: Students of CPJ according to the study programme.

The programmes that include maths courses were attended mostly by full-time students (70%), see [Table 3].

Form of study	**Number of students**	**Percentage**
Part-time	2 386	29.1%
Full-time	5 818	70.9%
Total	**8 204**	

Table 3: Students of CPJ according to the form of study.

Row relative frequencies see [Table 4] show that the lowest maths success rate is in the technically oriented programmes (CS and ACS) –about 32%. Success rate in the economic programmes (FM and TT) is higher – around 45%. The observed *p*-value is less than 0.001, which implies strong statistical dependence.

Row relative frequencies	**Succeeded**	**Failed**
Finance and Management	44.99%	55.01%
Applied Computer Science	32.15%	67.85%
Computer Systems	32.24%	67.76%
Travel and Tourism	45.70%	54.30%

Table 4: Contingency table: Study programme and success rate in Mathematics 1.

Furthermore, row relative frequencies see [Table 5] and the graphic output see [Figure 1] show that the success rate in Applied Computer Science has been stagnating for a long period of time at 40% to 50%. Years 2012–2013 saw a significant turn and since then the success rate is maintained below 20%. The observed *p*-value is less than 0.001, which implies strong statistical dependence.

Row relative frequencies	**Succeeded**	**Failed**
2007/2008	42.70%	57.30%
2008/2009	38.55%	61.45%
2009/2010	46.67%	53.33%
2010/2011	41.67%	58.33%
2011/2012	49.15%	50.85%
2012/2013	12.68%	87.32%
2013/2014	14.63%	85.37%
2014/2015	19.57%	80.43%

Table 5: Contingency table: Applied Computer Science –monitored period of time and success rate in Mathematics 1.

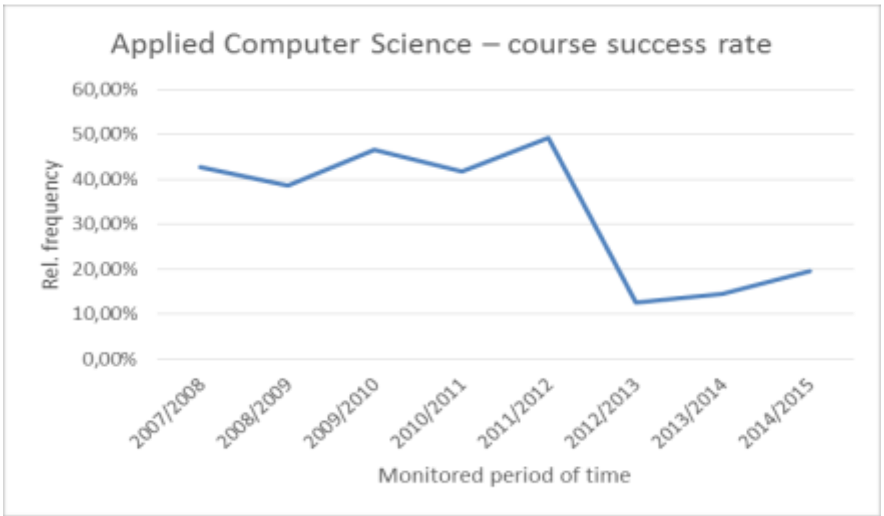

Figure 1: Applied Computer Science –monitored period of time and success rate in Mathematics 1.

The correspondence map see [Figure 2] shows clearly that there has been a significant decrease in the success rate; in the figure years 2012–2015 are the closest to the F grade, which was therefore the most frequent grade in this period of time. The remaining years also show not very positive results –mainly D and E grades.

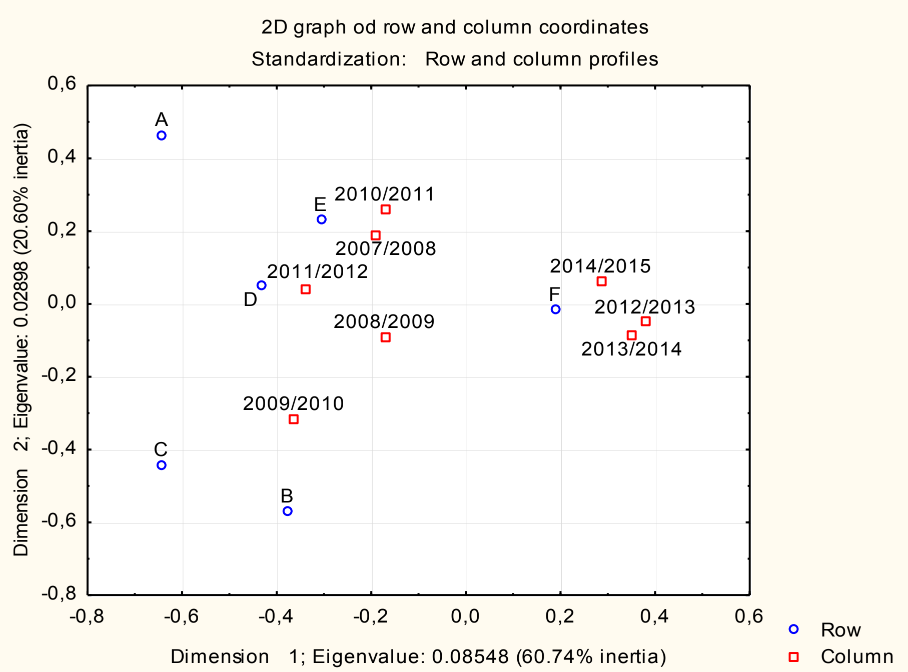

Figure 2: Correspondence map: Applied Computer Science –monitored period of time and final grades in Mathematics 1.

Row relative frequencies	Succeeded	Failed
2004/2005	65.40%	34.60%
2005/2006	72.33%	27.67%
2006/2007	84.62%	15.38%
2007/2008	61.17%	38.83%
2008/2009	35.43%	64.57%
2009/2010	42.43%	57.57%
2010/2011	37.85%	62.15%
2011/2012	40.00%	60.00%
2012/2013	42.11%	57.89%
2013/2014	34.47%	65.53%
2014/2015	33.50%	66.50%

Table 6: Contingency table: Finance and Management –monitored period of time and success rate in Mathematics 1.

Row relative frequencies see [Table 6] and the graphic output see [Figure 3] show that the success rate in maths as for Finance and Management has been even increasing at the beginning –from 65% to approx. 85%, but then, in 2008, there was a plunge to approx. 40%, and this value is maintained up until today. However, in the last two years, the success rate continued to decrease to under 35%. The observed *p*-value is less than 0.001, which implies strong statistical dependence.

Figure 3: Finance and Management –monitored period of time and success rate in Mathematics 1.

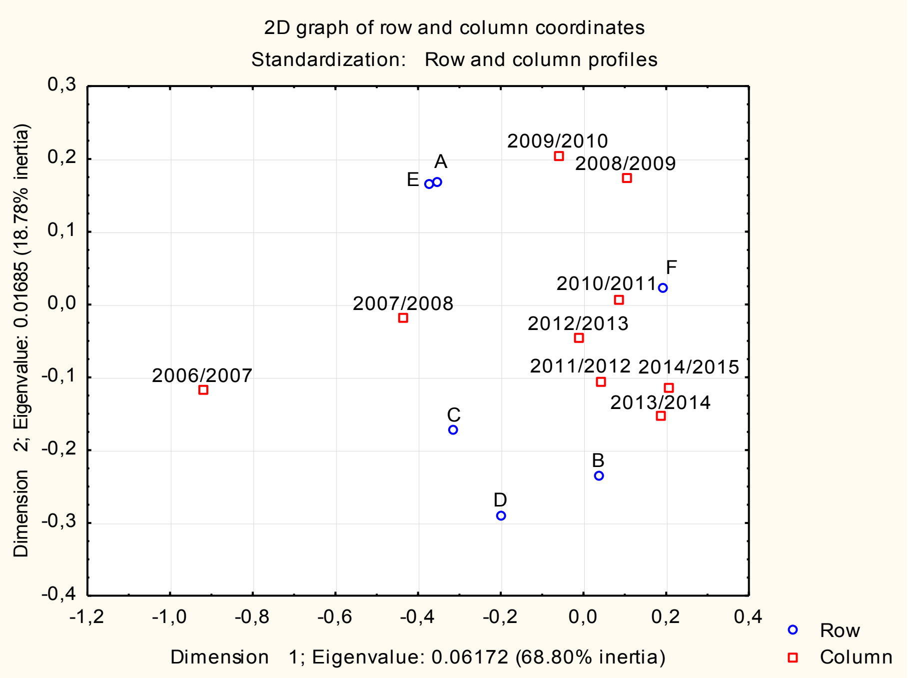

Figure 4: Correspondence map: Finance and Management –monitored period of time and final grades in Mathematics 1.

The correspondence map see [Figure 4] shows that F grades prevailed in 2010–2015. The earlier year of studies, the bigger the distance from the F grade, which implies lower frequency of its occurrence.

Row relative frequencies	Succeeded	Failed
2006/2007	48.80%	51.20%
2007/2008	43.33%	56.67%
2008/2009	40.86%	59.14%
2009/2010	41.67%	58.33%
2010/2011	34.44%	65.56%
2011/2012	35.48%	64.52%
2012/2013	15.52%	84.48%
2013/2014	12.77%	87.23%
2014/2015	11.70%	88.30%

Table 7: Contingency table: Computer Systems –monitored period of time and success rate in Mathematics 1.

Furthermore, row relative frequencies see [Table 7] and the graphic output see [Figure 5] show that the success rate in maths as for Computer Systems has been gradually decreasing from 50% to 35% (2011). With the year of 2012, the values dropped significantly to under 15%. The observed *p*-value is less than 0.001, which implies strong statistical dependence.

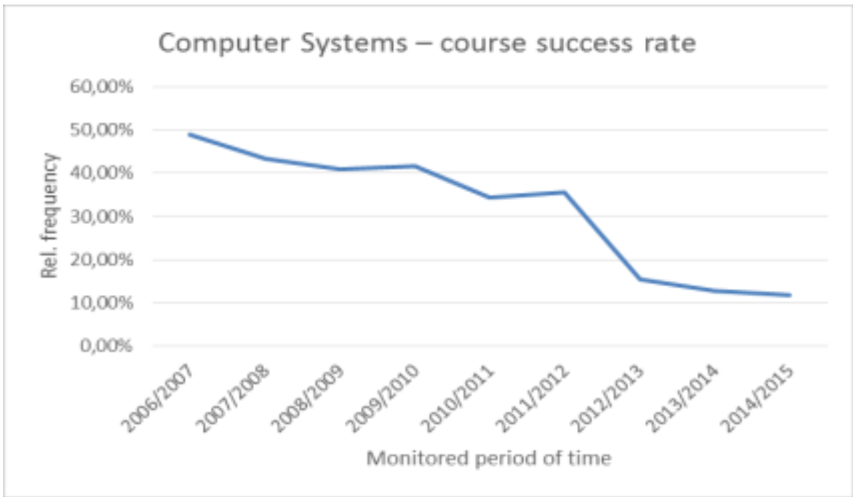

Figure 5: Computer Systems –monitored period of time and success rate in Mathematics 1.

The correspondence map see [Figure 6] shows clearly that the worst grades were achieved in 2012–2015, since in the figure, these values are placed the closest to the F grade, while they remain to be the furthest away from the rest of the grades. The previous years (2008–2012) saw slightly better results, but the values still fall within the F grade range, although it is closer to the rest of the grades. The best results were apparently achieved in 2006–2008, since the values are the furthest away from the F grade.

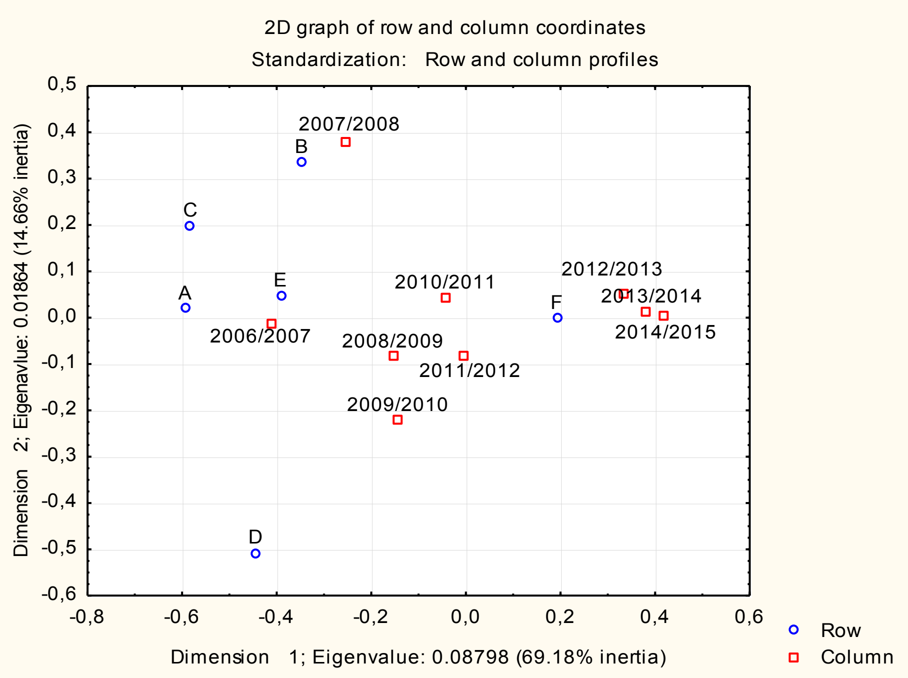

Figure 6: Correspondence map: Computer Systems –monitored period of time and final grades in Mathematics 1.

Row relative frequencies see [Table 8] and the figure see [Figure 7] indicate that the success rate of the Travel and Tourism programme has been steadily decreasing from values around 80% to about 35%, and these values have been maintained for three years afterwards. The observed *p*-value is less than 0.001, which implies strong statistical dependence.

Row relative frequencies	Succeeded	Failed
2007/2008	18.42%	81.58%
2008/2009	20.20%	79.80%
2009/2010	30.30%	69.70%
2010/2011	35.94%	64.06%
2011/2012	55.98%	44.02%
2012/2013	66.96%	33.04%
2013/2014	63.49%	36.51%
2014/2015	63.21%	36.79%

Table 8: Contingency table: Travel and Tourism –monitored period of time and success rate in Mathematics 1.

Figure 7: Travel and Tourism –monitored period of time and success rate in Mathematics 1.

DISCUSSION AND CONCLUSIONS

The analysis showed that the success rate in Mathematics 1 has been decreasing over the course of the monitored period of time. The results of the monitored period show, that technically oriented programmes (Applied Computer Science and Computer Systems) reached the lowest success rate in mathematics –around 32%. Based on this research, the success rate in the economic programmes (Finance and Management and Travel and Tourism) is higher –around 45%. The overall success rate in Mathematics 1 is therefore apparently not good and this issue needs to be addressed. Authors Kučera, Svatošová and Pelikán (2015) analysed the success rate in mathematics with respect to various factors. Our research showed that the students' success rates in Mathematics 1 are statistically significantly dependent on the study programme.

Detailed analysis revealed differences in the development trends among individual programmes of study. The success rate in Applied Computer Science started between 40% and 50%. The values dropped to 20% in years 2012 and 2013. The analysis proved, furthermore, that as for Finance and Management, the success rate has been increasing from 65% to 85%. Since 2008, the values have dropped significantly to under 40%. In the last two years, the success rate continued to decrease to fewer than 35%. As for Computer Systems, the success rate has been gradually decreasing from 50% to 35% (2011). Further decrease has followed since 2012, reaching 15%. The Travel and Tourism programme saw the success rate in maths drop from 80% to approx. 35%. Plus, the correspondence maps show that the majority of points representing the years are placed within the F (failed) grade range, meaning the F grade is truly the most frequent one. Good grades (A–C) on the other hand, are generally located far away from the points that represent respective years. The maths results achieved in programmes Applied Computer Science and Computer Systems are the most alarming –the majority of students are not capable of completing Mathematics 1. After comparison of our results and the results of the article by Zámková and Blašková (2014), it is clear that the most frequent grade obtained in mathematics at the Faculty of Business and Economics of Mendel University in Brno and also at CPJ is F –failed.

A publication by Fonteyne et al. (2015) recommends entrance basic mathematics test to target the potentially struggling students. Our school is currently implementing an internal project part of which there is a similar measure. The first seminar of the course Mathematics 1 includes an entrance-level basic high school mathematics test. The students who pass the test can continue in attending the course Mathematics 1. Those who fail are reassigned to a special course called Seminar in Mathematics to practice high school maths and they immediately may drop the course Mathematics 1 and therefore will not lose their right to repeat the course.

The aforementioned project is in general going to form the base for further monitoring of success rate development trends and for the review of the efficiency of suggested measures. They are aimed at improving the success rate in Mathematics 1 and other mathematically oriented courses. As another part of the project, textbooks for Seminar in Mathematics are being created and the e-learning module is being updated –it shall include new tests and question banks matched with the topics taught where everything is explained in a simple and lucid way. The module also offers number of examples of exercises and opportunities to practice. Seminar in Mathematics may be completed in a form of an intensive summer or winter school in mathematics, where students learn to solve exercises and practice under the supervision of experienced CPJ's professors.

ACKNOWLEDGEMENT

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Digital Games As A Method For E-Learning: Example Of Scratch.Mit.Edu

Berkay BULUŞ
Communication Design and Media
Sakarya Üniversitesi, Türkiye
berkaybulus@sakarya.edu.tr

Aytekin IŞMAN
Communication Design and Media
Sakarya Üniversitesi, Türkiye
isman@sakarya.edu.tr

Ahmet ESKICUMALI
Communication Design and Media
Sakarya Üniversitesi, Türkiye
ecumali@sakarya.edu.tr

SUMMERY

Over the past half century, video game play has gone frombeing a somewhat fringe activity to a ubiquitous part of modern culture. This modern culture we say, "Network Sociaety" (Castells, 2006) or "digital narrative" (Jenkins, 2006) game play was largely a social experience, and they explained the pleasure of gaming as largely one of socializing with friends. Other groups (Kurt, 2011) say that gaming describes from personal experience numerous video games and the relationships they have created with learners.

In addition to their commercial popularity, digital games have captured the attention of training professionals and educators. There are several reasons for this professional interest. First, there has been a major shift in the field of learning from a traditional, didactic model of instruction to a learner-centered model that emphasizes a more active learner role. This article represents a shift away from "learning by listening" model of instruction to one in which students "learning by gaming". In accordance with firts part of this article, have been discussed what is game/gaming within digital culture and digital age.

New digital technologies provide opportunities to create learning environments that actively involve students in problemsolving. Video games is that some empirical evidence exists that games can be effective tools for enhancing learning and understanding of complex subject matter. Second part of this article, purpose to explain game based learning. Morover in this part to be claimed instructional model as a technology-assisted learning method. Accordingly, purpose of this article is to present and elaborate a model of instructional games and learning. The goal is to examine the unique aspects of games that can enhance learning. Discussion addresses the application of this approach to the design and implementation of effective training games. Instructional games are primarily seen as a means to enhance intrinsic motivation, extrinsic motivation is also important. The goal is to develop learners who are self-directed and self-motivated, both because the activity is interesting in itself and because achieving the outcome is important. In this part to be detailed analyzed content of "scratch.mit.edu" web site. As a result this article will offer suggestions for be developing digital game/video game/ gaming for stroytype learning or digital/e-learning.

Key words: Digital game, Video Game, E-Learning, Digital Culture, Scratch.mit.edu

GAMING WITHIN DIGITAL AGE

Over the past decade, the popular press, media scholars and now educators have been paying closer attention to computer and videogames (hereafter referred to as videogames) (Herz, 1997, Cassell & Jenkins, 1998; Poole, 2001). Creatively, videogames push the boundaries of interactivity, immersive environments, community design, and digital storytelling. Technologically, games push the boundaries of consumer-grade real time simulation and artificial intelligence. Culturally, they are changing the way we play, learn, and interact, quintessential sites of broader shifts in knowledge consumption and production (de Castell and Jenson in press; King, 2001; Scholder & Zimmerman, 2003; Squire, 2003). Games are in a transitional phase of cultural status, and it is no longer unusual to see game exhibits at art museums, or university courses on gaming. The last 18 months have brought us dozens of academic, government, and industry conferences focused on the academic study of games, a substantial portion of which are dedicated to games and learning.

Games provide interests in new domains and inspire design. Squire shares his experience with peers and how games have been shown to spark interest-driven learning among students and teachers alike. They establish new interests that the student further explores and investigates. They inspire students to pursue questions and answers to developing questions while playing. Finally, they create an environment that leads to intrinsically motivated authoring. Students have been shown to pursue communities and activities outside of the game to accomplish altruist goals.

Digital Natives: This term coined by Prensky (2001a, 2001b, 2006) explains a lot about these students' characteristics in the context of the growing technology in the 1990s, but has also been fraught with considerable controversy. They are branded as ―digital natives because ―digital is their native language. They are ―native speakers‖ of the language of computers, video games, and the Internet and have spent their entire lives surrounded by computers, cell phones, and all the gadgetry of the digital age. As you walk across campus, you will notice that these teen and 20-something students have wires coming out of every part of their bodies. Attached to those wires are MP3 players, iPods, Zunes, Zens, iPhones, RAZRs, BlackBerrys, or the latest techy gizmo or thingamajig (Junco & Mastrodicasa, 2007; Mastrodicasa, 2007; Oblinger, 2008a). (*Note:* Palfrey and Gasser [2008] use ―the first generation of digital natives‖ in the title of their book, but claim ―generation‖ is an overstatement and inappropriate term; they prefer ―population‖).

In *Video Games and Learning*, Kurt Squire (2011: 80-82). Squire's extensive knowledge and accomplishments permeate through his extensive examples of various games and their impact on social interactions, communities of learning, and culture. Games provide interests in new domains and inspire design. Squire shares his experience with peers and how games have been shown to spark interest-driven learning among students and teachers alike. They establish new interests that the student further explores and investigates. They inspire students to pursue questions and answers to developing questions while playing. Finally, they create an environment that leads to intrinsically motivated authoring. Students have been shown to pursue communities and activities outside of the game to accomplish altruist goals.
Green and Seitz (2015) The term *video games* refers to thousands of quite disparate types of experiences, anything from simple computerized card games to richly detailed and realistic fantasy worlds, from a purely solitary activity to an activity including hundreds of others, from a strictly antagonistic/competitive experience to a strictly friendly/ pro-social experience, from nothing more than a simple set of rules to a full and highly immersive fiction.

According to Rene Hobbs (2010: 51) just owning technology, playing video games, or using online social networks with having the habits of mind, knowledge, skills and competencies needed to be successful in the 21st century. Playing video games was fun, as they introduced both historical and geographical concepts in a visually appealing way. Remarkably, educational gaming has remained relatively stagnant since the initial introduction of *The Oregon Trail*. For well over two decades the controversies surrounding video games have riddled the growth and implementation of game-based learning environments.
What makes a video game, a "good" game, from an educational perspective? As an educator beginning to explore the possibilities of gaming, I find that violence is one of the most concerning topics for both colleagues and parents. Certainly the controversy surrounding violence and video games goes beyond the scope of this review, however, it is important to further define what a good educational video game actually looks like.

Over the past decade, the popular press, media scholars and now educators have been paying closer attention to computer and videogames (hereafter referred to as videogames) (Herz, 1997, Cassell & Jenkins, 1998; Poole, 2001). Creatively, videogames push the boundaries of interactivity, immersive environments, community design, and digital storytelling. Technologically, games push the boundaries of consumer-grade real time simulation and artificial intelligence. Culturally, they are changing the way we play, learn, and interact, quintessential sites of broader shifts in knowledge consumption and production (de Castell and Jenson in press; King, 2001; Scholder & Zimmerman, 2003; Squire, 2003). Games are in a transitional phase of cultural status, and it is no longer unusual to see game exhibits at art museums, or university courses on gaming. The last 18 months have brought us dozens of academic, government, and industry conferences focused on the academic study of games, a substantial portion of which are dedicated to games and learning.

Game Based Learning

Game-based learning can be integrated into educational curriculums and how research can be developed and accomplished to demonstrate the benefits of game-based learning to education. His love of teaching with game-based approaches, his excitement for the future of game-based learning, and his desire to be a part of it are apparent throughout the book.

Kurt Squire (2008: 189-190) designed and implemented an afterschool program for kids designed to initiate them into a gaming community of practice, that is, a community organized around a key practice (e.g., becoming good *Civ* players).40 We designed a series of custom scenarios making the game easier to learn and easier to play. These custom games were designed to speed game play, allowing players to have the kind of rapid game-play analysis/replaying of games that was core to the Apolyton community. Students were encouraged to play with partners, and most players kept close ties to friends' games throughout the first week. Finally, we decided to have adult gamers play alongside the students, in order to better model the kind of thinking in which we wanted students to engage, such as modeling advanced game play or using maps and other resources as tools for game play. As the adults achieved successes (and losses), they shared their strategies with students, in part in an effort to emulate the kinds of thinking occurring at Apolyton University.
While the examples are extensive and provide significant insight into the game-based learning environment of a teacher and researcher, the entries can become monotonous and the ideas seem to wander at times. Moreover, given that they are persistent virtual spaces played in real time yet instantiated in digital graphics and architectural code, they function as a highly visible and therefore thoroughly traceable medium (Moore, Ducheneaut, & Nickell, 2005) for the study of cognition, learning, and literacy in online digital contexts.
Not all technology-assisted learning needs to fit the stereotype of the digital native. Further, digital immigrant professors do not need to speak a new —language in order to be effective. Some are excellent teachers who have adopted learner-centered methods with and without computers. The incorporation of technology in the learning process should be context-specific. Jenkins (2007) expresses similar concerns about Prensky‵s categories. He says that "digital natives" implies all students share a common body of technology knowledge that they have all mastered. In fact, the term masks their different degrees of access to and comfort with the emerging technologies. Also, rather than focusing on the inadequacies of the —digital immigrants, he argues we should recognize what they bring with them from the old world which is still valuable. Actually, a significant percentage of professionals working in Silicon Valley are —immigrants who can probably out-compute most of the —natives. Prensky‵s digital and cultural divide between these groups also short circuits thinking about meaningful collaborations across these generations.

The game creativing successful in helping students build more robust conceptual models of physics, but left few directions for players to go after playing the game. The game did little (outside the cut scene) to suggest to students how these concepts related to electricity or magnetic phenomena seen in the world around them. Similarly, the game did little to suggest what a successful player might do to extend this interest *beyond* the game, such as in science career.

Modern video games have evolved into sophisticated experiences that instantiate many principles known by psychologists, neuroscientists, and educators to be fundamental to altering behavior, producing learning, and promoting brain plasticity (for reviews, see Bavelier, Green, Pouget, & Schrater, 2012; Gentile & Gentile, 2008; Green & Bavelier, 2008). Video games, by their very nature, involve predominately active forms of learning (i.e., making responses and receiving immediate informative feedback), which is typically more effective than passive learning (Michael, 2006). In addition, this active learning usually occurs in a variety of situations, thus promoting generalization of learning (Schmidt & Bjork, 1992). Most video games also use a dynamic degree of difficulty that increases along with player skill, ensuring that players are continuously challenged.
Furthermore, many games use a combination of internal reinforcement (e.g., positive social interactions and feelings of competence; Przybylski, Rigby, & Ryan, 2010) and external reinforcement (e.g., points, badges, etc.; King, Greaves, Exeter, & Darzi, 2013). This reinforcement promotes significant time spent on task, which is the best single predictor of positive learning outcomes. In addition, this time is typically distributed over many days, weeks, or even years—a practice schedule that produces more effective learning than when experience is amassed into only a few sessions (Baddeley & Longman, 1978). Finally, video games are highly physiologically arousing and activate reward systems of the brain that drive brain plasticity (Bao, Chan, & Merzenich, 2001; Kilgard & Merzenich, 1998). Thus, there is a strong scientific basis to suspect that video games, when properly designed, have the potential to strongly alter the brain and behavior.

In the cognitive domain, perhaps not surprisingly, the types of games that are of interest are those that have complex 3D settings, that feature quickly moving targets that pop in and out of view, that necessitate substantial visual processing of the periphery, that include large amounts of clutter and task-irrelevant objects, that require the player to consistently switch between highly focused and highly distributed attention, and that require the player to make rapid, but accurate decisions. Games that share these features are referred to as "action video games" (Green & Bavelier, 2012)

There is a tacit model of learning that is inherent in most studies of instructional games. First, the objective is to design an instructional program that incorporates certain features or characteristics of games. Second, these features trigger a cycle that includes user judgments or reactions such as enjoyment or interest, user behaviors such as greater persistence or time on task, and further system feedback. To the extent that we are successful in pairing instructional content with appropriate game features, this cycle results in recurring and self-motivated game play. Finally, this engagement in game play leads to the achievement of training objectives and specific learning outcomes.

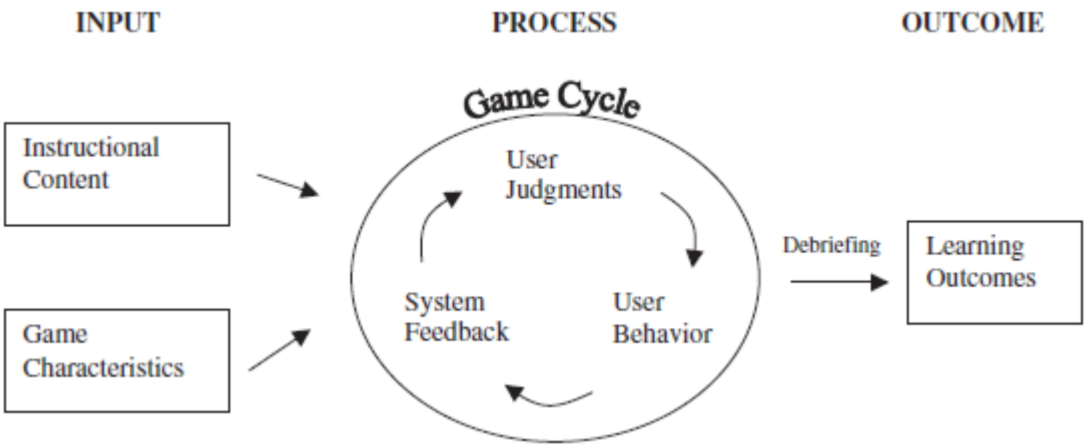

Figure1. Input- Process Game Model

According to Garris, Ahlersve Driskell (2002: 445) There are several benefits that this perspective offers. First, the traditional inputprocess- output model of learning emphasizes single-trial learning, a learner performing a task over a single trial. Although the current model adopts the input-processoutput framework, the key component is the *game cycle* that is triggered by specific game features. A central hallmark of game play is not that users play a game and then put it down but that users are drawn into playing a game over and over. In fact, a young person engaged in a computer game may often have to be *told* to turn off the game or to stop playing. We view the game cycle as iterative, such that game play involves repeated judgment-behavior-feedback loops. That is, game play can lead to certain user judgments or reactions such as increased interest, enjoyment, involvement, or confidence; these reactions lead to behaviors such as greater persistence or intensity of effort; and these behaviors result in system feedback on performance in the game context. Thus, the game cycle is a defining characteristic of computer game play—that users are engaged in repetitive play and continually return to the game activity over time. It is this feature of computer game play that training professionals hope to capture and incorporate in instructional applications.

A second advantage of this model is that it provides a structure to organize and integrate the literature on instructional games. Perusing the research literature on games, the reader is faced with a perplexing variety of descriptive terms and conceptual approaches. For example, some researchers have described the essential elements of games by referring to game features, others described games in terms of user reactions or responses to game use, and others described games in terms of the learning outcomes that are achieved.

In the following, we elaborate the model provided in Figure 1 by presenting an overview of research on game characteristics, the game cycle, and learning outcomes. Furthermore, we provide a list of cognate research that addresses each content area. Our goal is to make the implicit model of instruction underlying much game research explicit and to provide a common language and approach for examining the instructional use of computer games. Garris, Ahlersve Driskell(2002: 446)

Scratch.mit.edu As a Example Project for Educational Game

In this part analiysis detailed content of “Scratch.mit.edu” web site. Firts of all Scratch, is designed and maintained by the Lifelong Kindergarten group at the MIT Media Lab. And completely free. With Scratch, you can program your own interactive stories, games, and animations — and share your creations with others in the online community. Scratch helps young people learn to think creatively, reason systematically, and work collaboratively — essential skills for life in the 21st century.

Also Scratch is a programming language and online community where you can create your own interactive stories, games, and animations -- and share your creations with others around the world. In the process of designing and programming Scratch projects, young people learn to think creatively, reason systematically, and work collaboratively.

Scratch For Parents

Scratch is a programming language and an online community where children can program and share interactive media such as stories, games, and animation with people from all over the world. As children create with Scratch, they learn to think creatively, work collaboratively, and reason systematically.

What is the age range for Scratch?

While Scratch is primarily designed for 8 to 16 year olds, it is also used by people of all ages, including younger children with their parents.

What resources are available for learning Scratch?

If you're just getting started, there's a **step-by-step guide** available inside Scratch, or you can download the **Getting Started guide (PDF)**. The **Scratch Cards** provide a fun way to learn more. For an overview of Scratch resources, see **Scratch Help**.

What is the Scratch online community?

When participating in the Scratch online community, members can explore and experiment in an open learning community with other Scratch members from all backgrounds, ages, and interests. Members can share their work, get feedback, and learn from each other.

What are the guidelines for the Scratch Online Community?

The MIT Scratch Team works with the community to maintain a friendly and respectful environment for people of all ages, races, ethnicities, religions, sexual orientations, and gender identities. You can help your child learn how to participate by reviewing the **community guidelines** together. Members are asked to comment constructively and to help keep the website friendly by reporting any content that does not follow the community guidelines. The Scratch Team works each day to manage activity on the site and respond to reports, with the help of tools such as the **CleanSpeak** profanity filter.

What is your privacy policy?

To protect children's online privacy, we limit what we collect during the signup process, and what we make public on the website. We don't sell or rent account information to anyone. You can find out more about our privacy policy on our**frequently asked questions page**.

Is there a way to use Scratch without participating online?

Yes, the Scratch offline editor lets you create projects without joining or accessing the online community. Visit the **Scratch 2.0 offline editor** download page for instructions on how to install it on your computer. (If your computer does not support the latest version, try the **Scratch 1.4 offline editor**.)

Over the course of a year, we piloted the game in a variety of contexts, ranging from middle schools to high schools to MIT courses.9 We found that the game was most successful for two types of students: MIT students who were struggling to understand the concepts behind the ideas they were learning in their textbooks (which were typically represented through physics formulas), and secondary school students who were struggling readers disaffiliated with school. High-achieving MIT students resisted the game somewhat, suggesting that it was a "crutch" of sorts for those who could not "hack" harder problems. Secondary school students generally responded favorably, and in our tests, on average, did better than those learning via traditional means (including experiments and visualizations). We saw the highest gains, however, with those students who were struggling readers, and who traditionally reacted negatively to the experiments (e.g., they saw experiments as a chance to goof off in class, and were usually off task).

community centers.

Around the World

العربية
Bulgarian
Catalan
Croatian
Czech
Danish
Deutsch
English
Español
Faroese
Finnish
Français
Galecian
Ελληνικά
Hebrew
Hindi
Magyar
Icelandic
日本語
한국어
Lithuanian
Macedonian
Malaysian
Mongolian
Nederlands
Norsk
Persian
Português-B
Русский
Slovak
Slovenian
Swedish
Thai
Türkçe
Ukrainian
Vietnamese

Figure 2. Used-Languages in Scratch

Scratch is used in more than 150 different countries and available in more than 40 languages. To change languages, click the menu at the bottom of the page. Or, in the Project Editor, click the globe at the top of the page. To add or improve a translation, see the translation page.

In addition to targeted games are professional role-playing games—games that situate learners in the roles of engineers, biologists, or forensic scientists in the process of solving complex scientific problems. These games offer an intriguing mix of sociocultural and constructivist learning theory. As a sociocultural learning theorist might want to see, they set up roles for players to inhabit, and all problem solving, game play, and argumentation take place within the service of those roles build learning games. Also Students‘ attention span is a function primarily of their level of interest in an activity; they can play video games for hours; use a *variety of strategies* that will keep your students *engaged in different ways*; move rapidly through content or, better yet, let them *move at their pace* using the technology

communicating ideas.

Scratch in Schools

Figure 3. Scratch in Schools

Students are learning with Scratch at all levels (from elementary school to college) and across disciplines (such as math, computer science, language arts, social studies). Educators share stories, exchange resources, ask questions, and find people on the ScratchEd website.

The MIT/Madison team (led by Eric Klopfer and me) has produced several iterations of alternate reality role-playing games, using them to teach high school earth sciences, undergraduate environmental engineering, undergraduate scientific writing, and various middle school topics. These games seek to place learners in roles in which they confront authentic challenges central to the domain, providing them access to authentic resources and tools that extend their cognition. All tools and resources are situated within game-play mechanics designed to produce collaboration that scaffolds and supports scientific thinking. In these games, for example, players might try to ascertain the cause of a mysterious death of a friend thought to be caused by environmental health problems, or try to solve a contemporary fictional urban planning dilemma by traveling back in time to interview residents of a neighborhood.

CONCULUSION and SUGGESTIONS

Video Games and Learning provides many situations for the game-based learning researcher or developer to discover and potentially employ in their educational environment. The idea is to develop worlds that are worth understanding, which support multiple readings mediated by interpretive communities of practice, developing multiple compelling trajectories through the space, and supporting

Figures 1 highlight two key processes: Induction into the community and propulsion out of the community. At first glance, one would think that induction into communities would be simple: Which media has a stronger attractor than video games? However, we have found that this is not always the case. Students do not always "see" (or even value) the roles available to them, such as becoming an expert *Civilization* player. In our early studies, it was not uncommon to have a student question whether participation in a game-based learning program would help them in school or on standardized tests. Identifying and promoting examples of expert gaming identities, ideally in the form of advanced participants who already embody them, may be an important step in induction. This point also highlights the importance of such communities being multiaged, fostering significant opportunities for interaction between novices and experts—something rare in most schools but common to learning outside of schools. The second process is that of propulsion out of the community toward new communities of practice.

In general, the research supports that digital games can facilitate learning, but it is difficult to draw stronger conclusions about the educational impact of digital games at this point because relatively few games have been tested against other teaching and learning approaches. MIT Scratch.mit.edu can investigate effect for designed players.

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Dimensions Of The Communication Through Facebook: Anadolu University Official Facebook Page

Prof. Dr. Mediha SAĞLIK TERLEMEZ
Anadolu University, Open Education Faculty, Eskişehir/Turkey
msaglik@anadolu.edu.tr

ABSTRACT

Potential users of official Facebook page of Anadolu University are approximately 6000 staff, 30000 formal students, and 2,5 million students and graduates of Open Education System. Being one of the most preferred social media tools both in Turkey and other countries, Facebook has become one of the public relation channels for institutions. Number of the followers of Facebook page of the university was 170.315 on 11th of February, 2016. It was observed by the researcher that most of the followers were students from Open Education System.
Interaction and feedback are considered as significant as the posts in the communication through social media. Whether the feedbacks and messages are received and understood or not are comprehended from the reactions of the target audience in a healthy communication. The dimensions of communication between Anadolu University and its target audience through official Facebook page were examined in terms of contents of the posts and feedbacks in this study.

INTRODUCTION

One of the social media accounts of Anadolu University is its Official Facebook page which is run by Social Media Coordinatorship. Potential users of this page are approximately 6000 staff, 30000 formal students, and 2,5 million students and graduates of Open Education System. The page functions as a public relations tool for people who do not have any relationship with the university. It is open for all users. Number of the followers of the page was 170.315 on 11th of February, 2016.

Resource: https://www.facebook.com/anadoluuniversitesi

The process that runs through Facebook is a communication activity and the messages of the site admin are delivered to the users via Facebook. Users participate in communication process voluntarily through various choices including their likes, comments and shares. Institutional social networks are considered as one of the up to date and popular ways of providing beneficial information to broad masses of people in and out of the institution and people from other institutions. As for users, it is considered as a tool for being aware of the activities related to the institution; for being informed and aware of various issues related to them; and for following the possible developments and innovations. One of the most important dimensions of this communication built through social networks is social gains that are obtained by feeling as a part of a whole and sharing this with counterparts and friends. "Social gains are related to multiple knowledge, skills and attitudes, and the distinct ones can be listed as setting clear, positive and two-way communication; gaining knowledge from social environment through culture and language interaction; displaying reflective thinking skills;

considering people equal in terms of prestige and behaving in accordance with this; understanding and cooperating with others; and having an understanding based on solidarity.” (Karaağaçlı p.66)

Social networks are regarded as one of the significant communication channels in terms of the system they are in and the other students in the system for particularly distance education students. In addition to this official web page, there is another Facebook page for students at Anadolu University Open Education System, and this page is also followed intensively by the students in the system as an effective interaction process especially through the comments of the students. This study aims to examine the dimensions of the communication via social media channel between Anadolu University and its official Facebook page in terms of content of the messages and feedbacks.

AIM

Main aim of this study is to analyze dimensions of the communication developed among Anadolu University employers, students and graduates through Facebook, which is an effective social media medium. With regards to this aim, following questions were tried to be answered:

1. What are the contents of the posts that are published on official Facebook page of Anadolu University?
2. Who are the users?
3. What content type of posts attract interest of users more? And what type of posts receive more feedback?
4. What type of posts are commented? And What kind of a connection exists between the posts and user comments?
5. What is the level of administration participation to post feedbacks?
6. How are the comments related to the post in terms of various types?
7. What does the communication through Facebook tell us considering feedbacks?

METHOD

The study was conducted through content analysis method. “There are two main approaches to analyze the Internet and interface. Characteristics of users including their habits and durations of using the Internet are investigated through user-based approach which is the first one of these approaches. As for the latter one which is content-based approach, the texts created at the Internet medium and their contents are analyzed through this approach. Since the Internet is both a massive area from one side and an individual area from another side, these texts facilitate various analyses that can be used in various areas” (Çomu, 2014: 27). For this reason, the study was designed on content-based approach.

Scope and Sample

Posts of Anadolu University official Facebook page, which is one of the official social media accounts of Anadolu University, and feedbacks given to these posts by users constituted the scope of the study

December 2015 posts from Anadolu University official Facebook page were taken as samples for the study. Retrospective months were also examined during the conduction of the study, and due to the variety of posts and quantitative intensiveness, only the posts and feedbacks that were sent in December were chosen as samples of the study.

Data Collection and Analysis

Since the Internet texts are in a constant change, it is usually difficult to study online with such hyper texts. For this reason, in order to conduct the study appropriately, especially the posts with numerous comments needed to be recorded. The site was started to be observed since September to form research data, decide on the titles that would be studied on and to constitute coding instructions. Then, the posts and comments of December 2015 were recorded between 27th of December and 3rd of January, and they were turned into offline data which couldn’t be changed anymore.

Primarily, coding instructions and coding tables were constituted for content analysis. As a result of preliminary studies that were conducted to check whether the instructions were suitable for objective inquiry, ncessery corrections were made and the study was completed in the framework of identified principles. The codes that were created by the researcher within the light of coding instructions were turned into numerical data and commented through tables. Feedbacks that could not be coded were excluded from the study.

FINDINGS and DISCUSSION

Anadolu University official Facebook page can be grouped into two categories in terms of the contents of the posts. First group comprised of posts related to Open Education System (OES) including announcements, TRT Okul (TRT School; a TRT channel for education) programs, recent introductory films and e-certificate programs.

As for the second group, which is not directly related to OES, called “Campus”, scientific activities of Anadolu University, culture and art activities, news, posts with up to date contents such as messages, condolences and celebrations exist in this group.

Table 1: Post Contents and User Feedbacks

Posts		Number of Posts		Like		Comment		Share	
		f	%	f	%	F	%	f	%
OES	OES Announcement	23	11.3	6335	23.0	2630	64.5	1673	59.6
	TRT School	30	14.7	1161	4.2	268	6.6	28	1.0
	Introductory Film	2	1.0	194	0.7	188	4.6	2	0.1
	e-certificate	1	0.5	110	0.4	15	0.4	37	1.3
	Total	**56**	**27.5**	**7800**	**28.3**	**3101**	**76.0**	**1740**	**62.0**
CAMPUS	Scientific Act.	47	23.0	2446	8.9	202	4.9	64	2.3
	Culture-Art Act.	53	26.0	2928	10.6	65	1.6	14	0.5
	News	33	16.1	1566	5.6	68	1.7	16	0.6
	Message-condolence-celebration	13	6.4	12231	44.4	631	15.5	971	34.5
	Daily life	2	1.0	585	2.2	11	0.2	4	0.1
	Total	**148**	**72.5**	**19756**	**71.7**	**977**	**24.0**	**1069**	**38.0**
OVERALL TOTAL		**204**	**100**	**27556**	**100**	**4078**	**100**	**2809**	**100**

Facebook user feedbacks that were classified as like, comment and share were examined in terms of post subjects. Rate of OES group was found to be 27,5% regarding the number of posts whereas the rate for Campus group was 72,5%. Culture-art activities had the highest rate with 26% among all other posts. Approximately ¾ of posts were from Campus group and ¼ from OES.

As for user feedbacks, “Message-condolence-celebration” posts had the highest rate of likes with 44,4%. On the other hand, “Announcement-information” title among the OES posts was the most frequently commented post with 64,5%; it was the most frequently shared content with 59,6% as well. It can be inferred from these findings that a high number of students enrolled in Open Education System used this page actively. In addition, the same group’s sharing the posts with a rate of 60,2% showed that the page was used as an expanded communication tool among group members to inform each other.

Table 2: Comment Rates of Posts

Posts		Number of Posts	Commented Posts	%
OES	Announcement-Information	23	23	100
	TRT School	30	18	60.0
	Introductory Film	2	2	100
	e-certificate	1	1	100
CAMPUS	Scientific Act.	47	19	40.4
	Culture-Art Act.	53	17	32.0
	News	33	15	45.5
	Message-condolence-celebration	13	13	100
	Daily life	2	2	100
OVERALL TOTAL		**204**	**110**	**53.9**

Commenting on a post is a significant component that completes communication as an explicit feedback type in communication that is executed through Facebook. Post contents are examined in terms of receiving comments, in other words the written feedback given by users in Table 2. It can be seen from Table 2 that the rate of comments given to the contents were higher in OES group in general than the other group.

All of the Posts of Campus group; announcement-information, introductory film, e-certificate, message-condolence-celebration and daily life received comments with 100% rate. The high rate of comments regarding announcements-information post contents in OES group was remarkable in the Table.

Table 3: Relationship between Posts and Comments

Posts		**Comment relevant to the post**		**Comment irrelevant to the post**		**TOTAL**	
OES		**f**	**%**	**f**	**%**	**f**	**%**
	OES Announcement	977	24.0	1653	40.5	2630	**64.5**
	TRT School	7	0.2	261	6.4	268	**6.6**
	Introductory Film	15	0.4	173	4.2	188	**4.6**
	e-certificate	15	0.4	-	-	15	**0.4**
	Total	**1014**	**25.0**	**2087**	**51.1**	**3101**	**76.0**
CAMPUS	Scientific Act.	32	0.7	170	4.2	202	**4.9**
	Culture-Art Act.	6	0.1	59	1.5	65	**1.6**
	News	20	0.5	48	1.2	68	**1.7**
	Message-condolence-celebration	94	2.3	537	13.2	631	**15.5**
	Daily life	5	0.1	6	0.1	11	**0.2**
	Total	**157**	**3.7**	**820**	**20.2**	**977**	**24.0**
OVERALL TOTAL		**1171**	**28.8**	**2907**	**71.2**	**4078**	**100**

Relationship between the posts and comments made on these posts were examined in terms of being relevant or irrelevant in Table 3. According to this, the rate of relevant comments in total was 28,8% whereas the rate of irrelevant comments was 71,2%. In other words, it can be said that there was a high rate of inconsistency between posts and comments. Inconsistency rate for OES posts was 76,0%, and 24% for the other group. These findings implied that there was a problem in terms of post-comment relationship for OES users. Especially the "announcement-information" category in this group received the highest rate both in terms of relevancy (24%) and irrelevancy (40,5%). It was observed by the researcher that all irrelevant posts from all post groups belonged to OES students. OES students considered this page as a channel to find answer to their problems; share various things among each other; and interchange each other's opinions and feelings.

In accordance with the timing of the study, content of the irrelevant comments were mostly related to exam venues, exam results, exam entrance conditions, fees, pass grades and credits, exemption, student affairs including password, id card and documentation issues, e-learning materials, access problems to the system, and their own successes and failures.

There is a mutual communication process in Anadolu University official Facebook page. Response rates of administrator are examined in Table 4 in terms of comment types and relevancy and irrelevancy of them with the posts. Comment types are listed under three main titles as question, state notifications, and feeling-opinion transmission. Perceptibly, the comments made to receive information about a subject were categorized under the title of question; notifications or detections about a problem on a subject under the title of status notification; and expressing their own opinions and feelings were categorized under the classification of feelings.

Table 4: Response Rates of Administrator

Comment Type	**Post-relevant Comment**		**Response of Admin**		**Post-irrelevant Comment**		**Response of Admin**		**TOTAL COMMENTS**		**TOTAL RESPONSES**	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**F**	**%**	**f**	**%**
QUESTION	255	21.8	141	12.0	1202	41.3	662	22.8	1457	35.7	**803**	**19.7**
STATE	563	48.1	77	6.6	1083	37.3	91	3.1	1646	40.4	**168**	**4.1**
FEELING	353	30.1	2	0.2	622	21.4	16	0.6	975	23.9	**18**	**0.4**
TOTAL	**1171**	**100**	**220**	**18.8**	**2907**	**100**	**769**	**26.5**	**4078**	**100**	**989**	**24.2**

According to the data shown in the table, questions had the highest frequency rate of responses with 19,7% as it had been expected. Irrelevant content of the question did not prevent communication; on the contrary, it increased response rates. In addition to the questions, administrator responded to state and feelings as well with a relatively lower rate. The content of the administrator responses was also important at this point. Most of the responses were in the form of directing to the page where they should look for the answer through giving related link. However, the same question was seen to be asked repetitively, and the administrator gave the same answer repetitively as well. It can be inferred from this that users expected to see the answer directly on the page as a response to their question instead of going to the link.

Table 5- Relationship Between Comments in the Form of Question and Post Contents

Posts		**QUESTION**									
		Relevant				Irrelevant				**TOTAL**	
		Positive		Negative		Positive		Negative			
		f	%	f	%	f	%	f	%	f	%
OES	OES Announcement	146	10.0	83	5.7	662	45.4	95	6.5	986	**67.7**
	TRT School	1	0.1	-	-	95	6.5	23	1.6	119	**8.2**
	Introductory Film	-	-	1	0.1	59	4.0	15	1.0	75	**5.1**
	e-certificate	14	1.0	-	-	-	-	-	-	14	**1.0**
	Total	**161**	**11.1**	**84**	**5.8**	**816**	**55.9**	**133**	**9.1**	**1194**	**81.9**
CAMPUS	Culture-Art	1	0.1	-	-	10	0.7	5	0.3	16	**1.1**
	News	2	0.1	1	0.1	18	1.2	1	0.1	22	**1.5**
	Scientific Act.	3	0.2	3	0.2	33	2.3	30	2.1	69	**4.7**
	Message-condolence-celebration	-	-	-	-	116	8.0	40	2.7	156	**10.7**
	Total	**6**	**0.4**	**4**	**0.3**	**177**	**12.2**	**76**	**5.2**	**263**	**18.1**
OVERALL TOTAL		**169**	**11.5**	**88**	**6.0**	**991**	**68.2**	**209**	**14.3**	**1457**	**100**

Relationship between comments in the form of question and post contents were examined in accordance with being positive and negative in terms of relevancy, and the findings are shown in Table 5. The existence of consistency between the content of question and the post in a positive structure was considered as relevant-positive. For example, the question, *"Overall mean of the exams are between 40 and 50. So what grade should I take from the fall term final exam to pass my lesson?"* directed to the post titled, "Open Education System Fall Term Midterm Exam Results Have Been Announced" on 28th December, 2015 was accepted as a question in relevant positive question group.

The post titled "Anadolu University Successfully Accomplished one more Exam Period," on 24th December, 2015 received the question, *"Okay, the exam was successful but why haven't the results been announced yet?"* It was an example for relevant but negative question type.

The question, *"Will the summaries of the units after unit 4 be shared at e-learning beta?"* among the comments related to the post titled, "Anadolu University Presents; Lifelong Education with Open Education (Introductory film)" published on 19th December, 2015 was considered as irrelevant positive question type.

The question, *"Why hasn't e-seminar lesson of unit six of Cost Accounting been uploaded to the system yet?"* sent as a comment to new year celebration post of the rector of Anadolu University on 31st December, 2015 was an example for irrelevant negative question type.

Examining Table 5 in terms of post contents, it could be seen that the rate of the questions related to Open Education System (81,9%) was considerably higher than other the other group (18,1%). The category that received the highest rate of questions with 67,7% was Open Education System announcements.

Regarding positiveness and negativeness of questions, it could be observed that the rate of positive questions (11,5%) was higher than the rate of negative questions (6,0%). This situation was the same for questions that were irrelevant to the post. The rate of positive questions was 68,2%, and 14,3% for negative questions for this category. As a result, majority of the questions constituted irrelevant ones to the post. It implies the efforts of students to be informed through this channel. Moreover, the researcher observed that similar questions were asked various times and successively which meant that the other questions and responses to them were not read by students. For this reason, the number of questions increased more.

The interesting thing in addition to the prominent rates in the table was all post titles had irrelevant questions even if they were positive except e-certificate subject. It was particularly astonishing to find irrelevant questions under the title of Message-Condolence-Celebration.

Table 6- Relationship between comments indicating state and post contents

Posts		**STATUS**								**TOTAL**	
		Relevant				Irrelevant					
		Positive		Negative		Positive		Negative			
		f	%	f	%	f	%	f	%	f	%
OES	OES Announcement	109	6.6	422	25.6	201	12.2	350	21.3	1082	65.7
	TRT School	1	0.0	2	0.1	30	1.8	61	3.7	94	5.7
	Introductory Film	1	0.0	9	0.6	11	0.7	53	3.2	74	4.5
	Total	**111**	**6.6**	**432**	**26.3**	**242**	**14.7**	**464**	**28.2**	**1250**	**75.9**
CAMPUS	Culture-Art	-	-	-	-	7	0.4	19	1.2	26	1.6
	News	1	0.0	-	-	3	0.2	11	0.7	15	0.9
	Scientific Act.	6	0.4	2	0.1	21	1.3	52	3.2	81	4.9
	Message-Cel.-Cond.	8	0.5	2	0.1	40	2.4	220	13.4	270	16.4
	Daily life	-	-	-	-	1	0.0	3	0.2	4	0.2
	Total	**15**	**0.9**	**4**	**0.2**	**72**	**4.3**	**305**	**18.7**	**396**	**24.1**
OVERALL TOTAL		**126**	**7.6**	**437**	**26.6**	**314**	**19.0**	**769**	**46.7**	**1646**	**100**

State notifications are examined in Table 6 in terms of their relevancy with the post from positive and negative aspects.

The comment, *"I will watch your movie after the exam, but if I have a good exam, I will watch it with more pleasure,"* to the post titled, "Ahmet Kural and Murat Cemcir have a message for the students of Anadolu University," posted on 10th December, 2015 was an example for positive and relevant state notification.

The comment, *"Dear authorities of Anadolu University, they cannot be opened. You oblige us to summary books,"* to the post titled, "Unit summaries of 130 lessons including the units you are responsible for Final exam," posted on 25th December, 2015 was an example for negative but relevant state notification.

The comment, *" The diploma they give you after you graduate from OEF is not different from any formal diploma when you want to be employed for public sector. You do not only study some drudgery lessons such as Turkish and History as in open universities, but also all of the lessons in the department,"* to a post that was about the announcement of exam results posted on 28th December, 2015 was an example for irrelevant but positive state notification.

One of the comments given to a post published on 25th December 2015, titled, "Anadolu University Open Education System Unit Summaries and Audio Summaries" was "*no make-up exam, no summer school, how can we pass? Wait for the next year if you fail a lesson; there is no such an injustice."* This comment was an example for irrelevant and negative state notification.

State notification rates were 75% for Open Education System whereas it was 24,1% for other groups. Irrelevant-negative state notifications consisted majority for almost all posts considering the table as a whole. Only OES announcements had a higher rate of negative notifications with 25,6%. As it was seen in question type comments, all of the post types were used a tool to make irrelevant and negative notifications. It was even striking to abuse posts published for success wishes, teachers' day celebrations or condolences for someone who died of a traffic accident with irrelevant and negative notifications. Students of Open Education System consider this page as a channel for their state notifications.

Table 7- Relationship between comments indicating feelings and opinions and post contents

Posts		FEELING-OPINION								TOTAL	
		Relevant				Irrelevant					
		Positive		Negative		Positive		Negative			
		f	%	f	%	f	%	f	%	f	%
OES	OES Announcement	182	18.7	83	8.5	148	15.2	240	24.6	653	67.0
	TRT School	-	-	-	-	13	1.3	29	3.0	42	4.3
	Introductory Film	-	-	1	0.1	12	1.2	14	1.4	27	2.7
	Total	**187**	**18.7**	**84**	**8.6**	**173**	**17.7**	**283**	**29.0**	**722**	**74.0**
CAMPUS	Culture-Art	2	0.2	-	-	4	0.4	3	0.3	9	0.9
	News	5	0.5	7	0.7	5	0.5	10	1.0	27	2.8
	Scientific Act.	18	1.9	2	0.2	5	0.5	22	2.3	47	4.8
	Message-Cel.-Cond.	42	4.3	7	0.7	45	4.6	72	7.4	166	17.0
	Daily life	4	0.4	-	-	-	-	-	-	4	0.4
	Total	**71**	**7.3**	**16**	**1.6**	**59**	**6.0**	**107**	**11.0**	**253**	**25.9**
OVERALL TOTAL		**253**	**26.0**	**100**	**10.2**	**232**	**23.7**	**390**	**40**	**975**	**100**

Feedbacks od users including their opinions and feelings are examined in terms of their contents considering their being relevant or irrelevant and being positive or negative in Table 7. *"Thanks God, Same to final exams, my Godddd!"* was an example for positive and relevant opinion notifications that was written as a comment to the post titled "Open Education System Fall Term Midterm Results have been Announced," posted on 28th of December 2015.

The announcement published on 1st December 2015 was, "you can reach unit summaries and audio summaries from http://eogrenme.anadolu.edu.tr by entering Beta E-learning Services section." A comment made to this announcement was, *"I haven't seen anything useful. It is nothing more than time consuming."* This was an example for relevant but negative opinion notification.

The comment made on the post sent by the Rector of Anadolu University on 12th of December, 2015 about a traffic accident that caused death of some students in Van was, *"I congratulate Anadolu University for the services it provides despite some deficiencies."* This was an example for positive but irrelevant opinion notifications.

The post titled "Happy New Year – Anadolu University", on 31st of December, 2015 received a comment as, *"Thank you but we will fail. I am a student from agriculture department. You have made it much more difficult."* which was an example for irrelevant and negative opinion notification.

This group of comments consisted of mostly posts related to Open Education System with a rate of 74%. Irrelevant and negative opinions on posts had a percentage of 29,0 for this comment group. Users expressed their comments including their feelings and opinions regardless to the content of the post as in all other post contents. It was clearly seen that as in other posts, even the celebration or condolence posts were used as tools for irrelevant and negative opinion and feeling sharing by students.

CONCLUSION

It can be construed from existing outlook of communication carried out through Anadolu University official Facebook from the perspectives of Open Education System students that the students who receive distance education needed communication more than the ones who receive face to face education. From this point of view, other communication channels of Anadolu University Open Education System should be investigated as well. More than a hundred Open Education System bureaus that serve students in all provinces and some bigger towns to provide them necessary information they needed and receive better service act as face to face communication channels. Besides, a Facebook account called Open Education E-Learning Portal, which was the only platform during the conduction of the study, Instagram, Twitter, Youtube and i-tunes official accounts serve as tools for announcements and briefings. Moreover, the interaction center that informs students on the phone, ask-watch-learn links on Open Education System main webpage, e-mail, TRT School TV programs (such as Frequently asked questions), digital bulletins and mobile phone messages are among other informative tools for announcements and briefings. Despite all these channels, what can be said about reasons for students' preferring Anadolu University official Facebook page as an information tool that much intensively? Observations of official Facebook page opened for open education students during the implementation of the study showed that students preferred to follow Anadolu University official page rather than that page. This can be explained with open education students' developing a sense of belonging to Anadolu University in a way; on the other hand, it can be explained with community and attractiveness of Facebook medium peculiar to itself. As for whether they were aware of the existence of the other page, it can only be speculated. The fat that students used Anadolu University page as a communication tool among each other can be accepted as a sign for the necessity of interaction among themselves. Though, there are various official and nonofficial open and closed Facebook groups especially on the basis of departments. Communication among groups is usually based on information sharing about lesson contents and exams.

E-learning service that was prepared for Open Education System students was put into service within a new structure under the name of "Anadolum (my Anadolu) e-campus" in January 2016 when this study was proceeding. In this framework, a new page under the name of "OEF Anadolum – Anadolu University Open Education System" replacing Open Education System official Facebook page. Number of the members of the page was more than 120000by June 2016. Previous Open Education page was opened in 1999 and it has almost 40000 members but it is not active anymore. The researcher thinks that using "Anadolu University" as a title either in its official page or recently opened page has affected the popularity of the page significantly.

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Discriminant Analysis As A Tool For Analysing Student's Preferences Choosing Online Or Traditional Course For A Repeated Exam

Bognár LÁSZLÓ
University of Dunaújváros, Hungary
drbognar@gmail.com

ABSTRACT

In this paper it is demonstrated that multivariate linear discriminant analysis technic can be a good approach for analyzing students' preferences when they can freely choose between the traditional form of learning in a classroom and the online form of learning. Using this method a meaningful statistical model can be established to give criteria for separation of students with different preferences. The model includes those variables (personal traits and characteristics of students) which have significant contributions to identifying the two different students' populations.

INTRODUCTION

In this study students' preferences are analyzed when they can freely choose between the traditional form of learning in a classroom and the online form of learning. Both versions of the same course (Mathematics 2.) were offered for those students who had failed to pass the exam and they were obliged to repeat it once again. The online version of the course is based on a stream of short video lessons. Full-time and part-time (correspondence) students could choose either versions of the course.

In our previous study *(Bognár-Horváth 2015)* this problem was investigated with different statistical technics using basic two-sample statistical tools like t-tests, Mann-Whitney tests to identify the students' characteristics which can make distinctions between those who prefer the online course and those who choose the traditional one. Furthermore binary logistic regression was deployed to estimate the differences of the odds (ratios of probabilities) for different layers of students choosing the online or the traditional form. Their ages, gender, ICT skills and student status (full-time or correspondence) basically affect their choice.

Surprisingly full-time students prefer the online course format rather than correspondence students. To find some explanation to this unexpected result another model was set up to identify the variables separating the students either belonging to the group of full-time or to the group of correspondence students.
In this model students' attitude to learning proved to be decisive. Correspondence students have strong motivations to learn while full-time students admittedly less diligent in their study.

Hence this second model gives an indirect explanation to this strange preference, namely that students' attitude to learning severely affect their choice. Since full-time students are "lazier" they choose the online video lessons instead of the classroom work.

Why is it worth to study this problem also with discriminant analysis? In linear discriminant analysis when you use linear combination of values of predictor variables you can get directly which variable contribute to the separation and how dominant a variable compared to the others. If you use standardized variables the coefficient of a variable in the discriminant function gives the numerical value of the relative importance of this variable.

Theoretically discriminant analysis works well if the assumptions of multivariate normality and equality of variance-covariance matrices are met. However Lim, Loh and Shih *(Lim-Loh-Shih 2000)* concluded that discriminant analysis has a mean error rate close to the best even in the case of binary valued attributes. The purpose of this study is to demonstrate the use of this method for a special educational situation.

Although logistic regression does not require multivariate normality or equality of variance-covariance matrices of the variables in the groups to be compared (online-traditional), discriminant analysis somewhat superior to logistic regression from statistical and practical perspective.

THE STUDY

In this study students' preferences were investigated at the College of Dunaújváros in Hungary among those 128 students who enrolled to the course of Mathematics 2 in the academic year 2013/14. All these students have failed at least once to pass the exam of this subject previously and they were obliged to take the course once again. Both full-time and correspondence students were allowed to freely choose between the traditional or the online form of the same course.

The classroom course was taught according to the time schedule of the correspondence education, 20 contact hours a semester. The online course was available through the institutional Moodle LMS system. It was built up as a stream of short video lessons with quizzes and self-tests and it was supported by optional synchronous consultation with the instructor. Both courses ended up with oral examination, however in both courses students could earn 40 % of total scores by midterm tests.

73 students enrolled to the traditional classroom course and 55 students chose the online form. In the third week of the semester they were asked to take part in a survey related to this study. 80 students answered to the 36 questions, 44 traditional and 36 online students. The questions were organized into 3 main groups. 1. *Personal data, place of residence.* 2. *ICT related questions*. 3. *Motivation, learning habits, attitude related questions.*

We used linear discriminant analysis as the statistical method to evaluate the answers and to establish those features of the students which might have influenced their choices.

FINDINGS

Some of the findings are below.
Altogether 36 variables were used to describe a student's characteristics. Several variable selection method were applied to perform the discriminant analysis. Here the findings of that study is reported when only those variables are considered in the discriminant analysis which proved to be significant in a previous bivariate ANOVA comparison. (This is a different technic than in our previous study when Mann-Whitney test were used. This is why not the same variables were selected.)

In the Online-Traditional bivariate comparison the variables below proved to be significant:

1. MaturTime: Time elapsed from the mature examination in years
2. LikeICT: Preference score of using ICT on a 5 point scale
3. Gender: Dichotomous variable (Male, Female)
4. Status: Dichotomous variable (Full-time Student, Correspondence Student).

	Wilks' Lambda	F	df1	df2	Sig.
MaturTime	,950	4,082	1	78	,047
LikeICT	,937	5,248	1	78	,025
Gender	,950	4,128	1	78	,046
Status	,848	13,977	1	78	,000

Table 1: Tests of Equality of Group Means in the Online –Traditional analysis

All observed significance levels are below 0.05. The Wilks' Lambda statistic in Table 1 is calculated as the ratio of the within-groups (traditional and online) sum of squares to the total sum of squares. It is the proportion of the variance not explained by differences between groups. The smallest 0.848 Wilks' Lambda and the smallest 0.000 significance values are for Status. Small values occur when most of the observed variability can be attributed to differences between groups. Hence according to this bivariate comparison the Status of students seems to be most dominant.

In the discriminant analysis we are looking for the so called canonical discriminant function in which linear combination of the predictor variables best separate the groups. When these four variables above play role as predictor variables the coefficients of the predictor variables are:

	Function
	1
MaturTime	,062
LikeICT	,267
Gender	-,405
Status	,780

Table 2: Standardized Canonical Discriminant Function Coefficients in the Online –Traditional analysis

These coefficients serve as weights in the linear combination of the predictor variables. According to this the 0.78 value for Status shows that the relative importance of the student status is almost two times more than the gender of the student and practically three times more than the ICT preference. Surprisingly full-time students prefer the online course and the correspondence students choose the traditional form (It comes from the signs of the coefficients, not detailed here.). Women prefer the traditional course and men prefer the online version. Not surprisingly those who like ICT choose the online course more dominantly. The time elapsed from the mature exam is almost negligible compared to the others.

To see how well this discriminating function works it always good to check how much percent of the original cases (students) is correctly specified by this function. According to Table 3 exactly 70% of the original grouped cases are correctly specified.

			Predicted Group Membership		
		Course	Traditional	Online	Total
Original	Count	Traditional	37	7	44
		Online	17	19	36
	%	Traditional	84,1	15,9	100,0
		Online	47,2	52,8	100,0
Cross-validated[b]	Count	Traditional	35	9	44
		Online	17	19	36
	%	Traditional	79,5	20,5	100,0
		Online	47,2	52,8	100,0

a. 70,0% of original grouped cases correctly classified.
b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
c. 67,5% of cross-validated grouped cases correctly classified.

Table 3: Classification results in the Online –Traditional analysis

In Figure 1 the histogram of the values of the discriminant function (discriminant scores) is shown. The vertical lines represents the group centroids' average which serves as the criterion for the separation. It can be seen that the separation works relatively well for the traditional group and not so well for the online group.

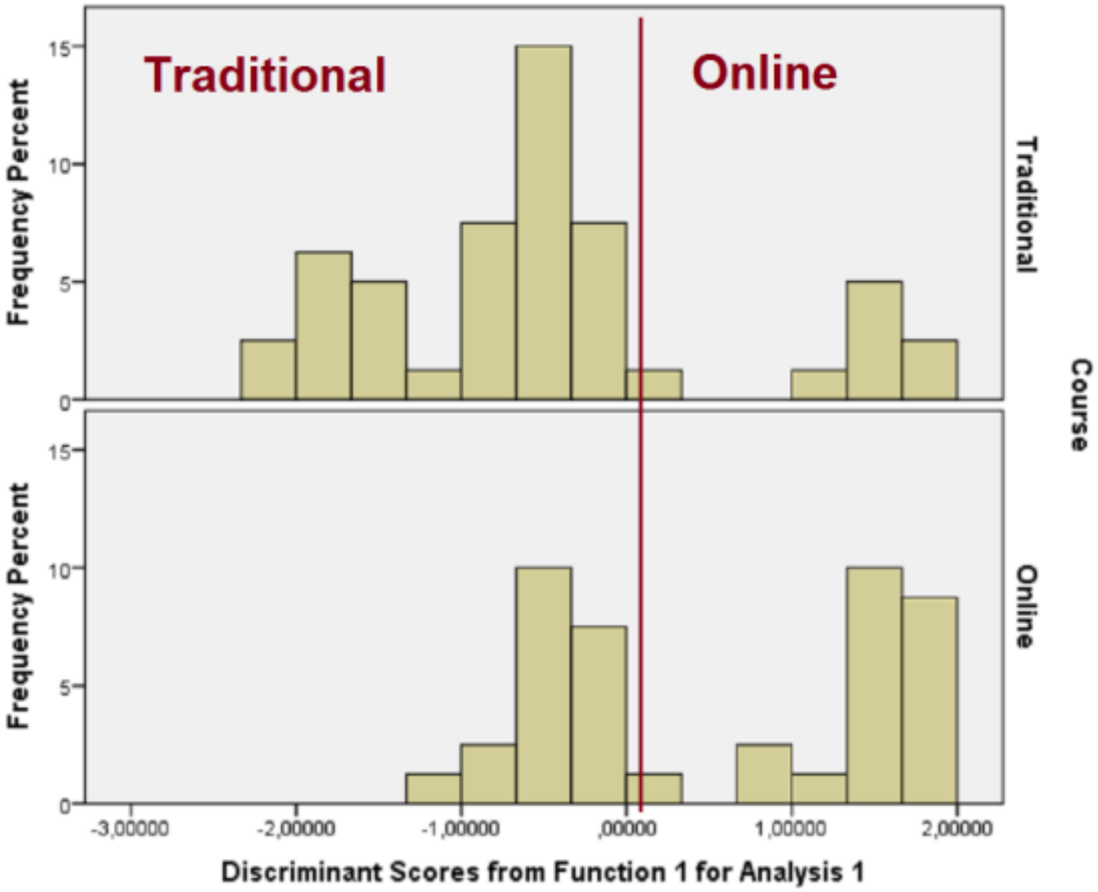

Figure 1: Histogram of the discriminant scores in the Online –Traditional analysis

Since it is concluded that the student status is the most dominant factor in separating the students into groups preferring either the traditional or the online courses it is worth to set up another discriminant model when the question is: what features or personal traits best separate the students into full-time or correspondence students. The variable selection method is the same, bivariate ANOVA comparison.

In the Full-time - Correspondence bivariate comparison the variables below proved to be significant:

1. Age: The age of the student in years
2. LikeICT: Preference score of using ICT on a 5 point scale
3. BurdenContact: What extent do you agree “Contact hours are burden” on a 5 point scale
4. WhyNotSucc: Why did you fail? Dichotomous variable (My fault, Outer circumstances)
5. Diligent: How diligent you are? (Rather lazy, Sometimes lazy, Diligent)

	Wilks' Lambda	F	df1	df2	Sig.
Age	,770	23,248	1	78	,000
LikeICT	,943	4,680	1	78	,034
BurdenContact	,898	8,854	1	78	,004
WhyNotSucc	,852	13,542	1	78	,000
Diligent	,878	10,798	1	78	,002

Table 4: Tests of Equality of Group Means in the Full-time - Correspondence analysis

When these five variables above play role as predictor variables the coefficients of the predictor variables are:

	Function
	1
Age	,588
LikeICT	-,215
BurdenContact	,377
WhyNotSucc	-,272
Diligent	,353

Table 5: Standardized Canonical Discriminant Function Coefficients in the Full-time – Correspondence analysis

These coefficients show the relative importance of the predictor variables in separating the students into either the full-time or the correspondence group. Undoubtedly the age of student is the most decisive factor (0.588). The rather large value of the BurdenContact variable coefficient (0.377) reveals that students having less time to travel and spent time with contact hours choose the correspondence status. Both the Diligent and the WhyNotSucc variables indicate that full-time students' attitude to learning is below the correspondence students who are more motivated. The coefficients (0.353 and -0.272) are also relatively large. The negative sign of the LikeICT coefficient corresponds to the fact that full-time students who are younger prefer ICT more than the older correspondence students. The -0.215 coefficient shows that this variable is not negligible either.

According to Table 6 76.3% of the original grouped cases are correctly specified.

			Predicted Group Membership		Total
		Status	Correspondence	Full-time	
Original	Count	Correspondence	38	14	52
		Full-time	5	23	28
	%	Correspondence	73,1	26,9	100,0
		Full-time	17,9	82,1	100,0
Cross-validated[b]	Count	Correspondence	34	18	52
		Full-time	7	21	28
	%	Correspondence	65,4	34,6	100,0
		Full-time	25,0	75,0	100,0

a. 76,3% of original grouped cases correctly classified.
b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
c. 68,8% of cross-validated grouped cases correctly classified.

Table 6: Classification results in the Full-time - Correspondence analysis

In Figure 2 the histogram of the values of the discriminant function (discriminant scores) is shown. The vertical lines represents the group centroids' average which serves as the criterion for the separation. It can be seen that the separation works relatively well for both groups.

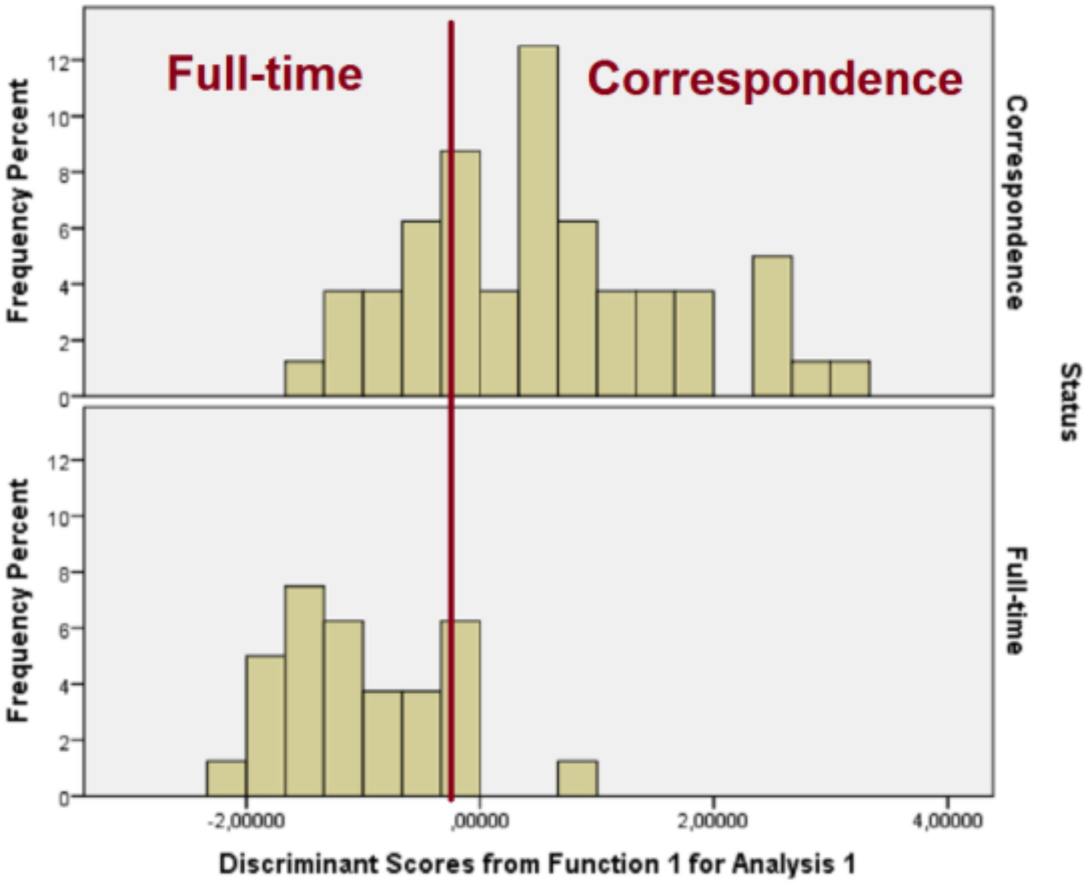

Figure 2: Histogram of the discriminant scores in the Full-time - Correspondence analysis

CONCLUSIONS

In this paper the use and applicability of linear discriminant analysis is shown for a special educational situation. First the separation criteria are analyzed for student who choose the online or traditional form of the same mathematics course. The student status (Full-time or Correspondence) proved to be the most dominant prediction variable. Furthermore the separation criteria for students to be Full-time or Correspondence student were investigated. Besides their age and their less time to spend with contact hours their attitude to learning proved to be dominant.

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Discussion On The Prospective Teachers' Understanding Level Of Electric Charge

Ali YILDIZ
Atatürk University, Turkey
ayildiz@atauni.edu.tr

ABSTRACT

The present study was conducted to analyze the understanding level of the prospective teachers studying in the second grade of elementary mathematics undergraduate program, on the topic of electric charge which is taught in compulsory Physics II. Totally 45 prospective teachers, 36 women and 9 men, have participated the study. The data of the study were obtained through a feedback form including four different open ended questions, which were prepared by the researcher based on expert opinion. The answers given to the open-ended questions by the prospective teachers were read and analyzed, and grouped according to their content, similarity and closeness. The grouped answers, the number of the prospective teachers writing the answering and their percentages were entered in relevant tables created and the required evaluations are performed. The fact that 22.1% of the prospective teachers do not know that a matter is loaded with electric charge, 62.1% of them do not know that a matter with electric charge can attract another applicable neutral matter, 60.0% do not know grounding of an electric charged matter and 86.7% do not know that electric charge has quantum property show that their understanding level on the static electricity topic is very low. The fact that generally a high percent of the prospective teachers not knowing electrical charge and its properties, a basic topic taught in elementary and secondary school and at the university, brings the requirement of using methods and activities enabling the students to be active rather than a teacher and centred teaching system in the physics courses in undergraduate programmes. The prospective teachers who have performed learning-purpose writing activities stating in the studies that they have better understood and learned physics topics on which they have written letters or summaries brings the opinion of using these activities for teaching the topic of electrostatic.

INTRODUCTION

It is a generally observed or experienced situation that a comb being used for combing hair in a medium with dry air attracts paperpieces. An inflated balloon sticking on the wall or ceiling of a room with dry air for quite a time after being scrubbed with wool is another simple experiment regarding this. Matters that act like a comb or inflated balloon are called electrified matters or matters with electric charge (Serway and Beichner, 2000). Electric charge is an intrinsic property of the fundamental particles that form matters. Under normal circumstances, matters are loaded with two available charges (positive and negative charge) at equal quantities or numbers. Matters with equal negative and positive charge are called as neutral (Halliday, Resnick and Walker, 2014).

When an uncharged (neutral) glass rod is rubbed with a silk cloth, a certain amount of electrons are transferred to the silk cloth from the glass rod and the glass rod is loaded with positive (+) charge. When a neutral plastic rod is rubbed with a piece of fur, a certain amount of electrons are transferred from the fur to the plastic and the plastic rod is loaded with negative (−) electric charge (Young and Freedman, 2010). When a matter is rubbed with another one, the electric charge does not occur at that time, electric charge is already in that matter. Electrification happens when the electric charge (electrons) is transferred from a neutral matter to another. Generally, when two matters interacts one gives away electrons while the other takes, and the matter losing electron is loaded with positive electric charge and the one obtaining electron is loaded with negative electric charge. The situation effective in the loading with electric charge is an electron exchange .

Electrically charged matters interact by applying force to each other. Like charges or matters with like charges apply repelling force to each other, while opposite changers or matters with opposite charges apply attracting force to each other (Serway and Beichner, 2000; Halliday, Resnick and Walker, 2014). When a neutral plastic rod is rubbed with woollen cloth, a certain amount of electrons are transferred from the woollen cloth to the plastic and the plastic rod is loaded with negative (−) electric charge. There remains an excess of positive charge behind at the amount of the negative charge being transferred to the plastic rod, and the total charge never changes, it always remains stable. This property gives the electric charge the characteristic of conservation.

The positive charge belongs to proton while the negative charge belongs to electron. Proton and electron has the same amount of electric charge ($e = 1.6x10^{-19}$C). The smallest electric charge in the nature is the charge that an electron has. Therefore, the load of the electron is accepted as the base load. That an electric charge (Q) is always found in the nature as the integer multiples of electron charge (e), the base load unit, (Q = ne, n = 1, 2, 3…) is defined as being quantized (Serway and Beichner, 2000). In other words, that the electric charge (q) of a matter being equal to the integer multiples of electron charge (2e, 10e, 53e, 95e…) not the rational multiples (2,5e, 14,8e, 51,7e…) of an electron charge ($e = 1.6x10^{-19}$C) shows the electric charge is quantized.

An electrically charged matter may attract any susceptible neutral conductive matter. When a positively charged test globule is approached from the side close enough to a neutral conductive sphere hung on aninsulating stringand that does not contact with any matter or surface, the electrons gather on the side of the neutral sphere close to the test globule, and on the distant side, where electrons are lost, there will be an excess of protons. By this way, quantity of electric charge of the neutral conductive sphere remaining the same (unchanging) gather in two areas on the surface of the sphere. Asthere is an excess of electrons on the side of the neutral conductive sphere closer to the test globule while there is an excess of protons on distant side, electrostatic attracting force applied by the test globule to the neutral conductive neutral sphere is greater than the repelling force. If the stringed neutral conductive sphere is close enough and the friction is very small to be ignored, test globule attracts the neutral sphere. At the time of contact, some of the electrons gathered on the side of the neutral sphere surface close to the test globule are transferred to the test globule and the neutral conductive sphere losing its property of being neutral becomes positive charged and thus is repelled by the test globule. In short, anelectrically charged matter can attract a susceptible neutral conductive sphere, can load with its charge at the time of contact and then repel it.

Although electric charge is a basic topic taught in elementary and secondary schools and at universities, it is thought that the prospective teachers' understanding level on this topic is not at the desired level. It is anticipated that using student-active methods and activities in the teaching of electrostatics will increase the understanding levels of the prospective teachers of this topic.

The purpose of the present study isto analyze the understanding level of the prospective teachers studying in the second grade of elementary mathematics undergraduate program, on the electric charge topic which is taught in compulsory Physics II course.

METHOD

Totally 45 prospective teachers, 36 women and 9 men, who are at the second grade of the department of elementary mathematics, faculty of education in a state university, and who take the compulsory course of electric and magnetism (Physics II) have participated in the study. A feedback form including four different open ended questions, which was prepared by the researcher based on expert opinion is used in the research to determine the understanding level of the prospective teachers electric charge topic. It is thought that open-ended questions may bemore effective in differentiating the candidates'answers to the questions about electrostatics from predictions and determining them in a valid and reliable way. The open-endedquestions used in data collection were asked the prospective teachers two weeks after the electrostatics topic is explained according to the content of the course and in line with the semester program.The answers given to each open ended question by the prospective teachers, the grounds or the explanations of the answers were read and analysed and grouped according to their content, similarity and closeness. Grouped answers, explanations of the answers (if available), total number of the prospective teachers as women and men and their percentages were reflected to the relevant tables in different columns. At the end of each table, comments and explanations about the data were noted. In addition to their written remarks of the prospective teachers on the questions about electric charge, semi-structured interviews were conducted with 6 randomly selected people. In the interviews, it was observed that the prospective teachers used the similar statements that they had written before.

FINDINGS AND COMMENTS

Table 1: The answers of the prospective teachers to the question: "What does a matter loaded with electric charge mean to you (how can it be explained)?"

Answers Written	Number of Women	Number of Men	Total	%
It means the matter is loaded with either (+) or (–) charge	16	2	18	40.0
It means it is not neutral, that is (–) charges are not equal to (+) charges	5	2	7	15.6
It means it exchanges charges with a matter with electric charge	5	1	6	13.3
It means that there are electrons in the matter	1	1	2	4.4
It means that there are positive or negative charges in the matter	1	1	2	4.4
It means that it has an electric field	1	-	1	2.2
It means the creation of protons and electrons	1	-	1	2.2
It means that a comb rubbed with wool attracts the paper pieces	1	-	1	2.2
It means that (+) and (–) charges move in it freely	-	1	1	2.2
It means that matter gains electric as a result of interaction	1	-	1	2.2
Other answers (Electricitymay be connected ...)	4	1	5	11.1
Total	36	9	45	100

The words "to you" added to the end of the question "What does a matter loaded with electric charge mean to you?" has the aim of motivating the prospective teachersto share/write their opinions without hesitation when answering the question. All prospective teachers writing an answer in their points of view without leaving the first question unanswered confirms that these two words had a positive effect.

The first question was actually asked to understand how a a very basic concept is constructed in the prospective teachers's minds. Such answersas "It means that a matter has electrons", "It means the creation of protons and electrons", "It means that (+) and (-) charges freely move in it", "It means that a matters gains electric as a result of interaction" and "Electricity may be connected" among the written ones show that prospective teachers have trouble (22.1%) in a basic definition as a matter loaded with electric charge.

Table 2: The answers of the prospective teachers to the question "Does a positively charged (+) test globule attracts a neutral conductive sphere that is hung with an insulating string, immobile and does not contact with any surface if it is approached to it from the side by holding its non-conductive handle, or not? Why?"

Answers Written	Grounds of the Answers	Number of Women	Number of Men	Total	%
Attracts	Because a neutral sphere has both (+) and (–) charges. Negative charges gather on the side of the neutral sphere close to test sphere and the attraction is provided	8	3	11	24.4
	As the neutral sphere has (–) charges, test globule attracts that negative charges	3	1	4	8.9
	Neutral matter attracts (+) and (–) charged matters	1	-	1	2.2
	-	2	-	2	4.4
Does not attract	Because in neutral sphere, negative and positive charges are equal to each other. Negative charges gather on the side of the neutral sphere close to test globule	5	-	5	11.1
	They have to be loaded with opposite charges in order to attract	5	2	7	15.6
	As the test globule repels (+) charges and attracts (–) charges, it stays in balance	-	1	1	2.2
	Because the load of the neutral mater $F = k\frac{q_1 q_2}{d^2}$ is zero ($q_2 = 0$), no attraction force is created ($F = 0$)	-	1	1	2.2
	-	1	-	1	2.2
Negative charges of the sphere gather on the side of the test globule		3	-	3	6.7
I don't know		5	-	5	11.1
Other answers (I didn't understand what is meant; it should repel, it is better if it repels)		1	1	2	4.4
No reply		2	-	2	4.4
Total		36	9	45	100

When the answers of the prospective teachers in Table 2 are analysed, it can be observed that they mostly do not have the idea that an electrically charged matter can attract a susceptible neutral matter. The percentage of those who find the answer does not attract as true and try to explain it with their own grounds is 31.1%. When we consider the prospective teachers who say does not attract without any grounds, I don't know, give other answers and no answer, this percentage rises up to 62.1%. For the prospective teachers who took electric and magnetism course, this percentage is quite high. In other words, prospective teachers' level of understanding on static electric is low. It is very striking that the number of prospective teachers explaining the answer attracts with acceptable grounds is only 11 (24.4%).

Table 3: The answers of the prospective teachers to the question "What does grounding an electrically charged matter (a conductive sphere, an electroscope) mean to you?"

Written Answers	Number of Women	Number of Men	Total	%
It means the neutralization of a matter	15	3	18	40.0
It means that negative charges are transferred to earth	13	3	16	35.6
It means that excess electric charge is released and the matter is loaded with only one charge	2	-	2	4.4
It means the transfer of excess electric to earth	-	2	2	4.4
It means sharing and decreasing of the charge	1	-	1	2.2
I don't know	2	1	3	6.7
Other answers (It means that the matter is loaded with negative charge, (+) and (–) charges gathers on different sides...)	3	-	3	6.7
Total	36	9	45	100

For the question "What does grounding an electrically charged matter mean to you?", the answers as neutralization of a matter or a matter becoming neutral can be accepted as directly true without any problem. The answer "It means that negative charges are transferred to earth" is problematic. If a matter is negatively charged in the beginning, the answer "It means excess negative charges being transferred to earth" can be acceptable. However, here, a general condition is being asked. It can be seen by reviewing the answers in Table 3 that the percentage of the prospective teachers who could not explain grounding an electrically charged matter is very high (60.0%) and their level of understanding is low.

Table 4: The answers of the prospective teachers to the question "What does a quantized electric charge mean? Explain it."

Written Answers	Number of Women	Number of Men	Total	%
It means that electric charge is an integer	-	1	1	2.2
It means that electric charge consists of packages	3	-	3	6.7
It means that electric charge is conserved	4	1	5	11.1
I guess there was Oil-drop Experiment of Millikan about this	2	-	2	4.4
I know but I can't explain it exactly	2	-	2	4.4
I don't know	20	6	26	57.8
What is quantum?	1	1	2	4.4
Other answers (Quantum ensures charge transfer...)	3	-	3	6.7
No answer	1	-	1	2.2
Total	36	9	45	100

Proton and electron has the same amount of electric charge ($e = 1.6x10^{-19}C$). The smallest electric charge in the nature is the charge that an electron has. Therefore, the load of the electron is accepted as the base load. Electric charge being quantized means that electric charge is always found in the nature as the integer multiples of electron charge (e), the base load unit, ($Q = ne$, $n = 1, 2, 3\ldots$).When the first two answers are examined, it can be said that electric charge is discrete (quantized), it cannot have every value (rational value), they are not stated well and they should be rearranged. In the oil-drop experiment, Robert Millik an may have found/understand the value of the electron charge and that the charge is quantized. However, there, it is not asked by which experiment it was found, but how the property of the electric charge being quantized is explained. We can say that all the other answers are wrong. Considering the answers of the prospective teachers, we can come to the conclusion that they mostly (86.7%) do not know the property that electric charge is quantized.

In addition to the prospective teachers' remarks taken in written to the open ended questions to determine their level of understanding about electric charge, semi-structured interviews were conducted with randomly selected 6 people. In the interviews, it was observed that the opinions and answers of the prospective teachers confirmed their previous written statements/remarks and were very similar to them. Among the original answers obtained from 6 different people for different questions, 4 of them are presented below.

An electrically charged matter means a matter that is not neutral, that is its (+) and (-) charges are not equal

I don't know I wrote the answers just like this for most of the questions

I think grounding is the transfer of the electrons to earth

As I've written previously, what is quantum? If I had known what quantum was, I might have answered that question

CONCLUSION

Of the prospective teachers participated in the study, 22.1% could not explain that a matter is loaded with electric charge, 62.1% could not explain that an electrically charged matter can attract another susceptible neutral matter, 60.0% could not explain the grounding of an electrically charged matter and 86.7% could not explain that electric charge is quantized. Although electric charge is a basic topic taught to the study group in elementary and secondary school and at university, it can be observed from the findings of the study that the prospective teachers' understanding level on this topic is not at the desired level. When the statements in the tables, which include the written answers of the prospective teachers to the questions of the study are reviewed thoroughly, it can be said that electrostatics is not generally conceptually constructed in their minds truly and meaningfully.

Considering the results of some of the semi-experimental studies at elementary, and secondary school and undergraduate levels (Reaves, Floversve and Jewell, 1993; Yıldız and Büyükkasap, 2011a, 2011b, 2011c; Yıldız, 2012; Bozat and Yıldız, 2015), it is thought that using learning purpose writing activities may be useful in teaching electric charge topic. After the electric charge topic is explained to prospective teachers, they maybe asked to write/prepare a learning purpose writing activity (letter, summary, banner, poster...) for high school students.

Since a prospective teacher engaged in a writing activity will be on his own, she/he designs her/his own solutions for the problem, thinks and sees the deficient or sufficient parts of her/his designs, the desire and effort to eliminate the deficiencies may trigger a set of ideas and designs, even results in some small researches to be performed. In short, it may enable the writer to use her/his intelligence and skills. At the stage of writing, asthe respondents are younger high school students, the writer may use examples that can be associated with daily life and can be easily understood in order to be more explanatory. All these may enable the prospective teachers engaging in writing activity for learning to properly construct the electric chargetopic in their minds and learn it permanently.

It has become compulsory for the instructors or teachers to abandon their roles of doingand explaining everything in physics courses. In teaching electrostatics, the instructors should allow for dialogues which the students try to persuade each other by their own statements and explanations relevant to the concepts and properties related to the topic or for discussions which contrary ideas are spoken take place rather than being the one who does and explains everything. Prospective teachers participating in the discussions or just being present in the discussion environment may find the opportunity of thinking and then using their ideas and explanations. The usage of methods and activities, which enable prospective teachers to use their intelligence and skills, is thought to make it possible for them to learn the related topic better and also increase their level of understanding.

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Distance Training In Special Education: Participants' Attitudes And Preferences

Elena CHRONOPOULOU
National and Kapodistrian University of Athens
Greece
elenachron@gmail.com

Konstantinos PAPADOPOULOS
University of Macedonia
Greece

ABSTRACT

This study investigated the attitudes of participants in distance education, and their preferences about the type (synchronous, asynchronous, with on-campus meetings, by mail), the educational material (printed, digital, audio-recorded, videotaped), the course delivery (telephone, mail, computer-based communication, teleconference or other methods of synchronous learning etc.) and teaching or means of interaction (e-mail, discussion groups, text-chat, voice chat, audio-conference, video-conference, virtual classroom, etc.) of a distance education program in special education. The impact of age, gender, and frequency of computer use on participant attitudes and preferences were examined. Sixty one adults participated in a distance education (blended) program in special education that combined synchronous and asynchronous learning. The findings could be used to design future distance education programs in special education, and could also be used as a basis for designing new research in this field.

INTRODUCTION

Although most studies have concluded that distance education is more effective than face-to-face instruction, some studies have revealed that technology complicates the process of learning and education (Pant, 2005). There is also an impression that distance education is not of the same quality as traditional classroom-based education (Bernard, Brauer, Abrami, and Surkes, 2004). Differences in learning style and personality characteristics, the isolation felt by distance learners and lack of self-management and independent learning skills are some of the disadvantages compared to traditional education (Bernard et al., 2004).

Some authors believe that the main disadvantage of distance education is the isolation of students and the lack of interaction with fellow-students and the teacher (Leporini & Buzzi, 2007). On the other hand, technology such as audio, video, and computers is used to facilitate home-based study and bridge the instructional gap of physical contact between the teacher and students (Pant, 2005). Since 1960, distance education has evolved teaching methods and techniques for teacher–student and student–student interaction, such as online conferencing. Those methods provide teachers and students with a broad selection of means for overcoming the obstacles of time, place, and pace (Baggeley, 2008).

Many educational organizations have adopted the "blended" model to achieve greater effectiveness in distance education programs (Franco, 2007). In this case, additional teacher-students meetings are provided by the curriculum. Face-to-face contact allows the teacher to expand specific issues (Rosenblum, 2001) and to provide an opportunity for students to learn and practice in an experiential way in topics that cannot be taught differently (Lueck, 2001).

Distance education seems to be an appropriate choice of education module for those students who do not have the ability to attend a conventional classroom program (Koustriava & Papadopoulos, 2014), however, there is a series of factors that might risk the success of a distance learning program (Koustriava & Papadopoulos, 2014). If students are not comfortable with online learning as a new experience, or with the tools they are offered (e.g. specific technology), then a distance learning course is more likely to fail (Koustriava & Papadopoulos, 2014).

Positive attitudes can help participants to manage stress and tune in to the requirements of online learning. Bernard et al. (2004) found that beliefs about distance education constitute a positive predictor of achievement in distance education programs. On the other hand, negative perceptions may lead to higher dropout rates, the limitation of satisfaction, and absence of a strong motivation to learn (Muilenburg & Berge, 2005). Many questionnaires have been created to investigate the attitudes (Bernard et al., 2004; Mishra & Panda, 2007; O'Malley & McCraw, 1999; Tekinarslan, 2008) and/or the readiness (Bernard et al., 2004) of the prospective participants in a distance education program.

Mitchell and Geva-May (2009) have noted the poor increase of faculty acceptance towards online learning compared to acceptance of online learning by institutional decision-makers. The same authors propose that faculty acceptance of online learning is influenced by attitudes related to four variables that affect practice change: intellectual reluctance, support, change and cost-benefit (see, Mitchell & Geva-May, 2009).

Many universities apply distance education programs to train teachers of children with visual impairments. Some of these universities have now replaced the previous programs, which were conducted using the traditional education model, with distance education programs (Arter, McLinden & McCall, 2001). The lack of local training centers may be a key reason why teachers choose to attend a training program on issues concerning education of children with visual impairments via distance learning (Cooper & Keefe, 2001; McLinden, McCall, Hinton & Weston, 2007).

METHOD

The aim of the study was to investigate the attitudes of participants towards distance education, and their preferences concerning the type (synchronous, asynchronous, with face-to-face meetings, or by mail), the educational material (printed, digital, audio-recorded or videotaped), the course delivery (via telephone or mail, with computer-based communication, by teleconference/synchronous learning etc.) and teaching or interaction means (e-mail, discussion groups, text-chat/ voice chat, whiteboard, audio-conference, video-conference, virtual classroom, etc.) in a distance education program in special education. Moreover, the impact of age, gender, and frequency of computer use on participant attitudes and preferences were examined.

Participants

Sixty-one adults took part in the research. The sample consisted of 12 males and 49 females. Their ages ranged from 23 years to 57 years (M = 31.6, SD = 6.88). All students used personal computers at home. Forty-three (70.5%) out of 63 students used computers for more than two hours per day, 15 (24.6%) students 1-2 hours per day and 3 (4.9%) used them 1-2 hours per week.

Participants were recruited from the 130 students who participated in a 400 hour distance education program by the University of Macedonia (in Greece). Sixty one out of the 130 students agree to participate in this research.

Participants attended a blended learning (hybrid learning) program in special education that combined synchronous and asynchronous learning. The 400 hours of the program were organized as follows: 44 hours were devoted to on-campus courses, 56 hours to courses via teleconference, and 300 were devoted to self learning through homework (involving the writing of three review articles and one research article). Educational materials included printed and digital books, notes and scientific documents. The students also had access to scientific journals and books that were included in international databases.

Instruments and Procedures

Participants completed a questionnaire consisting of three sections. The first included questions about the demographic data of the participants (age, gender, frequency of computer use, etc.)

Prior to completing the second section of the questionnaire, participants were informed about distance education by reading a text. This text consisted of 120 words including a definition of distance education, and a description of synchronous and asynchronous ways of teaching. The text was carefully composed to prevent participants from being influenced in any way.

The second part of the questionnaire consisted of four closed questions concerning attitudes towards distance education. These questions were included in similar questionnaires that have been used in previous studies (Bernard et al., 2004; Koustriava & Papadopoulos, 2014; Mishra & Panda, 2007).

The responses to the questionnaire were based on a five-point Likert scale (totally disagree, disagree, don't know, agree, totally agree). There were both positively formulated (Q1, Q3) and negatively formulated items (Q2, Q4). To calculate the total score for each participant and for all the participants in aggregate, the positively formulated items were scored as follows: *totally disagree* = -2, *disagree* = -1, *don't know* = 0, *agree* = 1, *totally agree* = 2. The negatively formulated items were scored in reverse (for example, *totally disagree* = 2). For instance, if a participant answered "agree" to item Q1 (Distance education increases the quality of teaching and learning) one point would be added to their score. The higher the score the more positive the attitudes of the participants towards distance education. A score equal to zero indicated a neutral attitude towards distance education.

The third part of the questionnaire consisted of four closed-ended questions concerning the participant's preferences regarding: 1) the type of distance education program in special education (the suggested options were synchronous, asynchronous, with on-campus meetings, and by mail); 2) the educational material (the suggested options were printed, digital, audio-recorded, and videotaped); 3) the course delivery (the suggested options were telephone, mail, computer-based communication, attending *mandatory* or *optional* seminars, summer courses and meetings on weekend, teacher's feedback on student homework, and teleconference or other methods of synchronous learning); and 4) the means of teaching or interaction (the options suggested were e-mail, discussion groups, text-chat, voice chat, whiteboard, audio-conference, video-conference, and virtual classroom/ tele-classroom).

Participants were asked to indicate their preferred answers to each closed-ended question. For every question, participants were able to choose more than one answer. A description about the means included in the suggested answers was given in order to avoid misunderstandings due to the limited experience of participants regarding the specific means. Descriptions were carefully composed to prevent participants from being influenced in any way.

After completion of the on-campus courses, teleconferences and the second homework, a digital version of the questionnaire was sent to all participants by e-mail, and they completed and sent it back after a predetermined period.

RESULTS

The means and the standard deviations (SDs) of the total scores and the score for each question concerning attitudes were calculated. The results are presented in Table 1. According to these mean scores and the Likert scale on which the answers were based, the participant answers revealed slightly positive attitudes towards distance education as a whole (*M* = .87).

Participant answers to the first question revealed slightly positive attitudes towards distance education whereas the answers to the fourth question indicated neutral attitudes. On the other hand, participant answers to the second and the third questions revealed strongly positive attitudes. There were no answers suggesting negative attitudes towards distance education.

Table 1. Mean (M) and standard deviation (SD) regarding attitudes towards distance education

	(M)	(SD)
Q1: Distance education increases the quality of teaching and learning»	.64	1.02
Q2: Distance education makes me feel uncomfortable	1.34	.75
Q3: I am willing to communicate via digital means with the teacher and my classmates	1.43	.74
Q4: The lack of immediate feedback and responses to questions is an attribute of distance education which is discouraging for me.	.07	1.17
Attitudes (total)	.87	.62

Almost all participants (93%) chose synchronous learning as the most preferred type of distance education program, more than half (57.4%) of them chose on-campus meetings, and 25% selected asynchronous learning. Only three participants chose communication by mail.

Most participants chose both printed (75.4%) and digital (73.8%) material as the preferred form of education material, almost half (45.9%) picked videotaped material, and only eight participants (13.1%) chose audio-recorded educational material.

Almost all (90.2%) the participants selected "teleconference and other methods of synchronous learning" as the most preferred course delivery, more than half (59%) chose "computer-based communication", almost half (47.5%) of the participants chose "attending optional or mandatory seminars or summer or weekends' meetings", and "teacher's feedback on student homework" (42.6%). Finally, a few participants (about 10%) chose "communication via mail" and "communication via telephone".

Participants were also asked to declare their preferences about means of teaching or interaction in a distance education program. The results revealed that the "virtual classroom" was the most preferred mean (85.2%). Many of the participants (72.1%) selected "voice chat" and almost half the participants chose "discussion groups (forum, blog, newsgroup, mailing list)" (52.5%), "whiteboard" (57.4%), "video-conference" (47.5%) and "e-mail" (49.2%). Finally, almost 30% of participants chose "audio-conference".

In order to determine the impact of age, gender, and frequency of computer use on participant attitudes and preferences, linear multiple regression analyses were performed (see Tables 2-7), using the age, gender and frequency of computer use variables to predict attitudes and preferences. Significant individual predictors revealed regarding "attitudes", "preference for printed educational material", "preference for digital educational material", "preference for audio-recorded educational material", "preference for text-chat/ voice chat", and "preference for audio-conference".

Multiple regression analysis (see Table 2) yielded an adjusted R^2 of .053 (F = 2.107, p = .110) concerning "attitudes". Age was a significant individual predictor of "attitudes" (β = .309, p < .05). The more advanced the age of a student, the more positive the attitudes towards distance education.

Table 2. Multiple regression for variables as predictors of 'attitudes'

Variable	B	Std. Error	Beta	t	p
Age	.110	.050	.309	2.212	.031
Gender	-.022	.828	-.004	-.026	.979
Frequency of computer use	.653	.548	.155	1.191	.239

Multiple regression analysis (see Table 3) yielded an adjusted R^2 of .072 (F = 2.515, p = .068) concerning "preference on printed educational material". Age was a significant individual predictor of "preference on printed educational material" (β = -.328, p < .05). The more advanced the age of a student, the lower the preference in printed educational material.

Table 3. Multiple regression for variables as predictors of 'preference on printed educational material'

Variable	B	Std. Error	Beta	t	p
Age	-.020	.009	-.328	-2.366	.021
Gender	-.007	.144	-.006	-.046	.963
Frequency of computer use	-.145	.095	-.196	-1.523	.133

Multiple regression analysis (see Table 4) yielded an adjusted R^2 of .288 (F = 8.970, p < .01) concerning the "preference on digital educational material". Significant individual predictors of "preference for digital educational material" were gender (β = -.287, p < .05) and frequency of computer use (β = .487, p < .01). The greater the frequency of computer use, the stronger the preference for digital educational material. Furthermore, it seems that males prefer digital educational material more than females.

Table 4. Multiple regression for variables as predictors of 'preference on digital educational material'

Variable	B	Std. Error	Beta	t	p
Age	.001	.008	.021	.174	.863
Gender	-.317	.131	-.287	-2.412	.019
Frequency of computer use	.377	.087	.487	4.329	.000

Concerning the "preference for audio-recorded educational material" multiple regression analysis (see Table 5) yielded an adjusted R^2 of .288 (F = 2.034, p = .120). Gender was a significant individual predictor of "audio-recorded educational material" (β = -.289, p < .05). Males prefer audio-recorded educational material more than females.

Table 5. Multiple regression for variables as predictors of 'preference on audio-recorded material'

Variable	B	Std. Error	Beta	t	p
Age	.001	.007	.017	.123	.903
Gender	-.246	.117	-.289	-2.107	.040
Frequency of computer use	-.062	.077	-.104	-.797	.429

Multiple regression analysis (see Table 6) yielded an adjusted R^2 of .035 (F = 1.716, p = .174) regarding the "preference on text-chat/ voice chat". Age was a significant individual predictor of "preference on chat/ voice chat" (β = .287, p < .05). The more advanced the age of a student, the stronger the preference on "text-chat/ voice chat".

Table 6. Multiple regression for variables as predictors of 'preference on text-chat/ voice chat'

Variable	B	Std. Error	Beta	t	p
Age	.019	.009	.287	2.030	.047
Gender	-.025	.156	-.022	-.160	.873
Frequency of computer use	.047	.103	.060	.455	.651

Concerning the "preference on audio-conference" multiple regression analysis (see Table 7) yielded an adjusted R^2 of .048 (F = 1.992, p = .126). Age was a significant individual predictor of "preference on audio-conference" (β = .321, p < .05). The more advanced the age of a student, the stronger the preference on "audio-conference".

Table 7. Multiple regression for variables as predictors of 'preference on audio-conference'

Variable	B	Std. Error	Beta	t	p
Age	.022	.010	.321	2.286	.026
Gender	.014	.160	.012	.088	.930
Frequency of computer use	.034	.106	.042	.321	.750

CONCLUSIONS

The answers of the participants in the questionnaire regarding their openness to participate in a distance education program revealed positive or strong positive attitudes, however, it seems that the lack of immediate feedback and responding to participants' questions is an attribute of distance education that generates concerns to them.

In addition, the greater the age, the more positive were attitudes towards distance education. This is probably due to the limited free time that older people have, combined with an increasing need for continuing education. Choosing a distance learning program can facilitate this need.

An important conclusion of the present study is the strong preference of participants for synchronous communication between the teacher and students. Almost all the participants preferred synchronous communication through teleconference and the other methods of synchronous education. Moreover, the virtual classrooms were the top preference for means of teaching or interaction. The "virtual classroom" was one of the most preferred options, because this method compensates for the teacher's natural presence, which seems to be important to adults, by providing the advantages of an interpersonal contact.

Many participants stated their preference for "text-chat/ voice chat" which is also a type of synchronous communication. Only 1/4 of the participants preferred asynchronous communication and few the communication via mail or via telephone.

Another conclusion is the preference of participants for on-campus communication and training. This finding supports the inclusion of blended courses. Almost half the participants preferred to include face- to -face meetings in a program, as well as optional or mandatory seminars, summer courses or weekend meetings.

There seemed to be strong preferences about the two basic forms of educational material, printed and digital. An expected finding was the strong preference for digital educational material by participants who use computers more frequently.

The older a student, the less the preference for printed educational material, and the stronger the preference for "text-chat or voice chat", and also for "audio-conference". This is an unexpected finding considering that age affects attitudes to computer technology (Kraus & Hoyer, 1984), with older people more resistant to using newer technologies than younger (Czaja & Sharit, 1998), however, we can't draw a reliable conclusion as only eight participants were over 40 years old, and only two over 45 years.

Findings of present study can be useful in planning distance education programs in special education. Moreover, they can be used as a basis for planning new research in this field.

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Does Generation Y Really Stop Purchasing Digital Music?

Pannawit SANITNARATHORN
Faculty of Administration and Management, King Mongkut's Institute of Technology Latkrabang (KMITL)
porr.ps@gmail.com

Wanno FONGSUWAN
Faculty of Administration and Management, King Mongkut's Institute of Technology Latkrabang (KMITL)
wannof@yahoo.com

ABSTRACT

The global recording industry is passing through a new transition in the fast-evolving digital market place with music streaming a key component of this growth. Artists and entrepreneurs must embrace new ideas, business models and channels to accommodate the change. Globally in 2014 the digital music industry reached US$6.85 billion in revenues but ownership and piracy issues are always stumbling blocks to the industry's sustainable growth. Entrepreneurs therefore need to adapt to changing consumption habits as digital music consumer habits are changing fast and digital music labels need to rethink their strategies to keep pace with new technology. In Thailand, those born between 1981 and 2000 are known as Generation Y which is one of the largest consumer segments in the country with a lifetime spending potential of over USD $5 trillion. Additionally, these Generation Y as digital music consumers are also the largest owners of smart phones within the population and some of the most connected individuals on earth. This study therefore aims to identify factors and methods that affect this huge markets' decision to purchase and download digital music.

Keywords: attitude, idolatry, perceived behavioural control, subjective norms, SEM

INTRODUCTION

Digital music distribution began with the illegal file-sharing activities of the late 1990s (Klym, 2005) and exploded when the software tool 'Napster' arrived on the scene in 1998 (Lamont, 2013). It however wasn't until Apple's iTunes Music Store release in 2003 that legal downloading of digital music began and by 2006 iTunes had taken control of 80% of the legal digital music downloading market in the U.S. (Klym, 2005). However, illegal copying and sharing of files has continued to explode with streaming a new threat to the Thai music industry.

In 2015 digital music sales globally grew to $US 6.9 billion (IFPI Global Music Report, 2016) and for the first time digital overtook all other forms of recorded music. In 2014 however, Thailand's music market dropped from US$304 million in 2010to US$279 with experts indicating this trend will continue at nearly one percent per year through 2019 (Digital platforms lift Thai media, 2016), with digital music piracy being the No. 1 threat to the Thai music industry.

Thailand's downtrend is consistent with a global trend as despite growing digital music revenue, in a 10 year period from 2003 to 2013, global music sales dropped from $US23.3 billion to $US15 billion dollars (IFPI Global Music Report, 2016).This nonstop decrease in collective revenue is most primarily due to the increase in illegal music downloads and music streaming from smartphones and tablets. And according to research from Chiou, Huang, and Lee (2005) music piracy is the greatest single threat facing the music industry worldwide today.

Another study titled 'Generation Y' Leads the Way on Smartphones' stated that the Generation-Y users (born between 1981 and 2000) are the most likely age group to own smartphones (eMarketer, 2013). According to the Siam Commercial Bank Economic Intelligence Center (2015), this same Generation-Y is the largest consumer segment in the country and are the biggest generation ever (unlikely to ever be surpassed) with a spending potential rivalling that of Generation-X in 2015 having a lifetime spending potential of THB 160 trillion (USD $5 trillion).

The researchers therefore see several factors coming together that will continue to enhance and expand the digital music business in Thailand. One component is the trend in smartphone ownership and use which is soaring among Thais. Thailand's smartphone ownership is expected to reach 100% in the next four years and reshape the mobile landscape and consumer behavior (Kewaleewongsatorn, 2015). In the age group between 16-34 (Generation Y) most owned smartphones with the average Thai spending nearly four hours a day on it.

LITERATURE REVIEW

PURCHASING INTENTION

Kotler and Armstrong (2001) discussed the dimensions of purchase intention as well as how consumers obtained their information and from what sources and concluded that product information and their sources was crucial as it was done at the beginning of the purchase investigation process which could affect the rest of the consumer's decision making process.

Chiang and Dholakia (2003) also examined online consumer buying and determined that the information acquisition stage consisted of three important variables including convenience, the product's characteristics and product pricing. Kotler (2000) stated that willingness to buy is a measurement of effective consumer behavior.

Suki, Ramayah, and Suki (2011) studied Malaysian consumers' intention towards software piracy, and determined that there was a significant and positive relationship between subjective norms and attitudes and consumers' intention towards software piracy. This is consistent with Cronan and Al-Rafee (2008) which determined previous music piracy and a consumer's sense of morality affected a person's intention to pirate digital material. Lin, Hsu, Kuo, and Sun (1999) showed that Information Services staff piracy is directly influenced by their opinions, subjective norms, and perceived de-individuation. Buchan (2005) which expanded on research by Ajzen (1985) determined that there was a significant relationship between subjective norms and attitudes with IT staff opinions about ethical issues clearly influencing purchase intention. Additionally, social factors were shown to have a significant influence on attitude formation.

ATTITUDE

In 1937 Murphy, Murphy, and Newcomb (1937) proclaimed that attitude was the most important concept in the entire field of social psychology. Ajzen and Fishbein (1980) later argued that attitudes are comprised of beliefs and evaluations regarding expected outcomes. Al-Rafee and Cronan (2006) studied digital pirating attitudes and concluded that it is influenced by beliefs about the outcome of behavior, happiness and excitement, age, the perceived importance of the issue, the influence of significant others, and Machiavellianism.

Attitude therefore is considered by many to be a crucial factor in the loss or generation of revenues for the music industry. Attitude has been found to significantly affect an individual's intention to behave ethically or unethically (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980; Ajzen, 1988, 1991; Olson & Zanna, 1993). Therefore, understanding the dimensions of attitude will lead to the further understanding of the influences on ethical behavior intention (Leonard & Cronan, 2005).

IDOLATRY

A fan is a person who is enthusiastically devoted to something or somebody, such as a band, which is a shortened version of the word *fanatic*. The word first became popular in reference to baseball enthusiasts deriving from English around 1550 with the word 'fanatic' meaning "marked by excessive enthusiasm and often intense uncritical devotion".

Hyatt (2014) went on to discuss the hierarchy of fandom which was listed as;

1. Super fans attend live events and purchase both music and other items such as t-shirts.
2. Engaged fans' are the active online audience who are newsletter subscribers, blog readers, video watchers, RSS subscribers, and active social media engagers.
3. Ambient Fans are the passive online audience which use social media such as Twitter, Facebook, MySpace, Last.fm, etc. but don't actively communicate with the artist.

Godin (2008) argued the Internet has ended mass marketing and revived the human social unit called 'tribes'. Founded on shared ideas and values, tribes give ordinary people (fans) the power to lead and make big change. Jenson (1992) also discussed fans and noted two common characterizations of fans; the obsessed individual and the hysterical crowd with fans engage in "artificial relations" with celebrities to compensate for the lack of authentic social relations in the isolated modern day society. Einerson (1998) also indicated that these 'tribal fans' felt remorse about buying pirated goods of artists they idolized.

SUBJECTIVE NORMS

According to two leading theories of attitude–behaviour relations, the theory of reasoned action (TRA) and the theory of planned behaviour (TPB), subjective norms and attitude are independent variables with a significant causal relationship to intention (Ajzen & Fishbein, 1985). Ajzen (1991) in a review of the theory of planned behavior restated that intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, subjective norms, and perceived behavioral control. Liao, Liu, Lu and To (2008) confirmed that attitude and subjective norms had a very significant influence on consumers' intention of purchasing digital products. This is consistent with additional studies by Chang (1998), Shepherd and O'Keefe (1984), and Al-Rafee and Cronan (2006) which also found that subjective norms influence attitudes to purchase digital music.

PERCEIVED BEHAVIOURAL CONTROL

According to Terry and O'Leary (1995) two variables comprise the notion of perceived behavioural control (PBC) which include behavior control and efficacy expectancies. Trafimow, Sheeran, Conner, and Finlay's (2002) results from four studies on Ajzen's (1988, 1991) concept of PBC determined that it is an amalgamation of two variables termed 'perceived control' and 'perceived difficulty'. Lin (2013) discussed what was termed as 'free mentality' which is a strong belief that everything online should be free which has significantly affected the development of e-commerce. This is consistent with Yoon (2011) which stated that digital piracy has posed a significant threat to the development of the software industry and the growth of the digital media industry.

From the above conceptual review and development, the researchers developed the following six hypotheses:

H1: Idolatry has a direct influence on Purchasing Intention
H2: Idolatry has a direct influence on Attitude
H3: Subjective Norms has a direct influence on Attitude
H4: Subjective Norms has a direct influence on Purchasing Intention
H5: Perceived Behavioural Control has a direct influence on Purchasing Intention
H6: Attitude has a direct influence on Purchasing Intention

PROPOSED CONCEPTUAL MODEL

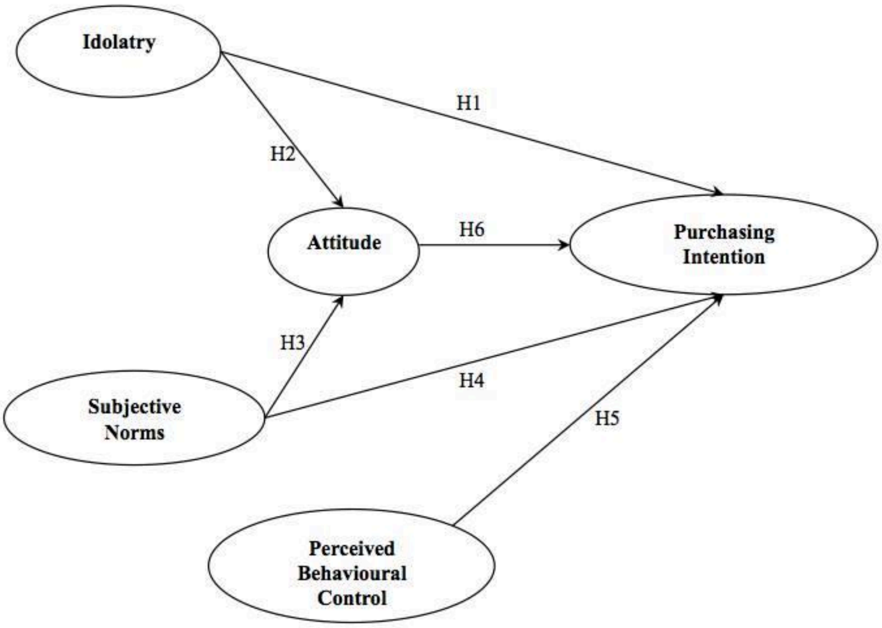

Figure 1: Conceptual Framework

METHODOLOGY

This research aims to model the structure of the factors that influence the willingness of Thai 'Generation Y' to buy music in digital form. The researchers have therefore set out to determine the details and procedures of the methods as follows:

DATA COLLECTION AND ANALYSIS

For this research the researchers will use both quantitative and qualitative research from both primary and secondary data. The researchers will use the following steps for the study:

STUDY OF SECONDARY DATA

Secondary data will be comprised of published research, internet materials, media reports, and data which will be synthesized and analyzed. This secondary data will also be used for the development of the 13 variables and the structural equation model in understanding the variables that effect purchasing intention by Generation Y as digital music users.

THE QUANTITATIVE RESEARCH

Quantitative research will be performed from the primary data by collecting a questionnaire from the target sample of Thai Generation Y as the digital music users. The questionnaire used to collect the data will be structured and written in a realistic, easy-to-understand format which is deemed to be reliable and reasonable. The measurement instrument or questionnaires will utilize a 5-Point Likert Scale (Likert, 1970) as a tool for research. Further reliability validation will be undertaken as follows:

1. The review of the questionnaire will be conducted by 5 experts in their fields to validate the investigation questions and the use of rhetoric and the simplicity and comprehension of the questions.
2. During the question trial period, the questions will undergo a continual rigorous review and inspection for their clarity and ability to the meet the objectives of the research.
3. Improvement of the questions for clarity and comprehension will be undertaken when there are any problems during the trial period.
4. Data collection and statistical analysis will be performed.

THE QUALITATIVE RESEARCH

Qualitative research involves confirming the model of the quantitative research and for this research will be a collection of interviews with industry professionals involved in the music industry including 1 music industry executive, 1 label executive, 1 digital music download manager and 2 music industry scholars.

THE SAMPLE SIZE

Schumaker and Lomax (2010) stated that structural equation modeling (SEM) uses a variety of models to show the relationships between observed variables with the goal being of providing a quantitative test of a theoretical model. The models developed using SEM can be tested to show how sets of variables define concepts and how they are related.

The goal of SEM is to determine the extent to which the model is supported by the data that is gathered during research (Schumaker & Lomax, 2010) and since SEM is capable of statistically modeling and testing complex phenomena, it has therefore become the preferred method for confirming (or not) theoretical models, quantitatively.

Another very important consideration is the intended sample size with most authors recommending a sample size of at least 100 for good results generation (Schumaker & Lomax, 2010; Cunningham, 2008; Weston & Gore, 2006; Worthington & Whittaker, 2006). Meldrum (2010) further stated that a sample size smaller than 100 should not be used in SEM as it is unreliable. Therefore, based on the 13 variables of the model and with the use of a 20:1 ratio which is deemed to be highly reliable, a minimum of 260 Thai Generation Y as the digital music users are anticipated for the survey.

RESEARCH TOOLS

Quality and content will be monitored with tools used in the research and as a measurement of quality. Both content validity and reliability will be assured by the 5 listed experts above in their respective fields with an evaluation index consistent with the content and the purpose of the research. Additionally, the index of Item-Objective Congruence (IOC) developed by Rovinelli and Hambleton (1977) will be employed to carry out the screening of questions to a group of 10 initially in the pilot study.

The IOC is a procedure used in test development for evaluating content validity at the item development stage. This measure is limited to the assessment of unidimensional items or items that measure specified composites of skills. The method prescribed by Rovinelli and Hambleton (1977) results in indices of item congruence in which experts rate the match between an item and several constructs assuming that the item taps only one of the constructs which is unbeknownst to the experts. The research will then proceed to select items that have an IOC index higher than 0.5, which will be considered acceptable.

DATA ANALYSIS

Descriptive statistics are used to describe the basic features of the data in a study which provides simple summaries about the sample and the measures and form the basis of virtually every quantitative analysis of data (Subong, 2005). For the proposed structural equation modeling, an analysis will be conducted on the frequency, percentage, mean and standard deviation as appropriate to determine the relationship of the factors that influence the purchasing intention of digital music by Thai Generation Y.

QUALITATIVE DATA ANALYSIS

To confirm the results of the quantitative analysis, the researchers will conduct interviews with those involved with innovation and business management in the digital music industry and then to proceed to interpret the qualitative information.

CONCLUSION

The technology is now in place to access and use digital music formats but the purchasing intention of Generation Y is a key variable to the industry's profitability and sustainability. From the literature review, it has been established that the intent to purchase digital music occurs because of consumers' idolatry and modeling of their music idols. Furthermore, due to subjective norms factors which influence others such as friends and family, the intent to purchase is also enforced. While perceived behavioural control is also a vital part. These three variables are speculated to have a direct and positive influence on the intent to purchase digital music by Generation Y. The idolatry and subjective norms should also affect the attitude, the intermediate variable that affects their willingness to purchase digital music.

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E-Teaching Strategies: Massive Versus Customized Methodologies

Stephen John BEAUMONT
Centro de Tecnología para el Desarrollo (CENTED)
Buenos Aires, Argentina
info@cented.org

ABSTRACT

When designing any educational process, we must analyze it and try to optimize it taking into account all the variables involved in this process: curriculum design, didactic transposition, the learning environment, evaluation methodologies, etc. In the particular case of e-learning pedagogical processes, there is one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of "mass education" appears, and with it, the concept of Massive Open Online Courses (MOOCs). These methodologies of "mass education" may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process. On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them.

Keywords: Educational process, e-learning, mass education

INTRODUCTION

In the particular case of e-learning pedagogical processes, there is one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of "mass education" appears, and with it, the concept of Massive Open Online Courses (MOOCs). These methodologies of "mass education" may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process. On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them.

The educational processes designed for distance learning or e-Education programs, rely basically on three major components: curricular design, teaching strategies and e-Education learning environments.

The curricular design

What exactly is the core knowledge we wish to transmit? What should a student know and what would be convenient for them to know? How do we choose the priority issues? We have to choose the appropriate content and structure it accordingly to be able to effectively communicate it and thus achieve a successful learning process.

The curriculum is an attempt to communicate the principles and features of an educational purpose in a way that it remains open to critical discussion and can be effectively implemented. (Stenhouse, 1987)

The central problem of any curriculum project is that of content and, in a more general sense, knowledge. The didactic transposition is the adaptive transformation process (whether it involves distortion, substitution or creation of knowledge) by which scholarly knowledge constitutes itself in the knowledge or object to be taught and, in turn, knowledge or object actually taught. (Poggi, 1990)

Without an effective curricular design it will not be possible to achieve a positive impact on any student. Having selected the main content we must now focus on the teaching strategies.

Teaching strategies

Having selected the content, one must also choose appropriate teaching strategies to achieve the desired goal. In general, these teaching strategies can be classified as:

- The teaching of organized forms of knowledge through direct intervention strategies: exposition, interrogation, etc.
- Strategies focused on indirect forms of teacher intervention: case studies, problem-based learning, inquiry, etc.
- The skills training through simulation and controlled practice.

Early theories of teaching strategy start from behaviorism, which begins in the late nineteenth century in Russia, when Pavlov raises Reflexology, arguing that behavior is a chain of reflections and learning is achieved by contiguity, association and stimulus - response. There are conditioned reflexes (learned or acquired) and unconditioned (not acquired or innate). At the same time, in U.S., John Watson and B. Skinner talk about a learning strategy where the teacher is active, selects the contents, doses the material in a relevant sequence. They claim that if there is behavioral change, there is no learning. This is based on the sequence information - application - feedback. Skinner also proposes the use of the learning machine. (Tenutto, 2004) While these are some of the earliest theories of learning, they are still widely used as pedagogical methodologies today. In fact, in certain circumstances, they remain as methodologies which are successfully applied to the process of teaching.

In the early twentieth century the Gestalt theory evolves in Germany. This theory relies mainly on perception, where “The whole is more than the sum of its parts,” and learning occurs by what is known as “Insight.” The most important contribution of this theory is that learning cannot be conceived as a phenomenon which is isolated of the environment and all the other factors that influence the actors in this process.

Constructivism emerged in the mid-twentieth century (50's and 60's) and its main exponents were Piaget, Vigotsky and Bruner. This theory states that the student is active, adapting, works to resolve conflicts, overcomes the limitations of knowledge, is interactive, conscious and an active part of the learning process.

As for Piaget, learning arises by an equilibrium process that comes from cognitive conflict. Intellectual functioning is based on two main attributes: the organization (the multiple interrelationships between cognitive actions) and adaptation, which in turn covers two sub properties closely related: assimilation (structuring or cognitive restructuring of an object in accordance with the nature of intellectual organization which is already part of one’s own knowledge) and accommodation (the process of adapting to the varied demands that are imposed on the subject). He also emphasizes that social interaction can facilitate or impede learning, but is not determinative. (Flavell, 1979)

Vigotzky introduces the concept of Proximal Development Zone, defined as the distance between the actual developmental level as determined by the ability to independently solve a problem, and the level of potential development as determined through problem resolution under the guidance of another person. (Vigotzky, 1998)

Bruner argues that the student explores, with advances and retreats. There is no concept of mistake because mistakes are part of the process and they serve to advance the process. The characteristic of the teacher is to generate uncertainty, intrigue and desire for further understanding. The object of education is that students think for themselves. (Bruner, 2001)

Finally there is Cognitivism, a theory which speaks of meaningful learning and emerges in the 60's. Its main exponents were Ausubel and Novak. According to Ausubel, for meaningful learning to occur, it is necessary that the material presented to the student is not arbitrary, meaning that it possesses meaning. A material has meaning if the elements are arranged and not merely juxtaposed, that is, if it has a meaningful structure. It is also necessary that the student's cognitive structure contains inclusionary ideas, meaning that their previous knowledge can be related new material. (Pozo, 1987) Previous organizers serve to accommodate the new knowledge in one's cognitive structure. In the event that there were no relevant concepts in it, the previous organizers will serve to reinforce new information and lead to the development of an inclusive concept that may operate to facilitate subsequent learning on relevant issues. (Novak, 1990)

Under this theory, the student is active and aware of the learning process and relates the content with prior knowledge. The teacher, in turn, generates previous organizers, presents the content, organizes and structures materials, asks for examples, and shows connections to prior knowledge. This is an ongoing process, which clearly explains why knowledge acquired which is based on previous organizers will be much more durable and useful than simple memory learning.

Finally, having developed these strategies, feedback is crucial to achieve the educational process to create a system of continuous improvement in its implementation. For this you must have an appropriate system of assessment of learning.

Evaluation is a process of obtaining information and then making judgments and ultimately decisions. (Castillo Arredondo.and Cabrerizo Diago, 2006) According to Camilioni, evaluation is to assess value judgments about something: objects, behaviors or plans. These trials have a purpose; it is evaluated to make decisions regarding the progress of a process. (Camilloni, 2000) Meanwhile Allal states that "formative assessment, as it is characterized above, allows a double feedback. On the one hand, the student indicates its status under the various stages that must be passed for a particular learning and on the other, tells the teacher how the process of teaching and learning takes place, and the main achievements and difficulties of learning."(Allal, 1997)

Regarding the usefulness of the evaluation, it helps students to learn about their progress in relation to the objectives, know their weaknesses, find their difficulties in order to overcome them and compare their performance with that of their peers. "From the point of view of the student, the evaluation is fused with learning. While it validates, it reorients. From the point of view of the teacher it acts as a regulatory evaluation of the teaching process." (Camilloni, 2000)

For teachers, evaluation helps to know the initial state of knowledge of students, the progress made by each of them, their difficulties and finally being able to review the proposed objectives. (Camilloni, 2000) The teacher, after the interpretation of the evaluation data, can decide on the revision of an item or the repetition of the same teaching if necessary, the recommendation of literature or information to enhance some aspect of the learning process. (Allal, 1997)

e-Education learning environments

Finally, an aspect that is also important is the channel that will be used to implement this learning process, since we now have efficient and economical Information and Communication Technologies, which are increasingly accessible. This will enable us to deliver knowledge in a more effective way to increasing numbers of people. But we must remember that these are the only channels and that the main importance is in the developed content.

By combining these three components, we will be able to build soundly based educational proposals that meet the growing requirements of training, continuing education and professionalization of prospective students.

STUDENT FEEDBACK ON TECHNOLOGY IN E-EDUCATION LEARNING ENVIRONMENTS

As in any successful educational processes, feedback from the participants plays an important role to improve different aspects such as curricular design, methodology, evaluation, etc. As well as taking note of spontaneous feedback from online students we have conducted a number of surveys among these participants, so as to understand their particular needs as far as learning environments and the use of information technology in their homes and or work-places. Some relevant issues that arose from a recent survey conducted in 2015 (CENTED, 2015), include:

- One of the most frequent complaints from online students is the availability of tutors /coordinators to be able to answer inquiries and assist students in general problems.

- Another issue occurring in some e-learning platforms is that some students find it difficult to locate the learning material. When there are many different files (video, text, presentations, etc.) located in different places, it is relatively frequent that they "skip" some of them.

- Automated inscription to courses (as opposed to direct e-mail communication) has proven to be a problematic issue for some potential participants.

- Although e-mail communication has also presented some problems, as a number of other prospective students have mentioned the problems of "spam-block" in some educational institutions (meaning that legitimate inquiries are treated as spam).

CONCLUSION

Whereas information technology has provided us with a fabulous means of providing education, we cannot ignore the point that this is merely the channel used for delivering the process and not an ultimate goal in itself. Technology is of huge importance, but the main focus must be placed on curricular design and teaching strategies.

In the particular case of e-learning pedagogical processes, there is one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. Whereas these methodologies of "mass education" may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process.

On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them. Although this requires much more effort, the results still seem far superior.

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Education Barriers For Czech Adults

Jan KALENDA
Research Center of the Faculty of Humanities, Czech Republic
kalendajan@gmail.com

ABSTRACT

Since the 1980s, barriers in adult education have proved problematic for researchers. Despite the existence of international comparative surveys and local studies, nation-wide surveys taking into account a broad range of socioeconomic factors that could significantly differentiate participation in adult education are rare. This paper presents the results of a nationwide study on barriers in adult education in 2015. Data from a representative survey of the Czech population (N = 1,038) demonstrates that, in the Czech Republic, situational barriers are predominant. Furthermore, it recognizes that the perception of these barriers is not affected just by previous experiences with further education but also by gender, age, socioeconomic and educational inequalities in Czech society.

INTRODUCTION

Adult education is generally viewed as a means to achieve economic growth, social inclusion and improved quality of life. Although adult education is dealt with by many scholars (see, e.g., Cerani, 2008; Esping-Andersen, 1996; Jenkins et al., 2003; Pont, 2004), and is the subject of many international and national political strategies and documents (European Commission, 2010, 2014a, 2014b; OECD, 2005, 2009, 2014, 2015; SCU, 2007; IPCU, 2008; PDV, 2010) it still faces a wide range of implementation obstacles. For this reason, a research field has evolved that is particularly focused on the systematic examination of barriers to adult education.

In the current literature, there is a sizeable consensus regarding the manner in which educational barriers are defined (see, e.g., AES, 2013; Desjardins & Rubenson, 2013; Rubenson, 2007, 2010, 2011; Rubenson and Desjardins, 2009; Rabušic, Rabušicová & Šeďová, 2008). Following a crucial and ground-breaking study by Patricia K. Cross (1981) , most scholars have generally distinguished between three main types of barriers: (1) *situational barriers*, which describe the current socioeconomic and family obstacles that prevent individuals from participating in further education (e.g., lack of funds, excessive employment workload, family and other commitments); (2) *institutional barriers*, which are obstacles created by the educational institutions themselves (e.g., insufficient number of educational events, low quality of courses offered or poor awareness of them); (3) *personal barriers*, which are mostly obstacles associated with each individual's convictions about their own abilities and the significance of education. In other words, they are the dispositions (Bourdieu, 1998) that affect the actor's cognition and, through it, the understanding of the education of adults. Each of these three types of barriers individually restricts adults from participating in further education, regardless of whether it is participation in formal or informal education.[1]

Concerning such barriers, the literature and political strategies implicitly assume that the removal of them will lead to the increased motivation of adults to educate themselves and, as a result, to participate more in education (Ahl, 2006). However, as will be illustrated, these assumptions do not hold up in the face of empirical data. Many of the barriers are associated with the socioeconomic structure of modern society, and their removal is a problematic and complex process.

International research aimed at mapping educational barriers can be, on the most general level, divided into three main approaches:

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[1] Formal education here means the education of adults, which takes place in the official/formal educational system and which is usually completed by obtaining a diploma or other certificate. Informal education means all adult education organized outside the official/formal educational system – e.g., courses and trainings organized within an employment organization or leisure-time education and which can be completed by a certain certificate. Typically, it is also shorter and requires a certain form of financial participation of the learner or of the learner's employer (see also European Commission 2000, 8; Kilpi-Jakonen et al., 2015, 532).

(1) *International quantitative comparative investigations of participants in education and their barriers*, which are aimed at the frequency of occurrence of the individual types of barriers in various countries and their comparison. This means mostly outputs from the International Adult Education Survey (IALS, 2000), Lifelong Learning Citizens' Views (CEDEFOP, 2003), eduLIFE (Blossfeld et al., 2014), Adult Learners in Formal Education (ALiFE) and Adult Education Survey (AES, 2013), which have been repeatedly cited (see, e.g., Rubenson, 2011; Desjardins and Rubenson, 2013; Saar et al., 2014; Kilpi-Jakonen et al., 2015). Their most inspirational adaptation is a study by Kjell Rubenson and Robert Desjardins, (2009), which formulates the so-called bounded-agency model of adult education. According to this study, personal barriers are conditioned not only by individual and social dispositions of the actors, but also by situational barriers in the form of the structure of the welfare state that exists in a particular country. Forthe authors, this explains why in some countries, particularly in Scandinavia, the participation in education is significantly higher even though local residents perceive barriers to the same extent as in other geographical areas. The Scandinavian model of the social democratic welfare state (Esping-Andersen, 1999) creates more structural opportunities to participate in further education and also reduces the level of social inequality, making it easier for the actors to overcome dispositional barriers.

(2) *Regional quantitative surveys of participants in the education of adults and their barriers*, which focus on examining barriers to participation in further education in a certain institution, e.g., educational organization (Coady, 2013), company (Rita-E-Fitza et al., 2015) or public administration department (Harris et al., 2015), or in a specific place – city or region (Galjak & Nikolic, 2012, Maiden et al., 2010; Schmelkes, 2011; Steel & Fahy, 2011), or in a certain population, e.g., rural population, or in persons with special educational needs, the elderly or other groups of participants in adult education (Elman et al., 2014; Felton-Busch et al., 2009; Gandecka, 2014; Porras-Hernández and Salinas-Amescua, 2012; Yamashita et al., 2015).

(3) *Qualitative research surveys of selected social groups or institutions*, among which barriers in the education of adults are examined using an interpretative epistemic mode (Reed, 2011) and which focus on individual experiences and the importance of education for adults (see, e.g., Del Preto, 2013; Flynn et al., 2011; Mcgregor & Ryan, 2011). These studies often focus on small groups of non-participants and uncover the subjective rationality of their non-participation (Paldanius, 2007).

Looking at the strengths and weaknesses of these three approaches, while the international comparative surveys allow a description of differences in the participation of adults and the main types of barriers across individual countries – which, after all, is their main asset – they usually disregard cultural and social specifics of the regions and do not examine the impact of key social variables (education, socio-economic activity and class position) on the occurrence of barriers. This is the reason why Rubenson and Desjardins (2009), in an attempt to create a theory explaining the effect of obstacles on participation in the education of adults, had to resort to the level of the social system of Scandinavian countries. Only when taking into account the distinctive features of the local social-political institutions is it possible to adequately interpret the results of the international survey.

Regional quantitative surveys do attribute some importance to the social and cultural factors, but it is only rarely possible to generalize their results at least to the national level. In other words, it is only rarely possible to generalize them to a higher level than the level of the examined group of participants/non-participants in the education of adults, or the region/institution. Although qualitative research surveys are able to uncover unique meanings attributed to the educational barriers by actors from different social worlds and arenas (Strauss, 1984; Clarke, 2005; Kalenda, 2015d) and how they themselves formulate these barriers in their everyday language, they do not relate them to socioeconomic factors. Therefore, they do not allow an understanding of how barriers to adult education are in certain countries socially and culturally determined by key factors, such as age, education or socioeconomic activity.

This study strays from these three paved paths, choosing instead to forge a new path that can minimalize the disadvantages of the first and second research approaches while creating adequate conditions for the subsequent implementation of the third research strategy – an interpretative epistemic approach.[2]

On these grounds, this paper presents quantitative research on current barriers in adult education in the Czech Republic. This research includes a representative survey and also analyses the key sociodemographic factors that

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[2] A similar research strategy has been used by other scholars (e.g., MacLeod & Lambe, 2007; White, 2012), who use data from the regular survey of NIACE (National Institute of Adult Continuing Education), as well as by a team of Czech researchers, who dealt with the education of adults in 2006 (Rabušic & Rabušicová, 2006; Rabušicová & Rabušic, 2008).

affect the perception of barriers in individual groups of the Czech population. The goals are (1) to describe the current structure of barriers in the further education of adults and, subsequently, (2) to determine how these results are sociodemographically differentiated. Therefore, the research intent is both descriptive and explanatory.

Because international quantitative surveys will complement the studies with sociodemographic specifics (not strongly emphasized in them), while the advantages of regional research will be "transferred" to the national level, this study will thus also utilize the advantages of the first and second research strategies. On the basis of a quantitative determination of the key barriers in relation to the main social groups, this paper will outline a program of qualitative research that will serve as a "thick description" (Geertz, 1973) or "thick explanation" (Fosket, 2015) of adult education barriers. Such an approach will allow for an interpretation of meanings in the environment and language of the actors, which alone can give a definitive answer regarding the reason for non-participation of adults in further education. In other words, this study also creates pre-requisites for the implementation of the third research strategy.

METHODS

The results presented in this study are based on a quantitative research survey focused on the education of adults, which allowed the obtaining of data from a representative sample of adults from the Czech Republic. Data collection was conducted during the spring of 2015 by the research agency, FOCUS. With the help of trained interviewers, respondents – adults over age 18 – were questioned in areas chosen by a quota. They were asked about basic sociodemographic data, about their attained education and educational barriers. This way, data from a representative sample of a total of 1,038 respondents was collected.

The research techniques used included structured interviews lasting 15 to 20 minutes, during which questions were asked not only about the participation in formal and informal education within the past 12 months, but also about barriers in further education. A part of the questionnaire on barriers contained the same questions as the previous representative research on the education of adults in the Czech Republic, carried out in 2005 by the team of Milada Rabušicová and Ladislav Rabušic (2006; see also Rabušicová & Rabušic, 2008). Overall, there were eleven scaling questions that covered all three types of barriers to further education – situational, institutional and personal.The results do not distinguish between barriers to formal and informal education. The obtained data was then statistically analysed by the program SPSS. In this respect, both first degree classification and second degree classification – the analysis of statistical significance using the Chi-square test and Spearman coefficient – were conducted.

RESULTS

From the viewpoint of educational barriers by type (see Table 1), the main barriers to the education of adults in the Czech Republic are *situational barriers*. More than a half of adult Czechs declare that at the moment they do not have enough funds to participate in educational courses and trainings, or that they are too busy to further educate themselves.

Table 1: Barriers to further education in the Czech Rep. – summary (source: own calculation)

		Total	**Did not participate in further education***	**Participated in further education****
Situational barriers	I have insufficient funds.	55	57	42
	I am too busy with work.	55	56	55
	I am too busy with hobbies.	46	50	34
	I have insufficient time because of family obligations.	34	36	27
	I cannot participate due to health reasons.	20	25	6
Institutional barriers	There is not enough information about appropriate educational courses.	45	48	40
	There are not enough suitable courses.	40	49	37
	The quality of courses is relatively low.	32	36	29
Personal barriers	Participation in educational courses or trainings is meaningless to me.	49	66	16
	I fear that I would not succeed.	36	44	18
	I think that I do not have sufficient education for further education.	31	39	16

Note: * Did not participate in further education in the past 12 months (without distinction between formal and informal education). ** Participated in further education in the past 12 months (without distinction between formal and informal education). Data in percent

Many Czechs therefore consider further education to be too expensive or do not want to invest their money in it. Placing this knowledge in the appropriate social context, Tomáš Katrňák and Petr Fučík (2010) have in the case of the Czech Republic fairly recently shown that the investment in "cultural capital" (Bourdieu, 1986, 1998) through education does not necessarily lead to social mobility, but only maintains the current social position between generations (see also Keller & Tvrdý, 2008). Furthermore, it is typical for the Czech employment structure that 91 % of employees have a permanent contract (OECD, 2015, 18-19), and most of employees declare that they are satisfied with their jobs (Večerník, 2006a). So from the viewpoint of maintaining their position in a job, employees are not forced by either external or internal factors to intensively develop their cultural capital.

A significant decrease in work commitments has been observed in the Czech Republic after 2000. Much fewer Czechs are willing to spend more time at work than necessary and have their work tasks interfere with their personal lives (Večerník, 2004, 2006a), and nowadays only 7 % of employees work notable overtime (OECD, 2015, 27). Since education in the Czech Republic is closely associated with work and working activities (AES, 2013; Kalenda, 2015a, 2015c; Rabušicová & Rabušic, 2008), Czechs are generally not motivated to spend time learning, be it at work or at home, and this despite research showing a strong correlation between attained education and unemployment and between attained education and income (Mareš, 1999; Katrňák & Mareš, 2007; Večerník, 1998, 2009; Matějů & Anýžová, 2015). University graduates are the least endangered by unemployment, and their wages are 80 % higher than those of secondary education graduates, and 110 % higher than those of primary education graduates (OECD 2015, 34).

Another common barrier to further education is in the importance of educational courses and trainings for individuals, who in almost half the cases report that further education is meaningless for them. With reference to Glaesser and Cooper (2014), further education is not perceived in the local society as a rational tool for obtaining economic, social or symbolic goods.

When examining the issue of educational barriers from the other side, the least important obstacles to further education are health reasons, reported by only one-fifth of respondents. Then there is the issue of educational course quality, which is considered by approximately one-third of adults to be so low that it is not motivating for them to participate in educational courses. The third least important obstacle is insecurity about one's own attained level of education.

The key factor that significantly influences the incidence rate of barriers is previous participation in further education, whether formal or informal. Individuals who in the past 12 months participated in some form of further education show a much lower incidence rate of barriers to further education than those who did not participate in any educational courses or training. This relationship significantly differentiates the perception of all types of barriers with the exception of excessive workload, which does not play a major role. On the contrary, it mostly affects the importance of educational activities of individuals (Spearman co. 0.64). Two-thirds of the respondents who did not participate in further education unequivocally declared that they do not see any sense in further education. A positive experience with further education is therefore a precondition for its meaningfulness. In this regard, our results agree with the previous surveys in the Czech Republic and abroad (see, e.g., Rabušicová, Rabušic & Šeďová, 2008; Rubenson, 2007, 2011; White, 2012). However, this result may be due to the fact that it is a so-called "middle item" in a longer causal chain, because participation in further education is pre-conditioned by many other factors (see the following).

BARRIERS AND GENDER

Although there are no major differences between the participation of men and women in informal education in the Czech Republic (see Rabušic & Rabušicová, 2006; Rabušicová & Rabušic, 2008; Kalenda, 2015a, 2015b), there are significant differences in educational barriers (see Table 2).[3] Women, much more often than men, report that they do not have enough funds for further education and also more often declare that they cannot participate in educational courses and events due to family obligations.

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[3] The past five years in the Czech Republic has witnessed a growth in the participation difference between men and women in tertiary education. Women enter bachelor's or master's university programs much more often (Simonová, 2012; Matějů, Anýžová & Simonová, 2013; Weidnerová & Matějů, 2015), a trend that is now traceable in other Western countries (Di Prete & Buchmann, 2013).

Thus, the two main types of discrimination against women in the Czech Republic are related. As demonstrated by Jiří Večerník (2006b) and Matějů and Anýžová (2015, 57), women in the Czech Republic earn only about 70 to 80 % of men's wages. At the same time, it is the women who are predominantly in charge of running the family (Kuchařová et al., 2006). In comparison with most Western European countries, there is still a relatively small percentage of women in the Czech Republic, 14.3 % of women of working age, who would clearly prefer career to family (Weidnerová & Matějů, 2015, 647).

Men much more often indicate the reason for non-participation in further education being that they are too busy at work and that they have other leisure-time activities, due to which they lack the time for further education. This corresponds to the OECD survey results (OECD 2015, 26), which shows a significantly higher share of men (11 %, compared to 3 % of women) working overtime. Men are also mildly more critical of the quality of courses and also a little more sceptical concerning the meaningfulness of further education.

Table 2: Barriers to further education of adults by gender (source: own calculation)

	Gender	**Women**	**Women Average†**	**Men**	**Men Average†**
Situational barriers	I have insufficient funds.	61.1*	2.3	49.5	2.6
	I am too busy with work.	51.6	2.6	59.1*	2.4
	I am too busy with hobbies.	41.2	2.8	51.5*	2.5
	I have insufficient time because of family obligations.	41.5*	2.7	27.2	3.1
	I cannot participate due to health reasons.	21.4	3.2	19.6	3.2
Institutional barriers	There is not enough information about appropriate educational courses.	44.7	2.8	46.7	2.8
	There are not enough suitable courses.	37.4	3.0	43.3	2.9
	The quality of courses is relatively low.	28.9	3.1	35.3	3.0
Personal barriers	Participation in educational courses or trainings is meaningless to me.	46.2	2.6	51.9	2.4
	I fear that I would not succeed.	39.1	2.8	34.7	2.9
	I think that I do not have sufficient education for further education.	30.7	2.9	30.5	3.0

Note: †Average score for the answer, where 1 = completely agree, 4 = completely disagree; * Chi-square is statistically significant at $p < 0.05$; ** Chi-square is statistically significant at $p < 0.01$;
Data: 2015, percentages indicate the level of agreement with the statement.

BARRIERS AND AGE

Age is commonly regarded by a number of researchers (see, e.g., Estes, Biggs & Phillipson, 2003; Gilleard & Higgs, 2005; Vincent, 2003) as the key factor influencing human activity. The case of barriers to further education of adults is no different, as age affects it in at least three major ways (see Table 3).

Table 3: Barriers to further education of adults by age (source: own calculation)

	Age group	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Situational barriers	I have insufficient funds.	61.9*	54.0	51.3	58.6	52.9	57.0
	I am too busy with work.	44.1*	64.0*	73.3**	67.9*	56.3	23.3**
	I am too busy with hobbies.	41.5	42.5	55.5*	50.6	48.9	37.3*
	I have insufficient time because of family obligations.	6.8**	36.5	53.4**	45.1*	35.6	21.2*
	I cannot participate due to health reasons.	1.7**	13.0	11.5	17.3	28.2	44.6**
Institutional barriers	There is not enough information about appropriate educational courses	34.9	45.5	46.1	48.2	52.3	44.6
	There are not enough suitable courses.	34.8	39.5	42.4	42.6	44.8	36.3
	The quality of courses is relatively low.	30.5	37.5	35.1	32.7	32.8	22.8*
Personal barriers	Participation in educational courses or trainings is meaningless to me.	29.7**	37.0	36.7	44.4	62.0*	77.2**
	I fear that I would not succeed.	26.3	28.0	29.8	39.5	42.0	53.4*
	I think that I do not have sufficient education for further education.	17.8*	26.5	30.9	34.0	33.3	37.3

Note: * Chi-square is statistically significant at $p < 0.05$; ** Chi-square is statistically significant at $p < 0.01$. Data: 2015, percentages indicate the level of agreement with the statement

Firstly, respondents in their early adulthood (age 18 to 24) report much more often that they have insufficient funds for further education. This is because many people of this age group are currently studying at universities (about 50 % of them), which makes them largely dependent on financial support from their parents. This phenomenon is relatively new in the Czech Republic, where a significant expansion of tertiary education occurred after 2000, since when the number of university students has almost doubled (see, e.g., Koucký, 2009; Prudký, Pabián & Šíma, 2010).

Secondly, the occurrence of a larger number of situational barriers is typical for middle-aged respondents (age 35 to 54), compared to other age groups. Middle-aged respondents most often declare that the main obstacle to their participation in further education is excessive workload. Almost seven out of ten adults in this age group face this problem. This group is typically labelled the "sandwich generation," because they often have to take care of both their children and their parents (Šindelář, 2014). Because of this, respondents from this age group show a significantly higher occurrence of the answer, "I do not have time for further education because of family obligations."

Thirdly, the two elderly groups (ages 55 to 64, and 65 and above) show a higher occurrence of personal barriers, compared to the other age groups. These are manifested in two ways. Elderly people often emphasize that participation in educational courses is meaningless for them, and also half of them fear that they would not be able to succeed. The reason for the fact that more than two-thirds of the elderly state that further education is meaningless for them is probably that further education in the Czech Republic is closely associated with work and work activity and is not seen as a tool of general development of cognitive skills and social inclusion (Špatenková & Smékalová, 2015). Concerns about the difficulty of further education and the fear of possible failure stems partly from health barriers, as there is a statistically-significant correlation between health barriers and fear of failure in further education (Spearman co. 0.72).

Table 4: Barriers to further education of adults by economic activity (source: own calculation)

	Type of economic activity	**Self-employed**	**Employee**	**Unemploy-ed**	**Pensioner**	**In household**
Situational barriers	I have insufficient funds.	37.9*	52.2	84.0**	61.7	58.1
	I am too busy with work.	79.0**	69.1*	30.0**	27.1**	53.5
	I am too busy with hobbies.	55.8	48.0	52.0	38.7*	34.8*
	I have insufficient time because of family obligations.	36.8	37.7	24.0	27.5	90.7**
	I cannot participate due to health reasons.	9.5*	12.2	22.0	44.6**	18.6
Institutional barriers	There is not enough information about appropriate educational courses.	48.4	44.5	58.0*	48.7	39.5
	There are not enough suitable courses.	44.2	40.4	48.0	40.9	25.6*
	The quality of courses is relatively low.	33.7	33.2	52.0**	25.7	25.6
Personal barriers	Participation in educational courses or trainings is meaningless to me.	33.7*	41.2	48.0	75.1**	39.5
	I fear that I would not succeed.	25.3	32.6	58.0*	50.2*	32.6
	I think that I do not have sufficient education for further education.	22.1	31.7	40.0*	36.8	16.3*

Note: * Chi-square is statistically significant at $p < 0.05$; ** Chi-square is statistically significant at $p < 0.01$.
Data: 2015, percentages indicate the level of agreement with the statement.

BARRIERS AND ECONOMIC ACTIVITY

Adult education is often considered one of the main tools of employment policy (European Commission, 2014b; OECD 2009, 2014, 2015; SCU, 2007; IPCU, 2008, PDV, 2010). Unlike in other post-communist countries, e.g., Hungary and Poland, in the Czech Republic arose (relatively soon after 1989) a system of social policy focused on employment services and retraining (Potůček, 2001; Vanhuysee, 2006), a significant aspect of which was further education focused on improving the position in the labour market. Despite the existence of this developed and free system, the presented data (see Table 4) documents that the unemployed declare various barriers in relation to further education.

First and foremost it is the lack of funds. Although retraining in the Czech Republic is free, the unemployed probably believe that they do not have enough funds to cover courses and trainings beyond those provided by the social system. Furthermore, almost 60 % of them state that they do not have enough information on educational courses. From an overall perspective, the unemployed are, as a social group, the least informed about further education programs. Half of them, which is the most of all groups, also state that the quality of educational courses is low. From this can be deduced that the current free system of retraining is considered by the unemployed to be poorly advertised and not very good. On the other hand, the employed declare that the biggest problem for them is their workload. Nearly 80 % of self-employed persons and more than two-thirds of employees consider the large number of pending tasks to be the main barrier to their further education.

In relation to socio-economic activity, two additional specific groups require attention – persons in household and pensioners. While persons in households dominantly face the situational barrier associated with caring for children (91 %), for pensioners a higher incidence of lack of funds and personal barriers are typical, which is understandable, as pensions in the Czech Republic amount to only about 55 % of the nominal wage (CSO, 2013; Vanhuysee, 2006).

Table 5: Barriers to further education of adults by attained education (source: own calculation)

	Attained education	**Primary**	**Secondary without school-leaving exam**	**Secondary with school-leaving exam**	**University**
Situational barriers	I have insufficient funds.	68.1	67.3	45.1	37.0*
	I am too busy with work.	38.7*	57.8	61.3	52.5
	I am too busy with hobbies.	44.8	47.8	49.0	36.3
	I have insufficient time because of family obligations.	30.7	40.8	34.0	24.7*
	I cannot participate due to health reasons.	32.5*	24.6	16.4	6.9*
Institut. barriers	There is not enough information about appropriate educational courses.	51.5	49.5	44.6	32.2*
	There are not enough suitable courses.	41.7	43.5	40.7	29.4*
	The quality of courses is relatively low.	25.8	34.3	32.6	31.5
Personal barriers	Participation in educational courses or trainings is meaningless to me.	66.3**	54.3	41.2	34.9*
	I fear that I would not succeed.	57.7**	48.4	27.3	8.9**
	I think that I do not have sufficient education for further education.	46.7*	41.6	20.0*	7.5**

Note: * Chi-square is statistically significant at $p < 0.05$; ** Chi-square is statistically significant at $p < 0.01$. Data: 2015, percentages indicate the level of agreement with the statement

BARRIERS AND ATTAINED EDUCATION

As for the links between attained education and educational barriers, the situation in the Czech Republic is clearly the same as in other countries. The higher the respondent's education, the lower occurrence of barriers to further education (see, e.g., White, 2012). These differences are most strikingly visible in the case of personal barriers, where two-thirds of people with primary education report that further education for them is meaningless, while in the case of university-educated individuals, it is only one-third. These differences are further magnified in the opinion on ability to succeed in further education. While only every eleventh university graduate believes that they might fail in further educational pursuits, for persons with primary or secondary education it is half of them. This explains the significantly-higher share of university graduates in informal education of any type in the Czech Republic (Kalenda, 2015a, 2015b, 2015c).

Those with low levels of education face not only personal barriers but also some situational and institutional barriers. The most significant of them seem to be (1) insufficient funds stemming from poorly paid jobs (OECD, 2015; Večerník, 1998, 2009), and (2) a lack of information about suitable educational courses, reported by every second person from this social group.

Barriers to further education concerns a "prolonging of the effect" of educational inequalities (impact of the socioeconomic status of the family), which in the Czech Republic have been identified only in lower levels of the formal educational system – in the case of educational aspirations of children in primary (Simonová, 2003; Straková & Simonová, 2015) and secondary schools (Matějů & Simonová, 2013, Matějů & Smith, 2015) or a differentiation on the level of secondary education (Katrňák, Simonová & Fónadová, 2013). The analysed data shows that further adult education is not necessarily the best medicine for treatment of educational inequalities, i.e., a "second chance" for adults, as MacLeod and Lambe note (2007), because the attained level of education from the formal educational system significantly affects the cognitive perception (Cerulo, 2002) of barriers and consequently the probability of seeking further education.

CONCLUSIONS

Two main conclusions can be drawn regarding barriers to further education of adults in the Czech Republic. Firstly, they are dominated by situational obstacles in the form of insufficient funds and excessive workloads. These obstacles were identified as the main reasons for the non-participation of adults also in previous surveys both in the Czech Republic and abroad (see, e.g., Rabušic, Rabušicová & Šeďová, 2008; Rubenson, 2010, 2011;

Rubenson & Desjardins 2009). On this basis, there has not been any major change in the perception of barriers in the Czech Republic since 2005, when they were last studied. The perception of the main barriers remains the same, despite the development of a relatively intensive regulatory state policy (Jessop 1995) in the field of adult education (Kalenda, 2015b), which resulted in a new "political economy of skill formation" (Vanhuysse, 2008) or individual "mode of skill production" (Iversen, 2005). Barriers to the education of adults in the Czech Republic are thus relatively stable, which is comparable with Western European countries.

Secondly, barriers to further education are strongly conditioned by sociodemographic attributes. The present study demonstrates for the first time how gender, age, socioeconomic activity and attained education influence the perception of barriers in the Czech Republic. In this regard, the perception of individual obstacles is determined not only by gender inequalities and the social status of individuals, but also by educational inequalities stemming from their previous formal education. In the international context, these findings are not something extraordinary that would differentiate the Czech Republic from the rest of Europe, because foreign research shows the existence of similar inequalities in Western European countries (Mcleod & Lambe, 2007; White, 2012; Kilpi-Jakonen et al., 2015). The uniqueness of the Czech Republic in comparison with Western European countriescan be found in the high level of influence of the socioeconomic status of the family on the level of attained formal education (Matějů & Anýžová, 2015), which in turn affects even the perceived barriers of further education and the chance to participate in it.

To better understand these two crucial phenomena, future research should deal with the following: (1) a deeper analysis of the relationship between socioeconomic status and educational barriers, both through the realistic epistemic mode and the interpretative mode (Reed, 2011), because this study has identified some social groups (the unemployed, people with a primary education, middle-aged women, and people over age 55), which have a statistically significantly-higher incidence of some types of barriers that need to be interpretatively understood through qualitative methodological approaches; (2) a detailed analysis of the state regulatory policy practices in the area of adult education and their interpretation by those involved. Their importance lies in the fact that they create a social and cultural environment in which the education of adults takes place, and which affects the perception of barriers. By combining these two research strategies, the key factors that affect obstacles of further education and participation in it can be clarified.

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Education Channels In Video Sharing Websites: Case Of Youtube Turkey

Serap ÖZTÜRK
Open Education Faculty, Anadolu University
Eskişehir/TURKEY
srozturk@anadolu.edu.tr

ABSTRACT

Using videos that provide rich facilities to learners as learning material is very common. Audio and visual facilities provide an effective learning medium. Videos can be watched by a high number of people through various tools (IPTV, computers and mobile devices) from video sharing sites through the opportunities offered by information technologies.

YouTube is the most common video sharing site. Educators who use video a tool for learning are known to benefit from YouTube as a pedagogical source as well

This study aims to analyze the characteristics of education channels and videos in these channels in YouTubeTR.

INTRODUCTION

Evaluating learning in the framework of personal opportunities and preferences, learning mediums that are offered to learners become significant. Videos are effective learning tools in the age of digital learning. Audio-visual learning material have been used successfully for a long time in face to face, distance and online learning mediums. Videos are delivered to learners either as TV broadcasts, or as videotapes, CDs or DVDs by duplicating these broadcasts. This process continued with interactive CDs and DVDs.

Videos that were initially one-way learning materials have turned into stronger materials with the facilities provided by the Internet. The Internet took the place of broadcasting and distribution. Both were used as distance learning support materials successfully either by Open University or Anadolu University for years.

Videos are used at, Massive Open Online Course (MOOC), which is in the system since 2000. This method was firstly used by Massachusetts Institute of Technology (MIT), as a learning medium for the students who wanted to take lessons. Videos, problems, questionnaires and visual aids are used at MOOC lessons. Moreover, communication between lecturers and students is provided as well. Videos served in this medium are usually the recordings of face to face classes.

Facilities provided by technology have eased, cheapened and popularized video recording, editing, watching, sharing, and duplicating videos. It is possible to categorize the videos into two groups such as traditional videos and interactive videos considering their developmental procedures. Traditional videos are the ones designed for TV broadcasting. Films that are used in the class as a part of education technology can be considered in this category as well. As for interactive videos, they have made difference in terms of benefitting from videos. These videos have made difference in terms of broadcasting place and individual watches. Some interaction areas have been created for the audience and some PDF, PPT or DOC files have been attached to these videos if needed. These characteristics of videos have affected learning process positively.

The main reasons for videos' being watched this much can be listed as:

- They have an effective narrative language due to various video production facilities such as graphics, animations and music.
- Some complex subjects can be presented in a simple way.
- They can concretize some abstract subjects.
- The audience can react the subject more rapidly.
- Seeing and hearing provides an effective learning medium.
- They can provide opportunity for creating personal learning environments.
- Videos can be rewatched and in episodes.

Videos can be watched online through the facilities provided by video sharing websites and media companies (from IPTV, computers and mobile devices) everywhere and every time. Especially, the facilities provided by video sharing sites have had an important impact in the increase of the ratings.

Vimeo, Dailymotion, Netflix, Yahoo Screen and YouTube are among the most famous video sharing sites. The one with the highest ratings among these sites is YouTube according to eBizMBA. The results of a study aimed to find out what for YouTube was watched revealed that it was used as a tool for entertainment, joining to discussion groups, search for information on something and finding friends (Özel:2015).

Discussion groups and searching for information are important for learning. Searching for information is a sign of motivation and being volunteer for learning, whereas discussion groups provide a learning environment that enables sharing the information. Moreover, YouTube is known to be a pedagogical source for teaching up-to-date knowledge presented all around the world to the students (Duffy, 2009:120).
In addition to processing raw information and making it attractive with some examples, the rapid increase in the production and sharing of videos makes it an important medium for learning. Videos that were shared through education channels in YouTubeTR were examined within the light of professional experiences of the researcher and literature in the field in this study.

AIM

The aim of the study was to analyze education channels and existing education/learning videos in terms of source, duration, use of visual materials, sub titles and second language support deriving from basic characteristics of learning videos.

METHOD

Videos can be collected, recorded and analyzed just as printed materials (Yıldırım and Şimşek, 2000, p.141). Education channels in YouTubeTR video sharing site were scanned, and samples were chosen from this population for the study. Selected videos were analyzed through content analysis method.

SCOPE AND SAMPLE

The education channels in YouTubeTR video sharing site were reached by some key words. These keywords were “education videos”, “education channels” and “online education channels”. Moreover, these contexts were scanned by filtering the word “channel”. Reaching the highest number of education channels was through “online education channel” by filtering. In this framework, the scope of the study was identified to be limited with the first one hundred sites which were reached through abovementioned scanning. After the identification of the web pages, they were all recorded in case they would be altered. Web pages of all the channels in the list were analyzed. Whether the channel was up-to-date or not, number of its subscribers, rating records, education subjects, source that was shared, source country, and the number of videos in the channel were all reached as a result of these analyses. A general video watching was commuted at this phase. The channels domain of which were not education were excluded although they were in the list. (For example, news, game and entertainment channels; automated education channels created by Google or YouTube, and propaganda channels of Hillary Clinton and Pope). After this segregation, a new alignment was made in accordance with the number of videos. One more alignment was made among the channels that had more than 100 videos, and the sample of the study consisted of 28 education channels as a result of all these procedures.

One more overall watching was proceeded as well. Having been informed on the types of videos in each channel, at least three videos from each channel were decided to be watched considering the variety of videos in each channel.

VIDEO SHARING SITES

Video facilitate both individuals and institutions with watching sharing and creating videos. In this situation The Internet users (individual or institution) can be both producers and consumers. Videos’ being watchable, downloadable, and sharable is main characteristics of sharing web sites. Videos can either be produced and shared by individual users or they can be produced by professional institutions and shared by others.

Videos can easily be reached from sharing sites, and they can easily be shared. Video sharing sites make it possible to share videos for educative aims as well as various subjects including music, sports, documentary and movies. Some sharing sites (such as YouTube and Dailymotion) have channels specifically designed for education.

Videos broadcasted through YouTube have been viewed by more than one billion people every month, and 300 videos have been uploaded in every one minute (Hürriyet:2015).

Videos are shown in the categories of Trend videos, The bests of YouTube, Music, Sports, Games, Live and News in the main page of Youtube. In order to reach the searched videos, searches can either be made under these titles or by using filtering methods for each category.

Facilities provided by YouTube to its viewers: It recommends some other videos on the same subject on the right of the page while watching a video. Suggestion and sharing of a video is provided through like button. There is a comment section below the video that is watched which serves as a platform of meeting and discussing between the ones who share the video and the ones who watch it. There are discussions related to the video itself and the subject in the video here. From this framework it can be said that it is possible to create a suitable basis for an “interactive learning medium”. Thanks to comment opportunity, there is a medium for communication between the uploader and viewers of a video. There is an automated translation and subtitle facility as well. Existence of local language for learners is an important opportunity. There is an optional subtitle facility as well. Learners can easily choose subtitle of the spoken language in the video or they can choose another language among many from options button on the video. Youtube automatically translates spoken language into English and shows its subtitles as well. Facilitating multiple languages contributes to the information share. This is one of the aims of this medium. MIT and Khan Academy are known to conduct joint studies with local countries. Videos that are broadcasted in this medium are translated into local languages and are put into service of viewers as subtitles or scripts.
Facilities provided by YouTube for the ones who upload videos: There is an opportunity of simple editing. 2 or 3D videos can be uploaded, cut or combined, and music can be added. In accordance with the number of subscribers, likes and views, videos can take advertisements, and by this way, the uploader can earn money from videos.

VIDEOS AS LEARNING MATERIALS

Videos that appear in education/learning platform are expected to be prepared according to some rules. There are some preparations that should be completed beforehand for enhancing learning. Of course these videos are not artistic products. However, they require a designing process. Education/learning videos require instructional design for effective learning rather than artistic designs. Design process starts with identification of the subject and target audience. The decision of which visual materials can provide effective learning is the first step of the study. The decision of whether to use an expert or not, server usage, graphical materials, presentation types, and the type of video including its duration and production type are decided in this process. Having identified target audience is necessary for these studies to be effective.

Learning videos are the ones that aim to make cognitive or behavioral changes on people who watch them. These are the videos which are

- Directly instructive,
- Informative,
- Stimulating (Güçhan,1988, p.11) **.**

The topic is told step by step in directly instructive videos. For example, step by step narration of how to turn a blue eye into a brown one through Photoshop which is an image processing program is possible with a directly instructive video. From the same example, the videos in which the changes that appear after turning blue eye into brown, in other words, the changes that appear after using the program are explained are the stimulating videos. Thinking on the same program, if it provides a general enlightenment on the person who watches it when it is supported with dramatic and documentary components, then it is called to be an informative video.

There are various production options in order the videos to be effective regarding displaying types. These are;
Videos that are attained from shoots: They are the videos that include talking head shoots, classroom lecture shoots, seminar shoots, reportage and chat shoots, live videos, and shoots taken from e-seminars.
Computer/Tablet Applications: These are animations, pictures in pictures, videos that give the impression of writing with chalk accompanied with narration (Khan Style), videos that are created through white board, videos that are created from screencasts, dubbed PowerPoint slides, and videos that are created from shoots taken from webcam.
Mixed Applications: Videos that are created by using green screen in addition to abovementioned applications are in this group **(**Hansch et.al., 2015).

As for the production, directly instructive videos are the easiest ones to produce. The narrator expert has the most significant role here. If he or she is crackerjack in his field and a good narrator, the result will be successful. Production process of informative and stimulating videos last longer. Various production types can be used as well in the production of these videos.

Duration in Videos: Identification of the duration is important in learning videos considering the planning of the video in terms of creating a compact narration with required repetitions. The videos in sharing websites are known not to have a lower or upper limit of duration. As these videos are watched by viewers on a voluntary-based, they can arrange the duration of their watching. These videos can be paused, fast forwarded and rewound, or they can be downloaded and watched offline. This is certainly an important convenience provided by technology. However, the optimum duration of a video in order not to distract viewer has been identified as 17 minutes. Videos that last for 17-18 minutes with speeches of interesting people are recommended, and best examples for these videos are created in TedTalks. Drinking a cup of tea or coffee while listening to such a speech can be entertaining and even relaxing. However, this duration is considered hesitative as the attention is stated to be distracted after first ten minutes. Education videos are suggested to last six minutes (Guo, P. 2013). Various production types are recommended for short videos (Gaughan, 2014). The length of the duration provides a limitation that would bring a discipline to both narrator and viewers since it would enable a complete display of the subject in a limited time. A study conducted to find out the length of the time the users spent in the webpage of Turkey Sciences Academy which offers open course materials revealed that more than half or the visitors spent less than 10 seconds in the site (Al and Madran, 2013). This reality is recommended to be taken into consideration while identifying the duration of the videos.

Use of Graphic Materials: Using two or three dimensional animation-graphics in videos helps visualizing the unseeable subjects and makes them comprehensible. Using graphics makes narration easier and concretizes abstract ideas. Being able to relay information through graphics is an advantage in terms of instruction (York, 1987). Moreover, effective learning is provided by using cartoon animations with their entertaining functions. There are animation videos in YouTubeTR. These videos usually target children. Utilization of graphic materials depend on preferences of the producers of the video as well.

FINDINGS

YOUTUBETR EDUCATION CHANNELS

6 of the 28 channels in the sample were Turkish. Only one of the foreign channels (Khan Academy) had Turkish language support. There wasn't enough written or video information or explanation about the foreign education channels in their webpages

It was understood from the analyzed education channels that video uploads were up-to-date, and videos uploaded were kept vivid rather than uploading and forgetting. Although basic science disciplines do not require content updates, they might be made attractive with products including various narrations of different experts. Particularly, appearance of various applications almost every day makes video sharers remain up-to-date inevitably. The important thing at this point is video sharers' being eager to this.

Considering that YouTube provided same facilities for all channels (such as page layout, video display list/table, automated translation and so on), the channels were observed not to benefit from these facilities in the same way.

Table1: Video, subscriber and view numbers of education channels

NAME OF CHANNEL	NUMBER OF VIDEOS	NUMBER OF SUBSCRIBERS	NUMBER OF VIEWS
UC BERKELEY	9911	279.659	40.332.311
KHAN ACADEMY	5776	2.636.789	843.359.661
POKERSTARS	5522	216.297	75.626.582
THE NEWBOSTON	4.333	1245955	273.353.465
MIT OPENCOURSEWARE	3715	931.469	86.480.194
HARVARD	2436	308.683	43.348.681
YALECOURSES	1.452	22.967	44.863.077
TED-ED	1193	2.783.822	329.707.463
FREEKİCKERZ	979	4.303.818	1.056.906.062
CHEMİCAL GUYS	867	166.071	31.299.870
BBCLEARNİNGENGLİSH	842	373.801	32.190.859
MAPHOTOSHOP	740	1.622	164.831
DUBSPOT	667	267.807	34.274.907
THE VİRTUAL LİNG. CAMPUS	509	26.583	2.695.700
TAİ LOPEZ	423	565.925	140.343.799
IM ANDREW MARTİN CHESS	405	7.785	1.590.362
BLOGİLATES	3 99	3.130.630	344.709.353
SÖZLER KÖŞKÜ	385	381.759	40.355.991
AFGAN RASULOV	360	116.685	7.477.072
F2 FRRESTYLERLERS	302	3.934.565	549.860.468
SKETCHUP	225	159.946	14.104.124
UZAKTAN EĞİTİM	216	1.752	320.564
10. SINIF	184	1.546	4.032
SOLFEJ 24 ONLİNE BAĞLAMA	157	12.662	4.471.745
DRUG EDUCATİON AGENCY	146	21.692	1.498.293
UNİVERSİTY OF OTAGO	131	YOK	1.343.828
CHUCHU TV NURSERY RHYMES	114	4.667.959	4.992.817.488
E-MOTİVASYON.NET	100	11.216	3.842.153

Numeric data presented in Table 1 show the number of videos in the channel, number of views of these videos and number of the subscribers of the channels. These data gave information about the rating and continuity of the channel.

Subscriber number of only one channel (University of Otago) couldn't be identified during the analysis. There wasn't any relationship between the number of videos and suscribers, and between the number of videos and views. A channel with few videos (such as Chuchu Tv Nursery Rhymes) had a high number of subscribers and views whereas the channel with the highest number of videos had lower view numbers. The fact that Chuchu Tv Nursery Rhymes had a high number of subscribers and views can be explained with its being an animation channel that tried to inform children and had them develop behaviors, and with its videos' being watched by a high number of people many times.
Existence of channels (such as UC Berkeley, Khan Academy, University Of Otago, MIT OPENCOURSEWARE, BBCLEARNİNGENGLİSH and YALECOURSES) that have their own self-learning webpages in YouTubeTR implies the usage of this area in terms of visibility.

Source countries of education channels and who the videos in these channels were shared by are shown in Table 2 and Table 3.

Table 2: Source countries of education channels

SOURCE COUNTRIES	NUMBERS	%
UNIDENTIFIED	8	29
USA	7	25
TURKEY	6	21
OTHERS	4	14
GERMANY	3	11
TOTAL	**28**	**100**

* Others; Mana Island, India, New Zealand and England.

Source countries of education channels in YoutubeTR are shown in Table 2. It has been known that identifying USA as source country is important and it makes it convenient in terms of economic yields, Although this information exists in related webpages, it was seen that some countries apart from USA were shown as source countries. Another important issue at this point was some pages whose source country was not identified were encountered. One of these pages was BBC English learning channel and the other was MIT. This might be explained with high amount of self-confidence and with the consideration of utmost importance of their webpages.

The Internet is a medium in which globalization finds itself the most comfortably; in which there are no borders nor nations. Almost one third of source countries were not indicated. Were there enough explanations in the web pages of channels, maybe absence of source country would provide channels to be perceived more transparent, unprejudiced and democratic. However, this comment remains utopic since the explanations in the pages were trifling.

Table 3: Sources of Education Channels

SOURCES	NUMBERS	%
PEOPLE	15	54
UNIVERSITIES/ENDOWMENTS	11	39
PRIVATE INSTITUTIONS	2	7
TOTAL	**28**	**100**

It can be seen in Table 3 that majority (54%) of the analyzed channels were created by private people. As institutions, associations or universities can already find various mediums in the Internet, these facilities people which have are important regarding learning environments. This opportunity provided by YouTube is valuable for the ones who create or share educative videos. Aims of the analyzed education channels were also examined considering their contents. Findings related to this are shown in Table 4.

Table 4: Content topics of education channels

CONTENT	NUMBERS	%
LESSON AND COURSES	8	29
SOFTWARE/PROGRAM	4	14
FOOTBALL	2	7
ENGLISH	2	7
MUSIC	2	7
PERSONAL DEVELOPMENT	2	7
OTHERS*	8	29
TOTAL	**28**	**100**

* Others included personal development, car care, general world knowledge, religious talks, drug education, poker, Sports-health, chess and child education.

Deriving from these findings it can be said that contents of education channels were shaped in accordance with the demands of viewers. YouTube education channel included a high amount of videos that can be called “lesson and course” in the process of learning. As it can be seen in Table 4, 29% of the videos were related to lessons that were organized in the framework of a curriculum (such as preparation for exams, lessons for undergraduate and graduate students and some certificate programs). One of the reason for the high rate of computer software or programs in the second rank can be high demand of people due to constant update or innovation of computer programs, and easiness of producing such videos.

Video types of education channels are shown in Table 5.

Table 5: Video types in education channels

VIDEO TYPES	**NUMBERS**	**%**
DIRECTLY INSTRUCTIVE	14	50
STIMULATING	12	43
INFORMATIVE	2	7
TOTAL	**28**	**100**

As it can be seen in Table 5, the rates of directly instructive and stimulating videos were close to each other. Narrator or the expert person had the most important role in directly instructive videos. If the expert person is a good narrator and have a grasp of his area, the result will be successful. The best examples for this types can be the lectures of universities and private teaching courses. A video of teaching how to use a computer program which is used in architecture or videos that recommend sports for a healthy life can be examples for stimulating video types. Production of directly instructive videos is easier compare to other video types. This might be the reason for them to be at a rate of 50%.

Production types of videos in education channels is shown in Table 6.

Table 6: Production types of videos

VIDEO TYPES	**NUMBERS**	**%**
MIXED	22	79
SCREENCAST	2	7
OUTDOOR SHOOTING	1	3.5
GREEN SCREEN	1	3.5
IN CLASS SHOOTING	1	3.5
ANIMATION	1	3.5
TOTAL	**28**	**100**

As it can be seen in Table 6, all types are used in 79% of videos considering their production types. For example, the videos in the education channel of Khan Academy included dubbing accompanied with pictures, reportages and tablet applications either separately or combined with other types. As for the applications of the universities, they included either recordings of the lessons or video shootings that were called “talking heads”. It is easy to produce such type of videos. The expert of the field tells the subject or performs an application related to the subject. This can be shot by a camera, then it can be corrected by a simple editing program, and finally it can be shared. It can be seen in Table 6 that there were 4 channels sharing videos created with only one production type.

Comment mediums and like icons used in video sharing sites are crucial in terms of providing a communication environment related to that video. Like icon shares just ideas related to liking or disliking a video. As for comments, they might provide an effective learning environment through exchange of ideas, asking questions and discussions.

Table 7: Comment mediums in education channels

COMMENT	**NUMBERS**	**%**
OPEN TO COMMENTS	25	89
CLOSE TO COMMENTS	3	11
TOTAL	**28**	**100**

As it can be seen in Table 7, 89% of channels were open to comments. Yale courses channel and the channels that were teaching personal development and how to play “bağlama” (traditional Turkish folk music instrument) did not let comments. There wasn’t any relationship among the channels that did not let comments. Getting feedback for the videos that are shared is important both in terms of communication and learning. It contributes to learning. Missing points related to the video, mistakes or discussions related to satisfaction might create an environment for learning.

Table 8: Second language support of videos in education channels

SECOND LANGUAGE SUPPORT IN VIDEOS	**NUMBERS**	**%**
NO	26	92
SECOND LANGUAGE	1	4
MORE THAN TWO LANGUAGES	1	4
TOTAL	**28**	**100**

The findings of whether a second language was used in the videos are shown in Table 8. Almost none of them (92%) included another language option. Videos are presented with the language of source country. Language support is significant in order language not to hinder learning. At least automated translation facility of YouTube is suggested to be benefitted while sharing videos.

USE OF SUPPORT MATERIALS FOR LEARNING IN VIDEOS

The facilities videos had in addition to the facilities provided by sharing websites were analyzed in this section of the study. The use of graphic materials, durations in videos, subtitle usage to support learning, whether there was information about experts or not were analyzed in this part. All of the experts were introduced in the videos. It was not possible to reach a conclusion regarding the duration of the videos. There wasn't any duration rule in the videos. Their durations lasted from 30 seconds to five hours.

Clicking on "i" (more information) button located at top right corner of the videos, viewers are directed to other videos with the same topic in their own systems. Namely, clicking "i" at the top right corner, videos with same topic in the channel can be watched. Examining the channels, some videos were found to have this characteristic. However, the number of such videos were low, and the reason for this was thought to be the limited facilities of producing various videos focusing on the same subject.

Subtitles in graphic components facilitate learning. They are used either for translating spoken language in the video or highlighting important points. Findings related to use of subtitles in the analyzed videos are shown in Table 9.

Table 9: Use of subtitles in the videos in education channels

USING SUBTITLES IN VIDEOS	**NUMBERS**	**%**
NO	22	79
SUBTITLE IN SAME LANGUAGE	4	14
SUBTITLE IN A DIFFERENT LANGUAGE	2	7
TOTAL	**28**	**100**

Presentations are supported with either the same language or another in the videos. What's important is their being supported in a different language. By this way, people who speak another language might benefit from such a video. As it can be seen in Table 9, the rate of videos supporting this was just 7%.

Table 10: Use of graphics in videos

USE OF GRAPHICS	**NUMBERS**	**%**
NO	24	86
YES	4	14
TOTAL	**28**	**100**

Findings related to the amount of use of graphic materials in videos are shown in Table10. As it can be seen in the table, visual aids that support narration particularly including graphic materials were not used in most of the videos (86%). Since the system was based on drawings and scripts in videos in which digital screens were used (such as Khan Academy, screencast, and whiteboard), no more graphic design was needed. However, "Chu Chu TV Nursery Rhymes", "Sözler Köşkü", "Sketchup" and "Online Bağlama" channels were found to have supportive/descriptive low side bands and simple drawings that would enhance comprehension of the topic.

CONCLUSION

Videos are significant learning materials. Proper use of such a material is thought to meet learning needs of many people. For this reason, considering the videos as learning channels, video production and share of people only who know the subject, who are curious and keen on it, and who have facilities to create such videos will not

be enough. Learning is a process, and this process should be designed correctly. Technological innovations will surely affect the production type based on the subject. However, generating content and presentation type depends on knowledge and talents of the ones who produce the video. Thus, particularly the institutions are recommended to take support from the experts in the field which would help them reach their learning goals.
In addition to the examination of approaches to the topics, pragmatism and evaluation of success, researches conducted by using this medium are recommended regarding the videos in sharing websites.

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Education Of Alzheimer's Patient's Family

Zuzana BACHRATA
Faculty of Nursing and Professional Health Studies, Slovak Medical University in Bratislava, Slovak Republic
zuzana.balajova@gmail.com

Jarmila KRISTOVA
Faculty of Nursing and Professional Health Studies, Slovak Medical University in Bratislava, Slovak Republic
jarmila.kristova@szu.sk

ABSTRACT

Dementia is a mental illness characterized by impaired memory and cognitive abilities due to degenerative changes in the brain tissue. The disease occurs predominantly in the elderly, and most affects cognitive function, behavior, emotions, and the whole human personality. Incidence of these diseases is increasing with prolongation age throughout the world. The most well-known and also the most serious form of dementia is Alzheimer's disease which World Health Organization ranks among the ten major deadly diseases. Current health care trends for this patient group is not only support and maintain the quality of their lives for as long as possible, but to allow them (if possible) stay in home care. So that the family could effectively help his relative, must have sufficient knowledge and internal commitment to create and maintain such homeostasis of family environment, which will lead to the longest possible self-support in daily activities. If family makes a decision to take care for their relative with Alzheimer's disease in home environment, then rigorous education is needed. An important participant in its implementation is nursing. Content of this conference paper is oriented for justness of present issue, brief characterization of Alzheimer's disease, family importance in care for a relative with Alzheimer's disease and the education of the family that decides to take care for their relative with this disease. Education plan content is focused on Alzheimer's disease and its main symptoms in every stage, changed everyday activities of patient with Alzheimer's disease, activation elements for supporting cognitive processes, wandering prevention, home environment adjustment and elements of psychological approach and communication.

Keywords: Alzheimer's disease, Education of family, Nursing

INTRODUCTION

Demographic indicators of a contemporary society point to the fact that human lifespan is constantly extending. Taking care of sick and helpless elderly people is considered to be a well-appreciated social activity. The current tendency of elderly care is to preserve the quality of people's life in their homes for as long time as possible.

Alzheimer's disease

According to Alzheimer's Disease International, there are more than 36 million people with dementia. This number doubles every 20 years. Thus, we can expect its increase to 66 million in 2030, and up to 115 million in 2050. Alzheimer's disease is the most prevalent form of dementia in the old age – it comprises up to 75% of this dementia type (Janosik – Davies, 1996). It has a progressive character and in many cases, it is the final stage of life. Clinical symptoms appear inconspicuously and have a chronic and progressive character. Their variability depends on the development stage of disease. The first stage (known as the forgetful stage) is characterized by symptoms such as attention-deficit, memory disorder and disorientation. To the early symptoms also belongs the failure of intellect which results to the loss of real judgement, helplessness and failure to do simple daily tasks. In the second stage (known as the stage of disorientation), other symptoms arise – e. g. intense forgetfulness, depressive states and paranoid symptoms (touchiness, delusions, suspiciousness, etc.). Among the other significant changes are sleep disorders (the patient doesn't sleep at night and wander around the rooms) and peculiarities in behaviour and actions – inhibition or agitation, slow speech, incomplete answers, stress, anxiety, restlessness, loss of initiative, inability to enjoy the activities that were favourite earlier, indecision, apathy, boredom, disinterest, mutism, inefficient repetition of work, use of vulgarisms, rejecting help, hiding things, obsessive compulsive disorder, etc. The last stage (known as the stage of dementia) is characterized by the developed memory loss, severe speech disorder, loss of feelings, overall physical discomfort, urinary incontinence, bowel movements, difficulty in walking and swallowing. The risk of complications increases (malnutrition, dehydration, injuries from falls, infectious diseases, sores). In the final stage, the patient is dependent on a 24-hour daycare (Slezáková, 2014; Prince et. al, 2011; Jirák 2008, Alzheimer's Europe, 2015).

Family taking care of a relative with Alzheimer's disease and educational activity

WHO in the World report on ageing and health (2015) warns about serious personal and economic impacts of dementia. The global cost of care for patients with dementia was estimated at 604 billion US $ in 2010 which represents 1.0% of the global gross domestic product. In 2030, the cost of care for this type of patients is estimated at 1.2 trillion US $ or more which would negatively influence the social and economical development all around the world. One of the possible solutions is to support the care for patients with Alzheimer's disease in their homes. According to the Global Alzheimer's Disease Charter (2008), one of the principles that can solve the problem with care for patients with Alzheimer's disease on a global scale, is to admit the crucial role of families and caregivers. However, it is necessary to provide a general support – such as financial subsidy, stress relieving techniques and psychological help. WHO (2012) in its document called "Dementia: a public health priority" highlights the support of information and education campaigns (raising the awareness and reducing the stigma of dementia) which represent a significant challenge for health professionals. In education as a controlled and documented activity, nursing plays an irreplaceable role. Another necessary thing is the education of family which should be focused on handling the care for patient with this disease. Education is heading towards acquiring new knowledge, changing opinions and beliefs (Farkašová, Závodná, 2009).

EDUCATION OF A FAMILY WHICH TAKES CARE OF A RELATIVE WITH ALZHEIMER'S DISEASE

The aim of nurse's educational plan is to teach the family to take care of its relative with Alzheimer's disease in home. Thanks to the effective education of the family, it is possible to achieve its integration into the comprehensive treatment process, adaptation to altered health status and to minimize stress. (Repková, 2014) Education can be effective when the educational plan is well-prepared and contains following parts:

a) conditions – implementation of education:

- institutionalized or home environment – as requested by the family,
- duration and number of educational units (meetings) – as requested by the family,
- selection of methods – monological (explanation), dialogical (conversation), the printed word (bulletin, leaflet, reference books),
- form – individual or dyadic – as requested by the family,
- principles of education – purposefulness, order, individual approach, vigour, combined theory and practice,
- stages of education – motivational, cognitive, performance-related, examining,
- adaptation of communication in relation to learners' intellect.

b) educational diagnoses (EDg):

- EDg1 – deficit of knowledge about Alzheimer's disease and its basic symptoms,
- EDg2 – deficit of knowledge about adaptation of the home environment,
- EDg3 – deficit of knowledge about patient's cognitive stimulation,
- EDg4 – deficit of knowledge about the care for patient (daily activities),
- EDg5 – deficit of knowledge about the attitude and communication with patient.
-

c) educational goals for a nurse:

- EG1 – educate about Alzheimer's disease and its basic symptoms in particular stages,
- EG2 – educate about the adaptation of home environment,

- EG3 – educate about patient's cognitive stimulation,
- EG4 – educate about the care for patient (daily activities),
- EG5 – educate about the appropriate attitude and communication with patient.

d) educational goals for a family:

- EG1 – to learn about the Alzheimer's disease and its basic symptoms in particular stages,
- EG2 – to know how to change the home environment,
- EG3 – to be familiar with the processes of patient's cognitive stimulation,
- EG4 – to learn about the care for patient (daily activities),
- EG5 – to know what attitude and communication with patient is appropriate.

e) educational units (EU):

- EU1 – Alzheimer's disease and its basic symptoms in particular stages,
- EU2 – adaptation of the home environment,
- EU3 – cognitive stimulation of patient,
- EU4 – care for patient (daily activities),
- EU5 – attitude and communication with patient.

f) teaching aids:

- educational material – basic information about Alzheimer's disease, map depicting the modification of home environment, identification bracelet, workbooks on the cognitive stimulation of the patient with Alzheimer's disease, principles of attitude and communication.

g) educational content according to individual educational units.

Educational content to educational unit (EU1) – Alzheimer's disease and its basic symptoms in particular stages:

- Alzheimer's disease is a degenerative disease which causes a gradual worsening of patient's overall health, stages of Alzheimer's disease:
  1. the forgetful stage – forgetting (damaged memory) names, years, places where things are stored, (taking notes), absent-mindedness, difficulty to concentrate, loss of initiative, anxiety, transient hallucinations may occur, patients are able to take care of themselves,
  2. the stage of disorientation – severe forgetfulness, temporal and spatial disorientation, presence is mistaken for the past, deterioration of speech, roaming and wandering start to occur, difficult orientation in a familiar area, loss of judgement and ability to understand, unstable gait, progressive inability to communicate, write and read, neglecting of hygiene standards, patients need help when taking care of themselves,
  3. the stage of dementia – advanced memory loss, severe speech disorder, patients don't recognize their relatives, things or environment, loss of feelings, they are not able to communicate, overall worsening of the physical health, difficulty in eating or walking, incontinence, patient is bedridden and requires a complex care for 24 hours a day.

Educational content to educational unit (EU2) – adaptation of the home environment:

Alzheimer's society UK (2016) published following recommendations of how to modify the home environment:

- to ensure adequate indoor lighting and night lightning of important areas (hall areas, toilet, bathroom),
- secure the staircase with a banister,
- remove or secure the unstable furniture, freely placed objects and doorsills,
- remove or secure carpets, movable matting and stretched cables,
- lock all detergents and disinfectants,
- remove sharp knives and items that can pose a danger to patient,
- install an insulation cover with a safety switch on the gas stove and gas heating (Alzheimer's society, 2016).

Besides the aforementioned recommendations, we can also add other ones to the educational content:

- place guards on sharp edges of the furniture,

- secure the staircase with a safety gate,
- secure small carpets (in the bathroom, toilet, next to the bed) with anti-skid pads,
- install handgrips in the bath and toilet,
- distinguish the toilet from the floor by colour,
- mark the most important rooms (the toilet, bathroom, patient's room) with a distinct capital letters or symbols,
- cover the wall sockets with a safety guards,
- mark out switches and the first and last stair with bold colours (e. g. with a coloured plastic foil),
- distinguish walls from the floor by colour,
- lock all valuable things in a safety place (Janosik – Davies, 1996, Alzheimer's Europe, 2015),
- install safety lock on the front door and windows,
- lock the front door, keep the keys out of reach,
- remove the keys from all doors,
- don't forget to switch off the electrical appliances,
- install removable switches or safeguards on the stove,
- store the knives and other sharp objects, matches, lighters and medications in a safe place,
- do not leave objects placed freely (such as keys, phone, etc.),
- minimize the changes in home environment (such as moving the furniture), store the objects of daily use always in the same place,
- do not turn on the TV or radio loud,
- cover the mirror when patient gets upset,
- give patient an identification bracelet or shoes with a built-in GPS.

Educational content to educational unit (EU3) – cognitive stimulation of patient:

- memory training focused on the concentration of attention (e. g. searching for given letters, the same couples or signs, details, simple crosswords and wordsearches, finishing a picture, assigning symbols, categorization, crossing out numbers),
- memory training focused on math exercises (fast simple counting, numeric sequence, solving simple math word problems) (Centrum Memory, 2016),
- memory training focused on verbal tasks (reading comprehension, repeating of short information from TV news, repeating of simple and short text, completing of sentence/text/story, learning a quote from a book),
- put personal and family photos or memorabilia in a visible place,
- summarize activities and events of the day every evening,
- use computer programs on a cognitive stimulation.

Educational content to educational unit (EU4) – patient's tasks (daily activities):

- hygienic care: regular showering, regular care about the skin, mucous membrane, hairs and nails (massages, skin lubrication, control the hydration of skin and mucous membranes),
- care about food intake: regular supply of energy-balanced diet (five times a day), food rich in easily digestible proteins (legumes, milk, dairy products, white meat, fish), do not serve hot meals, regulate patient's behaviour in case he/she rejects food or overeats, offer liquids regularly (control the fluid balance), provide patient with a straw or glass with a waterproof lid when drinking, ensure cultural environment when eating, use plastic dishes or plates with a wide bottom and put anti-slip mats under them, chop the food, patient can eat with hands if he/she is not able to eat with a cutlery, food should be mixed when patient has a swallowing disorder, serve the whole course at once, communicate only when helping with eating,
- care about bowel movement: its regularity, easily removable clothes (e. g. with a rubber fastening or Velcro), portable toilet as needed, regular guiding (every 2-3 hours) to the toilet, limit the fluid intake before sleep,
- care about clothing: choose clothes which can be easily taken on and off, prepare clothes on a particular day only, store parts of clothes according to the order of dressing, prefer shoes which can be easily put on (without laces) and have an anti-slid sole, motivate to improvement in case of neglected appearance,
- taking care of patient's activities, rest and sleep: patient should do the shopping, walk, visit relatives and friends, church and cafés, listen to music, watch videos of family events, look through family photo albums and memorabilia, watch old movies, take care of flowers and simple houseworks (e. g. wiping the dust, hand-washing small clothes, folding the laundry, sweeping, setting the table, polishing the furniture, folding the napkins), help in the garden (e. g. watering, planting the plants, removing weeds), do the handicraft (painting,

threading the beads), play simple parlour games, take care of a pet, take notes in a diary, do the rehabilitation and breathing exercises, have a regular sleep rhythm, avoid sleeping during day (to prevent sleepwalking),
- administration of medication: administer medication regularly according to doctor's prescription (medicine bottle), store medication in a safe place.

Support patient's self-reliance in all daily activities (do not do things instead of patients if they can do it themselves). Acquired operations can be forgotten easily and they are very hard or even impossible to learn again. It is also necessary to maintain learned stereotypes and temporal regularity in daily activities, rest and sleep.

Educational content to educational unit (EU5) – attitude and communication with patient:

- to be near patient,
- patience, tact, respect, empathy,
- assistance and help as sources of assurance,
- avoid shouting and anger,
- express joy resulting from collectively realized activities,
- when patient gets lost, accompany him/her calmly to the right place (Alzheimer's Europe, 2015),
- tactfully divert attention from illogical activities and propose another one,
- do not give patient tasks which he/she cannot get done,
- do not urge patient when doing simple activities and tasks,
- in case of hallucinations, do not let patient watch TV and hang down disturbing paintings,
- control fulfilment of simple tasks,
- support and use activities which has already been acquired by patient (do not teach him/her new things),
- do not comment on unusual or stereotypical activities,
- do not blame him/her for mistakes, wrongly performed tasks and clumsiness,
- speak slower, use simple and short sentences,
- repeat information when it was misunderstood the first time (Alzheimer's Europe, 2015),
- do not persuade or oppose,
- encourage, praise,
- direct questions to current events and not the past,
- use non-verbal elements of speech actively – touch, caress, embrace, smile.

CONCLUSION

Education ends with a final verification of knowledge and writing down the results of education into the nursing documentation. Alzheimer's disease cannot be cured, however, the effective education of a family which takes care of its relative can significantly help to improve his or hers quality of life, contribute to a more effective daytime organization of the family, help to manage conflicts without any negative intention and minimize stress.

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Education Rights Of Minorities In North Cyprus

Ali DAYIĞLU
Department of International Relations
Near East University, North Cyprus
ali.dayioglu@neu.edu.tr

ABSTRACT

This paper aims to discuss the policies of Turkish Cypriot administration towards the education rights of minorities since 1974 when Cyprus was divided into two following the Turkish military operation. In this context, after discussing the national and international obligations of the Turkish Cypriot administrations, implementations regarding the education rights of minorities will be examined. Then, measures for an effective education strategy for minorities in North Cyprus will be discussed by taking into consideration the new developments in the world.

Keywords: Right to education, minorities, North Cyprus.

INTRODUCTION: MINORITY GROUPS IN NORTH CYPRUS

Taking into consideration the standards in international law, mainly the Greek Cypriots, Maronites, Roma people, Alevis and Kurds comprise the minority groups in North Cyprus (Dayıoğlu, 2014). But, even if *de facto*, Turkish Cypriot authorities consider only the Greek Cypriots and the Maronites as minority. The Roma people, Alevis and Kurds are not considered as minority, neither officially nor *de facto*. This is a result of the *Millet System*, which formed the basis of the social structure of the Ottoman Empire. In the *Millet System,* only non-Muslims were accepted as minorities. Although the *Millet System*, which came into effect in 1454, was abolished with the Imperial *Edict of Gülhane* in 1839, the system remained in effect under the Republic of Turkey through the Lausanne Peace Treaty of 1923. As of August 2016, the practice of treating non-Muslims as minority is still prevalent not only in Turkey but also in North Cyprus though the Turkish Cypriot community, which, compared to Turkey, is much more secular. Due to the negative connotations of the concept of minority term in general, it should be said that these groups also do not see themselves as minorities, either. But, contrary to the attitude of the government officials and the views of these groups, based on international law, these groups are considered as minorities in this study.

Following these explanations, now it is time to look at the international documents regarding the education rights of the minorities that bind North Cyprus along with the domestic legislation. This will reveal the obligations of the Turkish Republic of Northern Cyprus (TRNC).

I) INTERNATIONAL DOCUMENTS REGARDING EDUCATION RIGHTS OF THE MINORITIES THAT BIND NORTH CYPRUS

Although TRNC is not recognised by any country other than Turkey as of August 2016, the following international documents are binding because they have been ratified by TRNC. Therefore, it is important to examine these documents in order to reveal the obligations of TRNC towards its minorities.

A) International Convention on the Elimination of All Forms of Racial Discrimination

International Convention on the Elimination of all Forms of Racial Discrimination came into force on 4 January 1969. With article 5(e/v) of the Convention, states parties undertake to prohibit and to eliminate racial discrimination in all its forms and to guarantee the right of everyone, without distinction as to race, colour, or national or ethnic origin, to equality before the law, in the enjoyment of the right to education and training.

This Convention is legally binding in North Cyprus as it was ratified by the TRNC Parliament on 19 July 2004 with the law no. 26/2004.

B) International Covenant on Civil and Political Rights

The International Covenant on Civil and Political Rights, which came into effect on 23 March 1976, is the most important step in the transition from prevention of discrimination to protection of minorities, during the period after World War II. Article 27 of the Covenant ensures this.

Article 27 is the first important step towards providing protection for all ethnic, religious and linguistic minorities in the signatory states that recognises the identity rights of the minorities in international law. This important article includes the following statement: “In those States in which ethnic, religious or linguistic minorities exist, persons belonging to such minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture, to profess and practice their own religion, or to use their own language”.

So, with the regulation of article 27, the signatory states agreed that along with the other members of the community, individuals belonging to minority groups have a right to speak their mother language, express their religion and enjoy their cultural values freely under any given situation. It is clear that this article comprises the education rights of all persons belonging to minority groups.

Article 27 brings two different responsibilities to the signatory states: 1) They will act in a passive manner in that they will not intervene in the rights of minorities in their use of their mother tongue, expression of their religion and in the enjoyment of their ethnic cultural values; 2) As a way of active and positive responsibility, they will take the necessary precautions to help in the fulfilment of these rights in order to provide the minorities with a realistic level of equality with the other members of the society (Thornberry, 1994, Capotorti, 1979).

Another important point that needs to be stated about article 27 is that not only the citizens but also the non citizens are under the protection of this article.

International Covenant on Civil and Political Rights legally binds North Cyprus as it was ratified by the TRNC Parliament on 19 July 2004 with law no. 26/2004.

C) Convention on the Rights of the Child

Another covenant regarding the education rights of minorities within the United Nations (UN) is the Convention on the Rights of the Child, which came into effect on 2 September 1990. The Convention, which sets out the rights of children under the age of 18, also includes provisions regarding education rights. According to article 28 of the Convention:

1. States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity, they shall, in particular:
(a) Make primary education compulsory and available free to all;
(b) Encourage the development of different forms of secondary education, including general and vocational education, make them available and accessible to every child, and take appropriate measures such as the introduction of free education and offering financial assistance in case of need;
(c) Make higher education accessible to all on the basis of capacity by every appropriate means…

Apart from article 28, articles 17, 29 and 30 are also important as these articles set out the regulations for the rights of minority children. While articles 17 and 29 state that the linguistic and cultural rights of children belonging to a minority must be respected, article 30 sets out the following important regulation: *“In those States in which ethnic, religious or linguistic minorities or persons of indigenous origin exist, a child belonging to such a minority or who is indigenous shall not be denied the right, in community with other members of his or her group, to enjoy his or her own culture, to profess and practise his or her own religion, or to use his or her own language.”* Consequently, article 30 repeats the rights granted by article 27 of the International Covenant on Civil and Political Rights in terms of rights of children belonging to minorities. Therefore, this article also comprises the education rights of children belonging to minority groups.

On 12 March 1996, the TRNC Parliament ratified the Convention on the Rights of Child, making it an integral part of its domestic law.

One very important issue that has to be pointed out is that the TRNC Parliament ratified all provisions of the conventions in question, which legally bind the TRNC. Consequently, the TRNC state is under the obligation to abide by all the obligations set out by the conventions. However, it has to be pointed out that as it is not internationally recognized, TRNC is not subject to the control systems brought about by the conventions.

Nevertheless, in accordance with the provision set out in clause 5 under article 90 of the TRNC Constitution, *"International treaties which have been duly put into operation shall have the force of law. Recourse cannot be had to the Supreme Court sitting as the Constitutional Court in respect of such treaties on the grounds of unconstitutionality"*, it is possible to apply to domestic judicial bodies in the case of the violation of the conventions.

D) European Convention on Human Rights

With the European Convention on Human Rights (ECHR) which came into force on 3 September 1953, the protection of human rights passed from domestic to international level and the individual has been entitled in international law. However, there is no regulation about minority rights in the Convention. Only article 14 of the Convention and article 1 of the Protocol No 12 to the ECHR include protection based on the prevention of discrimination and the establishment of equality. As a result, in terms of the prevention of discrimination and provision of equality, persons belonging to minorities gained the opportunity to benefit from the rights and freedoms set out in the ECHR, and gained the right to apply to the European Court of Human Rights (ECtHR) when signatory states violate the ECHR.

As it is accepted by the TRNC Supreme Court of Appeals that law number 39/62, which ensures transposition of ECHR and the Protocol No. 1 to the ECHR into the domestic law of the Republic of Cyprus (RoC), is also in effect in North Cyprus, the provisions of ECHR and Protocol No. 1 to the Convention are also valid in TRNC (Yargıtay/Ceza, 2001). Nevertheless, in its decisions regarding the Loizidou v. Turkey (No. 15318/89), Cyprus v. Turkey (No. 25781/94) and Djavit An v. Turkey (No. 20652/92) cases, because the ECtHR regards TRNC, which is not internationally recognized, as a "local administration subordinate to Turkey", it holds Turkey responsible for any violation of rights in North Cyprus. In all three cases, the ECtHR stated that Turkey exercises "effective control" in Northern Cyprus, and as a result, it is responsible for the violations of human rights. Another reason why Turkey is held responsible for the human rights violations in Northern Cyprus is that TRNC is not recognized, thus, it is disregarded by the ECtHR. Under these circumstances, as TRNC could not be held responsible for the violations in Northern Cyprus, this would lead to an area where the ECHR is not in effect. In order to prevent the emergence of such a vacuum, Turkey was held responsible for the violations.

II) Domestic Legislation in North Cyprus with Regard to Minorities

In North Cyprus, there are no effective statutes on the rights of the minorities and none of the minority groups have any legal status or recognition by law. This issue can be clearly seen in the TRNC Constitution of 1985. This document does not provide any directly applicable regulations with regard to the rights of the minorities. There are only regulations about human rights and prevention of discrimination. But after accepting the international conventions and integrating them into the Turkish Cypriot legal system, it has not only placed a passive duty upon the TRNC administration for not interfering with the activities of the minorities towards protecting their ethnic identities but it has also introduced a positive duty to provide every possible support towards the success of these activities.

Even though there were shortcomings in the legislations, the agreement about the Greek Cypriots residing in North Cyprus, which was signed during the third part of the communal negotiations in Vienna between Turkish Cypriot leader Rauf R. Denktaş and the Greek Cypriot leader Glafkos Clerides, between 31 July and 2 August 1975, plays an important role in relation to our topic. "The Third Vienna Agreement" which is still valid and therefore binding for the Turkish Cypriot authorities is as follows: 1) As of 2 August 1975, the Greek Cypriots will be free to decide whether they want to leave the north or not. Therefore, the Turkish Cypriot authorities cannot enforce them to migrate to the south of the island; 2) In relation to the article stated above, a portion of the Greek Cypriots residing in the south will be transferred to the north under the principle of family re-unification; 3) At the time the agreement is signed, the Greek Cypriots who reside in the north but who have an intention of settling in the south will not be prevented from doing so; 4) The Greek Cypriots residing in the north will have the freedom of movement within the northern parts of the island; 5) United Nations Peacekeeping Force in Cyprus (UNFICYP) will be able to freely travel to the Greek Cypriot towns and villages that are in the north; 6) All the support will be provided to Greek Cypriots to receive care from their own doctors, to carry out their education procedures and to fulfil their religious beliefs (The Third Vienna Agreement, 1975). As it is explained below, points 1, 2, 4 and 6 of the said agreement are related with the education rights of the Greek Cypriots' children.

II) Implementations Regarding Education Rights of the Minorities in North Cyprus

A) Greek Cypriots

The *de facto* minority status of the Greek Cypriots in the north started after Turkey's military intervention in 1974, which was made due to the Greek Juntas coup d' état on 15 July 1974. After the military operation of

Turkey, the *de facto* division of Cyprus took place and the control of 36.4% of the island passed over to the control of Turkey. In the process, Turkish Cypriots living in the south and the Greek Cypriots living in the north had to immigrate to opposite directions.

According to the official Greek Cypriot statistics, the Greek Cypriots who migrated from the north to the south were 142,000 (approximately 30 % of the Greek Cypriot community at that time). On the other hand, 20,000 Greek Cypriots continued to reside in North Cyprus especially in the Karpas region (Ministry of Foreign Affairs of the Republic of Cyprus, 2016). But as the Greek Cypriots were unwilling to cut off their ties with their communities and as the Turkish Cypriot and Turkish authorities were limiting the rights of these people to force them to migrate in order to fulfil their policy in creating a Turkish/Turkish Cypriot nation-state in the north, this number has slowly diminished over the years. In the summer of 1975 the Greek Cypriot population living in the north (especially in the Karpas region) decreased to 10,000 and 1.075 in November 1981 (U. N. Document S/14778 in Oberling, 1982). This number continued to decrease after 23 April 2003 when the Turkish Cypriot authorities lifted up the restriction to the movement between north and the south. For example, the number of Greek Cypriots residing in North Cyprus decreased to 423 in 2003 (United Nations Security Council, 2003) and further to 345 in 2015 (United Nations Security Council, 2015).

As for the education rights of the Greek Cypriots, due to the importance of the issue, as it was mentioned above, an arrangement was made about education in the Third Vienna Agreement and it was stated that all sorts of support would be given to the Greek Cypriots residing in the north including to carry out their education procedures to benefit from education facilities. Careful analysis of this arrangement reveals the following statements about the education rights of the Greek Cypriots: 1) Along with other topics, the granting of the right to education is a vital part for creating normal living conditions for the Greek Cypriots residing in the north; 2) As the type of this education was not stated in the Agreement and as it was stated in plural form, it can be seen that the underlying meaning was to include not only primary schools but also secondary and high schools; 3) In the Agreement, it was expressed that the unification of the families were of paramount importance and under this principle, any and all regulations which would have a negative or limiting effect on these rights (including right of education) would be prohibited.

In accordance with the Third Vienna Agreement, a primary school for Greek Cypriots was opened in the Karpas region. But there were no secondary or high schools for the Greek Cypriot students to continue their education. As the Greek Cypriots were deprived of secondary school facilities, either they couldn’t attend to school or they had to continue their education in South Cyprus. Beyond that, when they completed their education in the south, the girls over eighteen and the boys over sixteen were not allowed to return to the north (United Nations Security Council, 1995). The implementation was same for the Maronites. Although with the decision of the Council of Ministers of TRNC dated 10 June 1998, a partial improvement was achieved and the age limit for returning to the north were removed for female Greek Cypriots and Maronites, the same situation was not applicable for male Greeks (United Nations Security Council, 1998).

The most important advancement on this topic was realized in 1994 when the RoC sued Turkey in the ECtHR for its violations of human rights in Cyprus since 1974. The Court’s judgement was declared on 10 May 2001 and it was stated that along with many other human rights violations, Turkey was responsible for the violation of 7 different human rights articles of the ECHR in relation to the Greek Cypriots living in the Karpas region (European Court of Human Rights, 2001). One of these was article 2 of Protocol 1 to the ECHR which regulates the right to education. The Court held that although the Greek children received their primary education in a Greek Cypriot school in North Cyprus, the absence of secondary education in the Greek language was a violation of the ECHR (para. 277, 278 and 280).

After the Court drew attention to the living conditions of the Greek Cypriots in the north and stated that article 8, which regulates the right to respect for private and family life, home and correspondence, was also violated, it also noticed that this issue was closely related to the right to education. According to the Court, besides others, one of the main reasons for the violation of article 8 was the difficult choice the parents and schoolchildren were faced regarding secondary education (para. 300). The Court stated that as no appropriate secondary school facilities were available to them in the north, the Greek Cypriot students were forced to study in the south and therefore, they were separated from their families and the families who did not want to separate from their children had to abandon their homes to stay with their children in the south during their education and what is more, the families who went to the south were not allowed to return to their homes. The Court also observed that certain restrictions applied to the visits of those students to their parents in the north (para. 292).

The reactions of the international organisations and especially the judgement of the ECtHR forced the Turkish and Turkish Cypriot authorities to change their policies towards the Greek Cypriots. They took two major steps. First, the Turkish Cypriot side allowed the movement of persons between north and the south on 23 April 2003. Thus, the obstacles, which prevented the Greek students to return to the north were lifted. Second and more important, Rizokarpaso Greek Secondary School and the high school section was opened in September 2004 and September 2005, respectively. Therefore, the procedure which had been criticised by the international society for years which had violated not only the Third Vienna Agreement but also the ECHR and forced the Greek Cypriots to leave their lands in Karpas to migrate to the south had come to an end.

Another problematic issue on education was about school books. The arguments on this topic date back to the time before the opening of the Rizokarpaso Greek Secondary School. According to this issue, some of the books or some sections of the books which were taught at the Rizokarpaso Greek Primary Scholl were subjected to excess censorship due to the belief that they introduced hatred towards Turks and created disparage against Turkish Cypriots. Along with many criticisms from the international community, this excess censorship was interpreted by the decision of the ECtHR as a violation of freedom of expression under article 10 of the ECHR (para. 252 and 254).

After this decision, the issue was considered by the Committee of Ministers' Deputies and it was stated that this procedure had to be ended and the future inspections and limitations should be made under the criteria of the ECHR. As a result, TRNC Government took a series of decisions to end this procedure in 2005: 1) The Ministry of Foreign Affairs which will work in cooperation with the Ministry of Education, will inspect the books and decide on the inappropriate convenient content; 2) These contents will be delivered to Greek Cypriot authorities through the UN, and they will be advised to correct these issues; 3) Afterwards, the books will be brought to the north by the UN authorities and they will be distributed to the students. Although some problems occurred from time to time, this procedure has been in use starting with the 2005-2006 school year.

Apart from school books, problems have also risen regarding the teachers of the Greek Cypriot schools in Rizokarpaso. However, these problems have been mostly overcome over time. As the problems with teachers and the textbooks were dealt with, the Rizkarpaso Greek Secondary School had its first graduates in June 2006. 11 students graduated from the secondary part of the school while 4 students graduated from the high school part (Akançay, 2006). In the following years, the school continued to have graduates.

Finally, it is necessary to mention the number of teachers and students in the semester of 2015-2016. In nursery and primary school 19 students, in the secondary and high school 18 students are receiving education. While the number of teachers working in the nursery and primary school is 6, this figure is 20 in the secondary and high schools.

B) Maronites

Another important Christian minority group in North Cyprus are the Maronites. The Maronites have their origins from Lebanon. They were historically attached to the Catholic Church. They had migrated to Cyprus under four different migratory waves between the eighth and thirteenth centuries, which were mainly caused by religious issues. Their mother tongue is an Arabic dialect, which is known as the Cypriot Maronite Arabic. The Cypriot Maronite Arabic has been affected substantially by the Greek language and the young population mostly speaks Greek since they are living with the Greek Cypriot community. The Cypriot Maronite Arabic is not used as a written or religious language.

Although their population had increased to an important level during the Lusignan Kingdom rule (1192-1489) in Cyprus which had French and Catholic origin, this population decreased over time due to other migrations and assimilations within the Greek Orthodox Community. In 1960, when Cyprus gained its independence from Britain, the population of the Maronites was 2,752 (Kyle, 1997) and prior to 1974 it was 4,830 (Erdengiz, 2003). Approximately one third of them were living in the North. However just after 1974, the population of the Maronites in the north reduced to 530 (Erdengiz, 2003) and it continuously decreased ever since. In 2015, the population of Maronites in North Cyprus (most of whom are residing in Kormakitis village which is the biggest village of Maronites) was 116 in 2015 (United Nations Security Council, 2015).

Without doubt, the decrease in their population and the problems they faced have affected the education of the Maronites. After Turkey's military intervention on the island, most of the Maronite population migrated to the south. The remaining population mostly consisted of the elderly. As a result, the village of Kormakitis which is almost completely populated by Maronites came to be known as "the childless village of North Cyprus". While the authorities saw the restoration of the dilapidated school building of the village pointless due to the absence of school-age children, the villagers claimed that the families with children did not want to return to Kormakitis due to the lack of a school. The few students who remained in the past tried to continue their education with the support of a single teacher. For example, in the 1998-1999 school year, there was only one student, one teacher/headmaster and two nuns in the school of Kormakitis. Due to the absence of students, the school closed in 1999 (Frangeskou and Hadjilyra, n.d., İncirli, 1998).

Despite these negative developments, the decisions of the Council of Ministers of TRNC on 23 May 2005 which was related to the procedures for the establishment of primary, secondary and high schools for the Greek Cypriots and Maronites has strengthened the expectations of the establishment of Maronite schools. However, as of August 2016, these expectations were not fulfilled and, no schools have been established for Maronites.

C) Roma People

Even though they constitute an ethnic and linguistic minority group, these characteristics of the Roma people, who are of Indian origin, were not accepted by the Turkish Cypriot authorities. It is stated that the Roma first came to Cyprus at the beginning of the Middle Age, that the second migration wave came in 1571, when the Ottomans conquered the island, and that a small number of Roma arrived in the 19th century (Kenrick and Taylor, 1986). As the Muslim Roma were offered better economic and social conditions compared to their non-Muslim counterparts, just like most of the Roma in places conquered by the Ottomans, a significant proportion of the Roma in Cyprus became Muslims after the conquest. Furthermore, they began speaking Turkish besides their own language. Even though the Roma who became Muslims led a more comfortable life during the Ottoman Empire era when compared to other parts of Europe, they still remained among the lower classes, were disadvantaged and subjected to discrimination.

At the time of the independence of Cyprus in 1960, their population was reported to be 502 (Statistical Service of the Republic: Census of Population in Council of Europe, 2006) and according to their faith, they were accepted as members of either the Turkish Cypriot or Greek Cypriot community. However, one important point that must be mentioned is that even though they are accepted as a part of the Turkish community, among Turkish Cypriots, people of Roma origin are referred to as "Gypsy" "Ole" or *Gurbet*. Even though Roma people defend the Turkish Cypriot supra-identity against outsiders, most of the Muslim Roma define themselves as *Gurbet/Gurbeties*, roughly translated as "Foreigners", and speak their spoken language, called *Gurbetçe/Gurbetcha* besides Turkish.

After 1974, nearly all the Muslim Roma migrated with the Turkish Cypriots to the north. But, like in the rest of the world, they were deemed to be responsible for illegal activities in North Cyprus and as a result, they have been subjected to discrimination in many aspects of their life including education. Apart from the limitations on the education that was provided for them, there is no opportunity to learn their mother tongue and culture in schools. Whereas, in many European countries, members of Roma have the chance to learn their mother tongue and culture thanks to the efforts and funding of the EU. So, for the Roma people where their population is estimated between 1.000-1.500 in the whole island as of August 2016, there is a need for a new education system which will enable them to participate more in social life and enjoy their culture and language.

D) Alevis

Within the total population of North Cyprus which is 294.396 according to the census held in December 2011, the population of the Alevis is estimated to be around 10,000 (U. S. Department of State, 2011). The Alevis are believed to have started to arrive in Cyprus at the beginning of the Ottoman conquest of the island in 1570. A significant Alevi population settled in Cyprus also after 1974. As for their ethnicity, most of the Alevis are Turkish origin. The remainder are Arabs and Zaza people.

Just as in Turkey, Alevis are a religious minority in North Cyprus not only because of their unique religious belief but, more importantly, with the influence of Turkey, compared to the other faiths, the state has favored the Hanafi-Sunni faith after 1974.[1] This situation became much more apparent with the decisions taken and practices put into effect after the right wing National Unity Party (*Ulusal Birlik Partisi-UBP)* came to power following the April 2009 elections. The result of this policy has also been seen in the field of education.

One of the main problems of the Alevis in the field of education is the making of the "Religious Culture and Morality" courses compulsory as of the 2009-2010 school year. Religion courses had been compulsory at primary and secondary schools until 2005. After 2005, with the coming to power of the centre-left Republican Turkish Party (*Cumhuriyetçi Türk Partisi-CTP*), they were declared as elective courses at secondary schools in

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[1] However, due to its secular nature, the Turkish Cypriot community did not accept this understanding.

the TRNC, leaving the decision to the administration's discretion. Taking this decision into consideration, many schools started to exclude this course from their curriculum starting with the 2005-2006 school year. After UBP came to power in 2009, the course was made compulsory from fourth to eighth grade but this drew a reaction from the majority of the Turkish Cypriots and the Alevis. The most important reason for this reaction was the content of the religious culture and morality course, which was mostly devoted in accordance with the Hanafi-Sunni doctrine rather than offering general knowledge on religion and morality. This situation meant the violation of the freedom of religion and conscience and the right to education of the sections of society not belonging to Hanafi-Sunni faith, notably the Alevis. Therefore, in December 2015, Cyprus Pir Sultan Abdal Cultural Society announced that it had collected 1,500 signatures to have the course, which it regards as a tool to make non-Sunni people a member of Sunni faith by force, given as an elective (Kıbrıs, 2015). In fact, in the *Hasan and Eylem Zengin v. Turkey* case (No. 1448/04), which concluded on 9 October 2007, ECtHR decided that making the religious culture and morality course (which was mainly based on the teachings of the Sunni Islam doctrine) compulsory in Turkey was a violation of the freedom to religion and conscience. On 16 September 2014, a similar decision was given by the ECtHR in the *Mansur Yalçın and Others v. Turkey* case (No. 21163/11).

It should be also said that while various opportunities were provided for the Hanafi-Sunni understanding of Islam, the Alevis and other faiths were denied similar opportunities. For example, Qur'an courses, which have been granted permission since the summer of 2009, are run at state schools and all student needs, including transportation, are met from the state budget. Another example can be given from the Hala Sultan Divinity College which was opened in September 2012. While all needs of the students are met by a Turkish state-sponsored foundation, similar opportunities are not offered to students attending state schools.

E) Kurds

Another group that can be examined within the scope of minority rights are the Kurds. Apart from the Turkish population that settled on the island after 1974, people with Kurdish ethnicity have also migrated from Turkeyto Cyprus. Especially the economic difficulties and the repression imposed on them by the military junta which took over the administration on 12 September 1980 in Turkey accelerated this migration. The progressive strengthening of the PKK (Partiya Karkerên Kurdistan-Kurdistan Workers Party) terrorist organisation after the military coup, has increased the repression of the Kurds both in Turkey and Cyprus who promote their ethnic identity. This resulted in the violation of various rights of these people.

As for the education rights of the Kurds in Cyprus, according to the legislation, the Kurdish people have the right to demand education in their mother tongue. Although section 1 of article 18 of the National Education Law dated 23 May 1986 regulates that education should be in the Turkish language, there is no restrictive provision in the Constitution. Also, as mentioned above, the TRNC Parliament ratified the Convention on the Rights of the Child with all provisions and making it an integral part of its domestic law. As section 5 of article 90 of the TRNC Constitution states that "*International treaties which have been duly put into operation shall have the force of law*", it should admit that National Education Law had tacitly repealed by the Convention on the Rights of Child. Thus, if the Kurdish families demand Kurdish language courses, there is no restrictive legal arrangement in TRNC legislation.

CONCLUSION

The groups that can be considered as minorities in North Cyprus are facing various problems on education. Even though in the 2000s, some positive developments were made towards the improvement of the education rights of these people, the insufficiencies of the regulations and conservative attitudes of the administrators are preventing further improvements. For this reason, until reaching a final settlement in Cyprus, all the regulations regarding education need to be revised in the light of international documents on human and minority rights. Of course, this would not suffice. The important thing is to make sure that these laws are applied and they do not just remain on paper.

More importantly, a multiculturalist structure which respects "differences" in the community and ensures that different cultures can live together in peace has to be established. To this end, redesigning the curriculum at schools has to be prioritized. Moreover, ways must be sought to ensure that communities and individuals with a different culture come together more often so that they can understand and get to know each other better. At this point a lot depends on non-governmental organizations. It should be cognized that minority rights are not a threat to the unity of the state. By granting their rights, especially education rights to minorities, they will become voluntary citizens, not compulsory ones. Without doubt, these developments will strengthen the structure and unity of the society.

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Educational And Scientific Conferences: An Additional Activity For Undergraduate Students Of Pharmacy

Antonio J. BARBERO
School of Pharmacy
University of Castilla-La Mancha, Spain
Antonio.Barbero@uclm.es

Juan TOLOSA
School of Pharmacy
University of Castilla-La Mancha, Spain

Carlos ALONSO-MORENO
School of Pharmacy
University of Castilla-La Mancha, Spain

M. Mar ARROYO
School of Pharmacy
University of Castilla-La Mancha, Spain

ABSTRACT

The Faculty of Pharmacy of the University of Castilla-La Mancha (UCLM) holds from the academic year 2010-11 a set of seminars under the general title *Educational and Scientific Conferences* to let know to our under-graduate students the possibilities and professional development of their future career as graduates in Pharmacy.

A poll dealing with the satisfaction and expectations achieving among the partakers in the latest edition of these conferences has been carried out. Our analysis of the answers shows that the assessment of the activity is high in all the four considered issues: organization, topics, students' motivation to sign in and the utility and benefits that these conferences offer to our graduates. Furthermore, we take advantage of these conferences as a tool to update the profile of our graduates in successive years.

From these results, we consider worth keeping the same activity in successive academic years, always updating the content according to the demands of the students and the evolution of the Pharmacy graduates professional needs, taking into account the new law regulations.

INTRODUCTION

Among the activities that have been declared suitable to complement the curriculum of our Pharmacy students at the University of Castilla-La Mancha, allowing them to get extra credits, participation in short seminars is included (UCLM1). This is why our Faculty has been scheduling for the last six years a set of seminars under the general denomination *Educational and Scientific Conferences*. Those seminars have been carried out along every whole academic year, adding a final activity consisting of a one-day workshop that includes several extra seminars (UCLM2). Single seminars during the academic year as well as those celebrated within the workshop gather different contributions from both pharmaceutical professionals and members from our own academic staff or from other colleges, who are invited to give their lectures dealing with different issues of general interest for the Pharmacy Degree students.

Our aim in this brief communication is to present a short analysis of the students' opinion after the celebration of the 2015-16 edition of those conferences, based upon a poll consisting of 11 questions to assess the partakers satisfaction and what extent they have achieved their expectations.

THE STUDY

A suitable way to evaluate whether those conferences really offer positive elements of interest to our students is to pose questions about the following issues 1) general organization, 2) dealing with appropriate subjects, 3) motivation for signing in, and 4) perception about the subsequent utility and benefits when they become graduates. Taking this into account, we have prepared a set of questions categorized as shown below, which has been submitted for consideration to a sample of 35 students.

1. Organization

Q01. Previous advertising and ease registration.
Q02. Suitable duration of the whole activities (single conferences + Workshop).
Q03. Facilities and available resources.

2. Subject of conferences (see list below)

Q04. Issue utility.
Q05. Interest of topics.
    List of 2015-16 conferences
    Professional Pharmaceutical profile in Argentina
    Introduction to Research Work for undergraduate Students
    Distribution of medicines in Pharmacies
    Custom system of drug dosage

3. Students' motivation for signing in

Q06. Previous interest by this kind of activity.
Q07. Getting an extra credit.
Q08. Recommended by mates.
Q09. Recommended by professors.

4. Perception about the subsequent utility after graduating

Q10. Knowledge of demanded profiles to new graduates.
Q11. Checking whether the academic training is useful and adequate.

The scope of the student's answers is quantified by means of a three-step scale rating that includes the items Low, Medium, High depending upon the degree of agreement with the question heading. The numerical equivalences assigned for the three items are respectively 1, 2 and 3.

The poll was conducted to coincide with the Workshop session to assure a number of participant as high as possible.

FINDINGS

1. About Organization

A starting and essential requirement for the activity success is a careful planning when announcing the sessions, then choosing a suitable schedule taking into account the partaker´s time availability, and finally making easy for them every bureaucracy they would have to accomplish. Those items have correspondence with the first set of questions under the general title Organization (figure 1). The rating average, regarding the numerical equivalence said above, was 2.28 over 3, it is to say, 76% of the maximum.

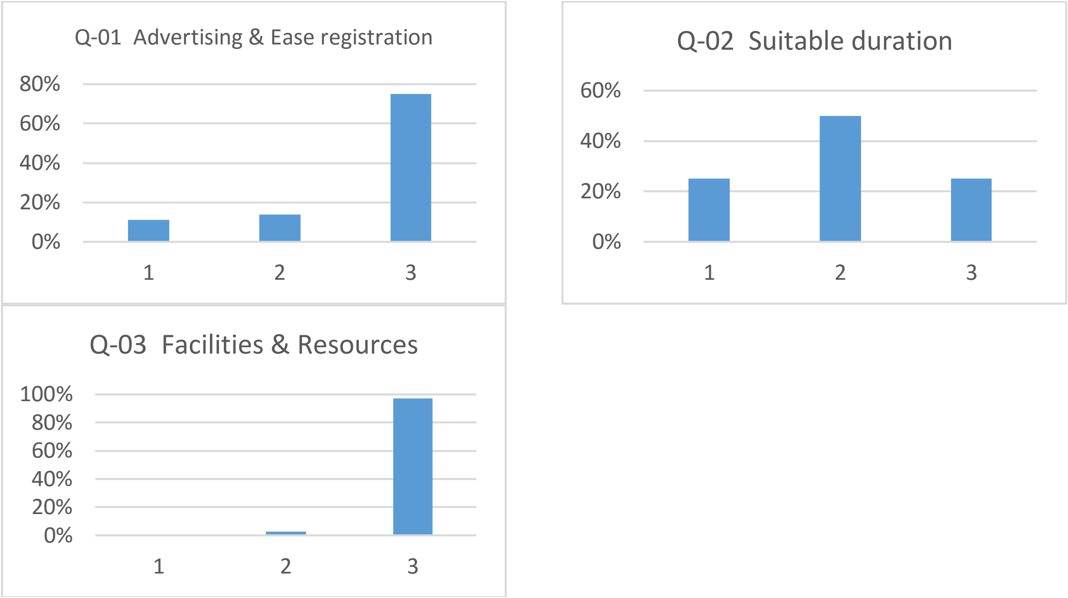

Figure 1. Percentages of the students answers about the items dealing with Organization aspects of the conferences.

2. Subject

The adequacy of the subjects, according with its utility and interest for the students, has been tested by means of this set of questions (figure 2). The rating average in this case, using the numerical equivalence previously described, has been 2.25 over 3 (75% of the maximum).

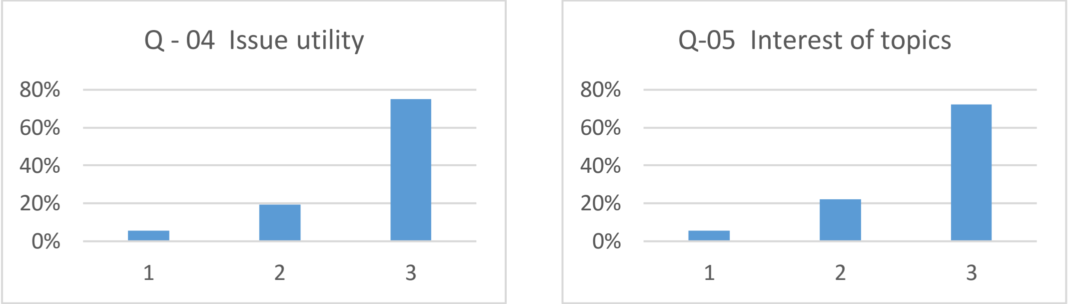

Figure 2. Percentages of the students answers about the items dealing with Subject of conferences (utility & interest).

3. Student’s motivation

The questions deal in this case with the reason why the students decide to sign in. Using the same numerical equivalence, the average was 1.81 over 3 (60% of the maximum, see figure 3). Note that in this case are the previous interest of the students themselves and the chance of getting extra credits the main elements that justify the result. On the basis of the answers, we can say that recommendations of others have in fact less importance from the students’ point of view.

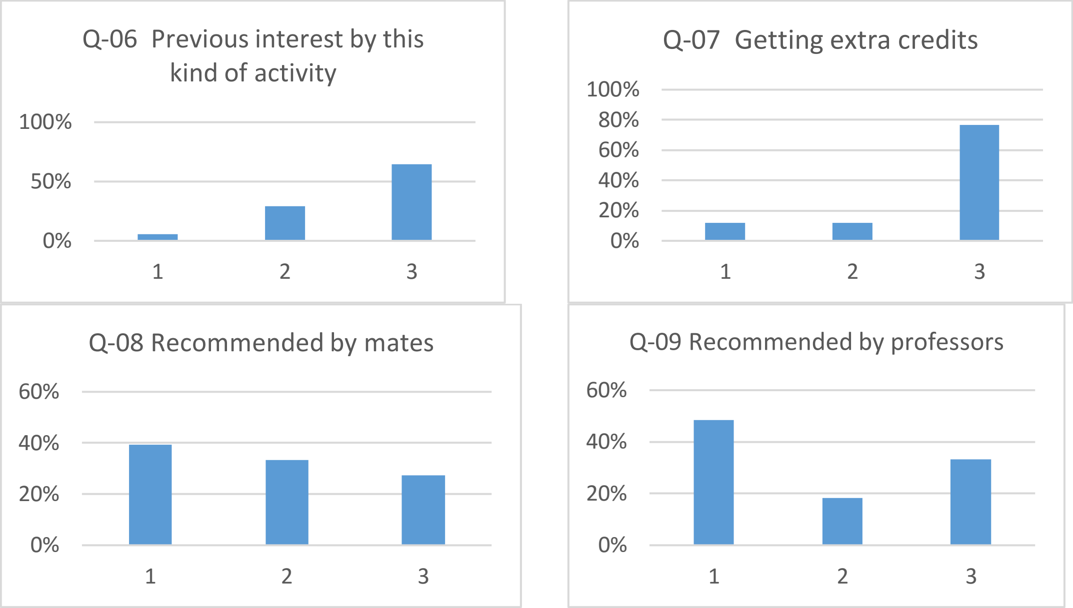

Figure 3. Percentages of the students answers about the items dealing with Student’s Motivation.

4. Perception about utility after graduation

The average was 2.23 over 3 (74% of the maximum, see figure 4).

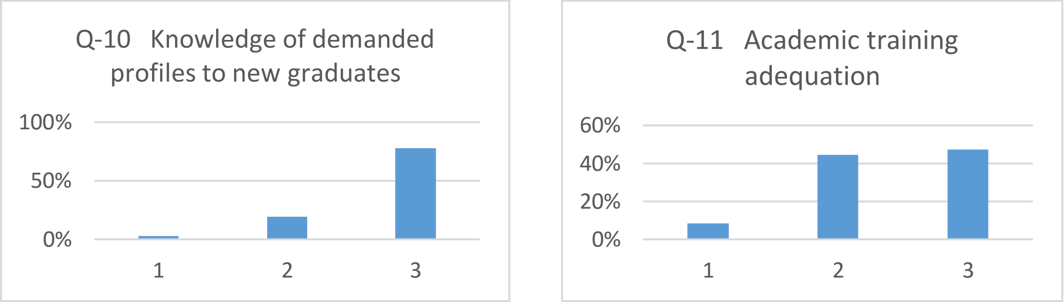

Figure 4. Percentages of the students answers about the items dealing with Utility.

CONCLUSIONS

The results agree with a high degree of satisfaction of our students, as shown in figures 1-4 above, where we observe that the answers are shifted towards the higher value of the numerical scale in the most of cases. In fact, the response rates of the most of the options reveal a rising curve shifted to the value 3 (high agreement, it is to say, the most favorable opinion). That is the general trend, and this allows us to say that the activity is well worth valued. So, we will program new editions of Educational and Scientific Conferences in successive years.

Furthermore, as additional comments for those cases that fall outside the general trend (Q2, Q8 and Q9), we will say that related with the duration (Q2) it is necessary to refine the schedule and duration of the conferences in successive editions, although this is not an easy issue to improve. About the questions related with recommendations (Q8, Q9), it is necessary to improve advertising and emphasize to all staff of the Faculty (teachers and students) the usefulness of these conferences.

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Effect Of Information Technologies (It) Pre-Service Teachers' Learning Approaches On Their Attitude Towards Programing

Mustafa YAĞCI
Ahi Evran University Faculty of Education
TURKEY
mustafayagci06@gmail.com

ABSTRACT

It has been widely debated issue in the literature that learning programming requires students to have advanced thinking skills to be successful in programming. Having a negative attitude towards programming is considered as one of the important reasons which cause students to fail in programming. The relationship among students' way of learning programming, their study approaches and their success in programming has not been explored in the literature in detail yet. In this regard, the purpose of the present study is to determine IT preservice teachers' learning styles and their attitude of towards computer programming; and to investigate their relationship. It was determined that whereas IT preservice teachers' year at the university exhibits significant difference with respect to their attitude towards programming; no significant relationship is found between their gender and types of their previous high school. However, it was observed that vocational high school graduates were more inclined toward programming compared to students graduated from other types of high schools. Additionally, it was found that most IT preservice teachers preferred deep studying approach the most effective way of comprehension of education materials since it uses the most effective learning strategy. Another positive correlation was determined between approaches of preservice teachers towards deep studying and their attitude towards programming.

Keywords: Computing, Programmed learning, Teacher training, Learning approaches.

INTRODUCTION

Learning programming requires students to possess high level of cognitive thinking skills (Lau & Yuen, 2009). Students usually develop a negative attitude towards programing (Askar & Davenport, 2009; Baser, 2013). This negative attitude is also effective on students' learning capability for programming. Majority of studies in the relevant literature revealed that students' attitude towards programming is effective on their programming learning capability. Baser (2013) and Korkmaz & Demir (2012) reported various factors effective on success in computer programming such as attitude, motivation and demographical characteristics. Moreover, in studies oriented on self-sufficiency perception of students towards "Introduction to Programming" Course studied in universities (Mazman & Altun, 2013), it was reported that students' attitude toward programming changes. Advanced technological tools are utilized in almost all of education areas frequently. Therefore, as it was reported by Lau and Yuen (2009), programming learning skills play significant role in development of information literacy in educational sciences.

Students taking programming languages course usually experience difficulty in displaying the performance expected from them in programming field. This could be associated with their low attitude level towards programming (Altun & Mazman, 2012). On the other hand, students' negative attitude towards programming could also affect their success in programming. Hence, Haslaman & Askar (2007) and Baser (2013a) suggest that self-sufficiency perceptions of students taking programming language course, have positive significant effect on their success level.

Experimental studies conducted on education of programming languages indicate that educational environments which allow to gain superior problem solving skills could have positive influence on students' success and programming perceptions (Uysal, 2014). Course contents carefully prepared by taking difficulty of programming language course into account motivate students to reach target acquisitions (Forte & Guzdial, 2005). Alternative programming education methods connected with structural programming techniques could foster students' success in programming as well (Robinson, 1995).

It is substantially important task to determine learning approaches of students to enhance quality and productivity of education (Abraham, Vinod, Kamath, Asha, and Ramnarayan, 2008). Although differences among students have taken prominent area of interest in recent reforms in education, no any practical suggestion has been made concerning how to assess these differences.

Identifying learning styles of students could be helpful for teachers to select more efficient education strategies (Lau & Yuen, 2009), allowing to determine origins of differences among students and transition from teacher-centered education to student-centered education more conveniently. In this regard, it is contemplated that the present study would contribute in developing learning performances of students with different learning styles. The relevant literature search exposes only limited number of studies on attitudes of students towards programming and their self-sufficiency perception towards programming. On the other side, it was found that there was no study investigating the relationship between learning approaches of IT preservice teachers who teach programming in Turkey and their attitude towards programming whereas there was only one study on this subject in the global literature (Lau & Yuen, 2009). Additionally, there are suggestions regarding necessity of investigation of factors influent on performance in programming in the literature (Cetin & Ozden, 2015; Mazman & Altun, 2013; Korkmaz & Altun, 2013; and Başer, 2013).

This study aims to determine attitude of IT preservice teachers towards computer programming, their learning styles and the relationship between them. Along this purpose, following research questions were tried to be answered:

a) How is the attitude of IT preservice teachers towards computer programming?
b) Do attitude of IT preservice teachers towards computer programming display significant difference according to their demographical characteristics (gender, grade, graduated high school)?
c) How is studying approach of IT preservice teacher?
d) Is there significant relationship between attitude of IT preservice teachers towards computer programming and their approach towards study?

METHOD

Study Group

The study group of this research is consisted of IT preservice teachers at the 1st, 2nd, 3rd and 4th grades from the Faculty of Educational Science at the Ahi Evran University. Research data was from 165 preservice teachers by means of a survey form developed in both internet and printed environments. Distributions of gender, grade, type of graduated high school and study approaches of study group were summarized in Table 1.

Table 1: Demographical Characteristics of IT Preservice Teachers

Variable	Characteristics	F	%
Gender	Male	81	49.1
	Female	84	50.9
Grade	1	41	24.8
	2	39	23.6
	3	51	30.9
	4	34	20.6
Type of Graduated High School	Vocational	101	61.2
	Regular	37	22.4
	Anadolu*	27	16.4
Deep Learning Approach		127	77
Superficial Learning Approach		38	23
Total		165	100

In terms of significant figures of Table 1, whereas 61% of participant IT preservice teachers were vocational high school graduates; 77% were the ones adoted deep learning approach.

Data Collection Tools

In identifying learning approaches of IT preservice teachers, “Studying Approach Scale” was developed while “Scale for Measuring Attitude toward Computer Programming” was developed to measure their attitude toward programming. Besides, personal information form was utilized collect demographical characteristics of participants.

Scale for Measuring Attitude toward Computer Programming

"Scale for Measuring Attitude toward Computer Programming" developed by Baser (2013) in five-point Likert scale was employed to determine attitude of participant preservice teachers toward computer programming based on the scale structured by Wiebe, Williams, Yang and Miller (2003), consisted of 38 items and four factors. As a result of factor analysis and reliability analysis, 9 items were removed from the original scale consisted of 47 items. In development process of the scale, data was collected totally from 220 students, of which 179 were from the Computer and Information Technologies Education (CITE) Department and 41 were from Computer Engineering Department. The scale developed for the purpose of this study was structured on following sub-scales: "Self-confidence in programming and motivation" (Items from 1 to 11 and from 33 to 38); "Benefits of Programming" (Items from 23 to 32); Attitude toward success in programming" (Items from 12 to 19); and Social perception toward success in programming (20, 21 and 22). Internal consistency coefficients of sub-dimensions of the scale range between .618 and .944. The Cronbach's Alpha coefficient for internal consistency of the whole scale was estimated at .947. Scale items include "1-Totally Agree", "2-Agree", "3-Not Sure", "4-Disagree" and "5-Totally Disagree" as answer options.

Scale for Studying Approach

Within the scope of the present research, the scale adapted into Turkish by Yılmaz & Orhan (2011) from the study of Biggs, Kember, & Leung (2001) on studying approaches of university students was employed in determination of learning approaches of preservice teachers. As the scale is comprised of totally 20 items, its two constituent factors were referred as deep and superficial approaches. Of which, 10 items (1, 2, 5, 6, 9, 10, 13, 14, 17 and 18) were designated to measure deep approach; the other 10 (3, 4, 7, 8, 11, 12, 15, 16, 19 and 20) were to measure superficial approach. As items in the scale were structured in five-point Likert Scale, they were offering following opions: "It does not or rarely consider me (1)", "It sometimes considers me (2)", "It considers me in half of occasions (3)", "It considers me frequently (4)" and "It considers me almost all the time (5)". Regarding internal consistency of the scale, Cronbach's Alpha coefficients were estimated for deep approach and superficial approaches at .79 and .73, respectively. Study results reported by Yılmaz and Orhan (2011) suggest that adapted scale was reliable and it was a valid measurement tool to investigate studying approaches of students in higher education in terms of language equivalency and quality.

Data Collection and Analysis

To identify the appropriate statistical method for analysis of collected data, Kolmogorov-Smirnov normality test was utilized. Skewness value was calculated as 4.015 by dividing skewness coefficient (.759) to the skewness standard error (.189). Since this value remains outside the range of -1.96 and 1.96 ($p<.05$), it was concluded that data was not normally distributed. According to Kalaycı (2009), skewness values ($p<.05$) greater than 1.96 or less than -1.96 are accepted. Thus, since test results of Kolmogorov-Smirnov normality analysis did not display normal distribution in all groups for dependent variables, non-parametric tests were applied. In terms of descriptive analysis of collected data, frequency (f), percentage (%), mean (X) and standard deviation (Sd) were employed; whereas Kruskal Wallis and Mann-Whitney U tests were conducted for exploratory statistical purposes. The minimum and maximum scores that can be gained by respondents from the scale were 38 and 190, respectively. In assessment of total score, as total gained score closes to 190, it could be implied that positive attitude toward computer programming increases; as it closes to 38, positive attitude decreases. In the evaluation scale utilized in assessment of findings obtained as a result of data analysis, (5-1) / 3 evaluation range is taken as basis; if the correlation level between average score limits and knowledge levels was in the range of 1 – 2.33, then, it could be considered as "Low Level"; it was in the range of 2.34 – 3.67, "Medium Level"; and it was in the range of 3.68 – 5.00, "Advanced Level".

Spearman serial correlation tests were employed to exmine the correlation between attitudes of preservice teacher toward computer programming and their studying approaches. Differences and significance of correlations were investigated according to $p<.05$ level.

FINDINGS AND CONCLUSIONS

a. How is attitude of IT preservice teachers towards computer programming?

Descriptive statistic results regarding attitudes of preservice teachers towards computer programming and mean scores according to their sub-dimensions were exhibited in Table 2.

Table 2: Descriptive Statistics Results of IT Preservice Teachers regarding Their Attitude Towards Computer Programming

Attitudes Towards Programming	N	Minimum	Maximum	X	Sd
Self-confidence and motivation in programming	165	1.76	4.76	2.9660	.41685
Benefits of programming		1.30	4.70	2.9370	.42358
Attitude toward success in programming		1.13	4.63	2.5220	.65854
Social perception of success in programming		1.00	5.00	3.8586	.86262
General		1.76	4.63	2.9353	.37149

It can be observed from Table 2 that mean scores regarding attitudes of preservice teachers towards computer programming differ for all sub-dimensions in the range of 2.52 and 3.86. For sub-dimension of "Social perception of success in programming", this was considered as "Advanced Level"; for sub-dimension of "Self-confidence and motivation in programming", "Benefits of programming" and "Attitude toward success in programming", its significance was considered as "Medium Level". Thus, it is possible to conclude that general attitude of IT preservice teachers towards programming was at medium level. This result corresponds to the results reported in the relevant literature. Korkmaz & Altun (2013) reported that students from computer engineering and CITE departments were inclined toward learning programming at medium level in general. However, researchers stated that students' attitude toward programming were observed at higher level especially with engineering students. Similarly, Başer (2013) reported that students from the CITE Department had negative attitude towards programming. According to Ozyurt & Ozyurt (2015), whereas attitudes of students from computer programming department towards programming were positive; their self-confidence levels towards programming were at medium level.

b. Whether attitudes of IT preservice teachers towards computer programming exhibit significant difference according to their demographical characteristics (gender, grade, and type of high school graduated)?

i. Do attitudes of IT preservice teachers toward computer programming exhibit significant difference according to gender?

In order to determine whether attitudes of preservice teacher towards computer programming exhibit statistically significant difference according to their genders, Mann-Whitney U-test results were taken into consideration and they were summarized in Table 3.

Table 3: Mann Whitney U Test Results regarding Attitudes of Preservice Teachers towards Computer Programming according to Their Genders

Gender	N	Mean Distribution				
		Factor 1	Factor 2	Factor 3	Factor 4	General
Male	81	76.40	82.21	79.18	81.23	76.29
Female	84	89.36	83.76	86.68	84.71	89.47
Mann Whitney U		2867.500	3338.000	3092.500	3258.500	2858.500
Z		-1.760	-.211	-1.022	-.483	-1.782
P		.078	.833	.307	.629	.075

*p<=.05

According to Table 3, it was observed that attitudes of IT preservice teachers towards computer programming did not significantly differentiate for none of sub-dimensions of the scale according to their gender variable. This finding corresponds to findings reported by Bakr (2011) and Lau & Yuen (2009). Robinson (1995), who investigated success of students in programming and their attitudes towards programming through an emprical study, concluded that methodical differences were not effective on gender. On the other hand, Whitley (1997), who investigated attitudes of genders towards computer programming through content analysis, concluded that gender was not effective on students' approach towards computer. Similarly, Yıldırım & Kaban (2010) reported in their study in which they investigated attitude of preservice teachers from the CITE department towards computer-aided education that gender variable caused significant difference. On the contrary to this finding, it was reported in literature that gender was significant factor with respect to attitude towards programming and to problem solving skills. Askar & Davenport (2009), Baser (2013), Brosnan (1998) and Kirkpatrick & Cuban (1998) stated that attitude of male students towards programming were higher in comparison with female students. This could have been result of the finding of Milic (2009) and Turkle (1984) that gender was significant variable in resolution of programming tasks. In studies of Ozyurt, (2015), Ozyurt & Ozyurt (2015), which investigated research attitudes of distant education students towards programming, a significant relationship was found between some sub-dimensions of scale and gender variable.

ii. Do attitudes of IT preservice teachers towards computer programming exhibit significant difference according to their years at the university?

In order to determine whether attitudes of preservice teachers toward computer programming exhibit significant difference according to their year at the university, results of the "Kruskall Wallis" test conducted for independent groups were summarized in Table 4 below.

Table 4: Kruskal Wallis Test Results of Preservice Teachers Regarding Their Attitudes Towards Computer Programming According to Their Years at the University

Year at the University	N	Mean Distribution				
		Factor 1	Factor 2	Factor 3	Factor 4	General
1	41	75.54	76.10	74.71	87.48	76.41
2	39	83.68	75.72	69.31	93.67	79.23
3	51	92.99	96.79	96.82	71.29	92.68
4	34	76.24	78.99	87.97	82.93	80.75
Kr. Wallis Chi-S (χ2)		4.001	6.423	9.313	5.729	3.228
Z		3	3	3	3	3
P		.261	.093	.025	.126	.358

*p<=.05

Based on Table 4, attitudes of preservice teachers towards computer programming according to their year at the university exhibited significant difference for preservice teachers at the 3rd year in terms of sub-dimension of "Attitude toward success in programming" (U=9.313, p=.025, Factor 3). In terms of the 1st, 2nd and 4th sub-dimensions, there was no significant difference according to their year at the university. In other words, attitudes of preservice teachers towards computer programming differed only with respect to "Attitude toward success in programming" sub-dimension according to their year at the university. Thus, it is possible to conclude that perceptions of IT preservice teachers towards programming were positively affected by the programming courses given at the 1st, 2nd and 3rd grades. It is possible find similar results in the literature. For example, Mazman & Altun (2013) and Altun & Mazman (2012) claimed that self-sufficiency perceptions of students towards programming increased significantly after they received programming course. Along the same line, Ozyurt & Ozyurt (2015) reported significant correlation between students' year at the university and their attitude towards programming. On the other hand, the difference among their attitude toward programming reduces afterwards of their first experience. There are various other results reported in the literature as well. For instance, Yıldırım and Kaban (2010) stated that there was no significant correlation between students' year at university and their attitude towards computer-aided education. Again, Bakr (2011) indicated that experiences of teachers were not influent on their attitude towards computer.

iii. Do attitudes of IT preservice teachers towards computer programming exhibit significant difference according to the type of their high schools?

In order to determine whether attitudes of preservice teachers toward computer programming exhibit significant difference according to the type of high school where they were graduated from, results of the "Kruskal Wallis" test conducted for independent groups were summarized in Table 5 below.

Table 5: Kruskal Wallis Test Results of Preservice Teachers Regarding Their Attitudes Towards Computer Programming According to the Types of Graduated High School

Type of Graduated High School	N	Mean Distribution				
		Factor 1	Factor 2	Factor 3	Factor 4	General
Vocational	101	87.91	84.69	86.11	79.13	86.08
Regular	37	78.69	77.81	75.22	89.64	80.91
Anadolu*	27	70.54	83.78	82.02	88.39	74.33
Kr. Wallis Chi-S (χ2)		3.272	.586	1.460	1.837	1.397
Z		2	2	2	2	2
P		.195	.746	.482	.399	.497

* (p<=.05)

According to Table 5, it can be observed that whereas the Vocational High School (86.08) exhibited the maximum mean score; the Anadolu High School (74.33) exhibited the minimum mean score. Additionally, according to the Kruskal Wallis test results, attitudes of preservice teachers towards computer programming did not exhibit significant difference with all sub-dimensions according to the type of graduated high school. In other words, perceptions of IT preservice teachers towards computer programming did not exhibit significant difference according to the type of high school where they were graduated from.

c. Which studying approach do IT preservice teachers adopt?

In order to determine studying approach of preservice teacher, statistical results based on the mean scores obtained according to deep approach and superficial approach dimensions were exhibited in Table 6.

Table 6: Descriptive Statistic Results regarding Studying Approaches of IT Preservice Teachers

	N	Minimum	Maximum	X	Sd
Deep Approach	165	15	48	31.70	5.888
Superficial Approach		13	45	27.59	6.596

Table 6 implies that mean score ($\bar{X} = 31.70$) of IT preservice teachers who adopt deep studying approach necessitating comprehension of the course subject rather than only gaining high scores in exams and focusing on core of the subject without losing integrity of the course subject was higher than the mean score ($\bar{X} = 27{,}59$) of the IT preservice teachers who adopt superficial approach not necessitating concentration and prone to lose integrity of subject because it fragmentizes the subject for convenient memorizing and it passively accepts new subjects and knowledge given to them without questioning. In Table 1, which exhibits demographical characteristics of students, it can be observed that whereas 77% of students adopt “deep studying approach”; 23% adopt “superficial studying approach”. Accordingly, it can be concluded based on two tables that IT preservice teachers were the individuals who were inclined to deep studying approach, the most effective way of comprehending education materials and using the most effective learning strategy. In the relevant literature, Olpak & Korucu (2014b), in their study including 245 bachelor degree students from various departments of faculty of educational sciences, reported that majority of students exhibited deep studying approach. On the contrary, Yilmaz & Orhan (2011) indicated in their study conducted on 400 students from different bachelor degree programs that students mostly exhibited superficial approach. Cuhadar, Gunduz and Tanyeri (2013) reported that deep approach and superficial approach mean scores of students from the CITE Department of the Faculty of Educational Sciences at Trakya University were close to each other.

d. Is There Significant Correlation between Attitudes of the IT Preservice Teachers Towards Computer Programming and Their Studying Approach?

As collected data was not normally distributed, the “Spearman Serial Correlation” analysis was conducted to investigate the relationship between two variables. The Spearman Serial Correlation coefficient is expected in the range of -1 and +1. As correlation coefficient approaches to +1, then, this suggests that there is positive perfect correlation; as it approaches to -1, then, this indicates negative perfect correlation. If coefficient is estimated at 0, then, this suggests that there is no linear correlation between variables (Kalaycı, 2009). Table 7 displays correlation coefficients and correlation levels below.

Table 7: Correlation Coefficients and Correlation Levels (Buyukozturk, 2009)

Absolute Value Range (r)	Level of Correlation
0.00 – 0.30	Low
0.31 – 0.70	Medium
0.71 – 1.00	High

Table 8 summarizes analysis results regarding the correlation between studying approaches of preservice teacher and their attitude towards computer programming.

Table 8: The Correlation between Studying Approaches of Preservice Teacher and Their Attitudes toward Computer Programming

Attitude towards Computer Programming		General Mean
Deep Studying Approach	r	.079
	p	.314
	N	165
Superficial Studying Approach	r	-.014
	p	.856
	N	165

According to Table 8, it can be observed that there was low level positive correlation between deep studying approach of IT preservice teacher and their attitudes towards computer programming (r=.079). Based on this result, it was possible to conclude that as mean scores regarding deep studying approach of preservice teachers increased parallel to their positive attitude towards computer programming. On the other hand, low level negative correlation between superficial studying approaches of preservice teacher and their attitude towards computer programming was observed (r=-.014). Hence, it can be deducted at this point that increasing mean scores of preservice teachers regarding superficial studying approach negatively affected their attitude towards computer programming.

Mazman & Altun (2013) reported positive and high level of correlation between self-sufficiency perception of students toward programming and their academic success. Similarly, Ozyurt (2015) determined significant relationship between attitude of distant learning students towards programming and their self-sufficiency perception levels. There are also researches in the literature oriented on different variables effective on computer programming success. For instance, Ozdinc & Altun (2014) investigated factors effective on programming process of IT preservice teachers and reported that their program coding and program reading tasks were under influence of various variables.

RESULT AND SUGGESTIONS

Sampling group of this study employed screening model was consisted of 165 IT preservice teachers. Study results suggested that attitudes of IT preservice teachers towards computer programming were at medium level, which is parallel to the findings reported in the relevant literature. But, IT preservice teachers were expected to be more interested in programming learning. This result addressed the necessity of activities to enhance attitudes of students towards programming, one of the factors effective on students' success.

Additionally, no any difference was observed in attitudes of preservice teachers towards computer programming according to their gender. Thus, it was concluded that tendency of both male and female preservice teachers towards programming were similar. Another finding exposed by the present study was that years of preservice teachers at the university were effective on their attitude towards programming. This difference was on the advantage of students attending to the 3rd year at the university. This result can be interpreted as that new regulations on courses given in curriculums of the 1st and 2nd years in the IT teaching departments would be effective on attitudes of preservice teachers towards programming positively. In terms of types of graduated high school, there was no significant difference among attitudes of preservice teachers towards programming. However, students graduated from vocational high schools were found to be more inclined toward programming. Moreover, it was observed that whereas 127 of IT preservice teachers adopted deep studying approach; 38 adopted superficial studying approach. It was also observed that majority of IT preservice teachers prefered deep studying approach. They displayed minor tendency toward superficial studying approach.

Another result of the present study was that there was positive correlation between mean scores of preservice teachers according to their deep studying approach and their attitude towards computer programming. On the other hand, a negative relationship was determined between superficial studying approaches of preservice teachers and their attitude towards computer programming.

Following suggestions were drawn based on the research findings:

a. Content and gaining of programming course given to IT preservice teachers are required to be prepared by taking perceptions and readiness of students toward programming into consideration.
b. By considering students' studying approaches, student-centered learning environments must be provided in programming education; and education activities must be organized along this purpose. Thus, it must be ensured that students adopt deep studying approach combining the new information with former ones and focusing on the core subject.
c. Course contents must be designated by considering the fact that programming languages necessitate high level of problem solving skill during learning process; and they must be structured so as to enhance motivation of students to reach target skills and competencies (Forte & Guzdial, 2005).
d. Problem-based learning should be encouraged in order to support and improve high-level thinking and problem solving capabilities.

Acknowledgements

Statement on open data

Data of the study could be shared with other researchers via personal communication.

Statement on ethical guidelines

Anonymous data collection process was utilized during this study in order to protect privacy of participants and to avoid conflict of interest. There was no question on questionnaire that reveals the identity of participants. Furthermore, participants discussed the topics anonymously on the discussion forum.

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Effect Of Social Media Usage On University Students In An Emerging Country

Melissa W. MIGIN[*]
Multimedia University (MMU), Cyberjaya, Selangor Malaysia
Melissa.migin@mmu.edu.my

Mohammad FALAHAT
Universiti Tunku Abdul Rahman (UTAR), Sungai Long, Selangor Malaysia
Falahat@utar.edu.my

ABSTRACT

Social media is considered to be the fastest online communication used for social networking and it has a significant effect in many fields, more so in the context of higher education. Previous studies have treated social media in terms of accessibility, usability and immediacy in a generalised way, while there is a notable lack of studies on social media usage that affects academic work and social activities. This study proposes the existence of informal learning, seeking information, convenience and student engagement in an educational context and tests their influence on social media usage.

A pilot test is conducted for the initial version of the study. A few items are revised based on the pilot test data. All items in the questionnaire are measured on a 5-point Likert scale. Hypotheses were tested with structural equation modeling based on 301 usable survey responses from campus students in Malaysia.

The results indicated that informal learning, seeking information and student engagement are found to be direct drivers of social media usage. In addition, informal learning is found to be the primary factor impacting university students to use social media. However, seeking convenience is found to be not significant to social media usage. The findings suggest that social media can be effectively used in the academia by encouraging informal learning both in and out of classes throughout the semester.

There are several inherent limitations that should be considered when interpreting the findings. Firstly, the unbalanced age ratio might limit the generalisability of the findings. Also, the data were collected from one private university out of 37 private universities based in Malaysia. Besides that, future studies could investigate the moderation effects of other variables such as cultures with diverse samples that lead to new insights on the cultural impact among other age groups and races within Malaysia. Lastly, this study is cross-sectional and it does not take into account the dynamic relationship between students and the utilization of social media.

Keywords : social media; informal learning; seeking information; convenience; student engagement; higher education.

INTRODUCTION

In these recent years, interest has increased in the latest web-based technologies, tools and services through social media. Facebook, Twitter and YouTube have become exponentially popular especially with the Millennials. These networks are based on online interactions, similar interests and personal relationships.

In the context of higher education, social media provides an innovative communication means through the creation of a web based learning zone. It is believed that social media can help students to interact with their peers by sharing ideas and reflect personal perspectives with one another (Camille 2010). Keeping this reality in view, previous studies researched the utilisation of social media among university students (Xie & Stevenson 2014; Tenopir, Volentine &King 2013). The students themselves are adapting the technology in their educational environment (Ruleman 2012). Past literature revealed that these emerging technologies may have a significant impact on the current teaching and learning practices in higher education (e.g. Quintana & Fernández 2015; Morgan 2012; Diener & Hobbs 2012; Eynon & Malmberg 2011).

Frequency, accessibility, usability and immediacy were empirically tested as contributing factors to social media usage. However there is a lack of studies on social media for the purpose of academic learning. There seems to be a lack of study in social media usage has examined the effects of informal learning, seeking information, convenience and student engagement and tests their influence on social media usage in an empirical setting. Therefore, this study investigates the following research question:
Is there a relationship between informal learning, seeking information, convenience and student engagement of university students and their use of social media?

DEVELOPMENT OF THE THEORATICAL FRAMEWORK AND RESEARCH HYPOTHESES

The research model examines the effects of informal learning, seeking information, convenience and student engagement, which we propose as major variables on students' social media usage. The present study employs a Uses and Gratification (U&G) theory to understand what motivated university students to use social media.

Informal Learning

Informal learning is a learning process that mostly happens in a more random and spontaneous manner. European Commission (2000) defines informal learning as:
"a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning, and so may well not be recognized even by individuals themselves as contributing to their knowledge and skills."

Madge et al (2009) found that students from the UK have positive opinions on using social media such as Facebook as a learning environment. Facebook is no longer just a place to communicate with friends and others but it is also used for online discussion, group discussion and creating social events. The uses of smartphones and tablets help students in informal activities. In general, information sharing, exchanging ideas among classmates, and reflections are methods which provide both students and academics to use informal learning systems (Ebner et al 2010). The following hypothesis can thus be proposed:
H_1: Informal learning has a positive influence on social media usage.

Seeking Information

Social media does not only revolve social networking sites but it also includes free press such as blogs and word press as a platform to raise any thoughts or source new information. Social networking can be put in to use as a fun way to seek and share information in a timely manner. Keller and Hrastinski (2006) finds that the younger generation have a greater desire to participate in online learning or retrieving information through social media. Moreover, Gerhard & Mayr (2002) suggested that the usage of social media is more related to the educational learning system, particularly at higher education. Kietzmann et al (2011) posits that users can connect to other users from various part of Internet domain with the help of social media for information communication, organisation and information distribution. Therefore, the hypothesis is proposed:
H_2: Seeking information has a positive influence on social media usage.

Seeking Convenience

Social media has brought positive benefits into people's daily lives. Miller and Lu (2003) presents strategies for online learning support, such as offering a more convenient way for students to source additional materials. Some of the materials are not always available in hard copies. Online technologies such as Facebook have available functions such as group creation and e-mail that support educational learning. It makes it convenient for students as it becomes unnecessary to constantly meet face to face for group discussions. Thus, we hypothesise as follows:
H_3: Seeking convenience has a positive influence on social media usage.

Student engagement

There is no generally agreed definition for student engagement (Chapman 2003; Brewster & Fager 2000; Bomia et al 1997). However the most commonly used is by Bomia et al (1997), "students' willingness, need, desire and compulsion to participate and be successful in the learning process". Student engagement can also be identified in various ways such as collaborative learning, active student-faculty interaction, enrichment in education experience and supportive learning environment.

Based on a study done by Al-Bahrani, Patel and Sheridan (2015), their findings shows that student are willing to engage with their faculty if the connection is 'one way' where access to student information is minimised, as they are concerned with privacy issues. Besides that, their findings also shows that student are willing to participate if social media is a voluntary part of class where social media networks are most used by students compared to the email or learning management system. Therefore, we hypothesise as follows:
H_4: Student engagement has a positive influence on social media usage.

DATA COLLECTION METHOD

The survey questionnaire has undergone several validation steps. First, the constructs of this study were drawn from extensive review of previous literature. Comments from university professors, four graduate and two undergraduate students were taken into consideration and revised to provide clarity of each item in the questionnaire. The initial version was pilot tested on 25 undergraduate students. Respondents expressed their agreement with each statement using a 5-point scale (1 ="strongly disagree" to 5='strongly agree").
The main field study was conducted among university students in one private university based in Malaysia, the country with 17 million internet users (Haida &Rahim, 2015). Participation was voluntary. Each participant was given a paper-and-pencil self-administered questionnaire. We have collected a total of 301 usable responses.

RESULTS

Table 1 presents the participants' demographic profile namely age, gender, access social media on smartphone and average number of times participants access social media. 50.8% (n=153) were males and remainder 49.2% (n=148) were females. As for age, about 77% of the respondents were below the age of 25. Most respondents (98.3%) access their social media through their smartphones. Around 62.1% of the respondents access their social media more than 10 times a day. This shows that many university students are actively connected online through their smartphone devices.

Table 1 : Respondent demographic characteristics

Characteristics	**Total**	**%**
Gender		
Male	153	50.8
Female	148	49.2
Age cohorts		
18-20	103	34.2
21-24	129	42.9
Above 25	69	22.9
Access social media on smartphone		
Yes	296	98.3
No	5	1.7
Average accessing social media		
More than10 times in a day	187	62.1
Less than 9 times a day	68	22.6
Less than 7 times in a week	46	15.3

A structural equation model using SmartPLS (v.3) assessed the measurement model and structural model. The measurement model was tested for reliability and validity. The loadings, cronbach's alpha, composite reliability and average variance explained (AVE) are presented in Table 2. Loadings below 0.70 were dropped (i.e. item Convenience3 and SocialMedia5). Cronbach's alpha ranged from .71 to a maximum of .87, which is higher than the 0.70 threshold by Nunnally (1978). The AVE for all latent variables is higher than 0.50, which indicates strong reliability. Also, the discriminant and convergent validity for all latent variables was conducted. Discriminant validity was found to be strongly indicated as the study's construct is highly correlated within its own in comparison to other constructs. Also, the convergent validity analysis had adequate results.

Table 2 : Loadings, Cronbachs alpha, composite reliability and AVE

Latent variable	Loadings	Cronbach's alpha	Composite reliability	AVE
Informal learning		0.845	0.896	0.682
Learning1	0.847			
Learning2	0.808			
Learning3	0.860			
Learning4	0.787			
Seeking information		0.764	0.848	0.583
Information1	0.775			
Information2	0.760			
Information3	0.736			
Information4	0.784			
Seeking convenience		0.712	0.838	0.634
Convenience1	0.801			
Convenience2	0.773			
Convenience3	*Dropped*			
Convenience4	0.814			
Student Engagement		0.875	0.915	0.731
Engagement1	0.898			
Engagement2	0.814			
Engagement3	0.926			
Engagement4	0.773			
Social Media Usage		0.771	0.854	0.594
SocialMedia1	0.708			
SocialMedia2	0.831			
SocialMedia3	0.764			
SocialMedia4	0.774			
SocialMedia5	*Dropped*			

Table 3 summarises the results of the structural model test. The path coefficients were produced through the bootstrapping procedure with 5,000 bootstrap samples. The association between informal learning, seeking information and student engagement to social media usage are significant, when the effects of age and gender are controlled for. All hypotheses, except for H_3, are supported. The path coefficient of informal learning to social media usage is the highest in comparison to the rest ($\beta = 0.574$). The path coefficient of seeking information ($\beta = 0.192$) and student engagement ($\beta = 0.169$) to social media usage are significant at $p<0.05$. However, the path of seeking convenience to social media usage is not significant ($\beta = -0.131$). Informal learning, seeking information and student engagement explains 52% of the variation in social media usage.

Table 3: Data analysis results

Hypothesis	Description	Beta	Mean	Std Error	T-Value	Decision
H_1	Informal learning has a positive influence on social media usage.	0.574	0.572	0.099	5.793***	Supported
H_2	Seeking information has a positive influence on social media usage.	0.192	0.196	0.075	2.573**	Supported
H_3	Seeking convenience has a positive influence on social media usage.	-0.131	-0.124	0.101	1.295	Not supported
H_4	Student engagement has a positive influence on social media usage.	0.169	0.167	0.073	2.318**	Supported

Note. * Sig at 0.10, ** Sig at 0.05, *** Sig at 0.01

DISCUSSION AND IMPLICATIONS

The purpose of this study was to explore the antecedents behind using social media among university students in Malaysia and investigate their influence on social media usage in an empirical setting. The study results confirm that informal learning, seeking information and student engagement are three key antecedents collectively explaining substantial variance in social media usage among university students. The findings lend empirical support for the conception that these three factors play a major part in understanding the usage of social media among Millennials. The study results clearly show that informal learning translates well into social media usage. Social media can be effectively used in academic courses through encouragement to use it during class discussions and assignments. This then enhances the learning experience of students.

While the present study contributes to the body of literature on social media usage, some limitations should be taken into account that might affect the generalisability of the findings. Even though the age differences were controlled in the statistical analyses of this study, the unbalanced age ratio where majority of the respondents are aged below 25 might limit the interpretation of the results. With that, future studies should employ a more balanced sample between undergraduate and graduate students. Also, the data was collected from one private university out of 37 private universities based in Malaysia. For generalisability, the study findings must be corroborated other local universities to take into account for any differing variations in the antecedents. Also, future studies could investigate the moderation effects of other variables such as cultures with diverse samples that lead to new insights on the cultural impact among other age groups and races within Malaysia. Lastly, this study is cross-sectional; in future studies would be valuable to conduct longitudinal study to further corroborate the results found in this research.

In conclusion, we have empirically shown that informal learning, seeking information and student engagement are three key antecedents collectively explaining substantial variance in social media usage among university students.

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Effect Of The Use Of Technology In Mathematics Course On Attitude: A Meta Analysis Study

Baki ŞAHİN
Muğla Sıtkı Koçman University, Turkey
baki@mu.edu.tr

ABSTRACT

Today, there are many studies which have been carried out independently on a certain topic but with different results. There are also many studies which examine the effects of the use of technology in mathematics education on the attitude towards mathematics. Fourteen studies selected in accordance with the objective carried out during 2002-2015 were included in the study. Of these studies, 7 were theses (master's thesis + doctorate), whereas 7 were articles. These studies have been carried out in primary school (2), secondary school (7) and high school (5) levels. The effect of using technology during mathematics courses was first examined by taking all studies into consideration as a result of which it was observed that the effect was statistically significant at a low level. Afterwards, the studies were examined by separating them according to the magnitudes of influence, types and the studies group as a result of which it was determined that they had statistically significant effects on student attitudes at a low level.

INTRODUCTION

Mathematics is among the primary courses for which student success is low thereby resulting in students fearing failure. Mathematics educators carry out studies to increase the interest of students towards mathematics course and create attractive education environments. These studies are sometimes methods, tools-equipment or materials the effectiveness of which has been tested in the teaching environment. The objective of studies during which technology is used for mathematics education is to overcome learning difficulties.

Children are now immersed in technology as soon as they are born. They are adept at and interested in technology. The studies carried out for transforming this interest of children towards technology to a positive attitude towards mathematics by using technology during mathematics courses form the basis of this study.

The following are meant by the use of technology in mathematics teaching;

- Using technology to complement the educational activities,
- Teaching a certain topic via already prepared computer software,
- Direct interaction of the student with technology for presenting course content,
- Interaction of students with technology during education process.

If we consider learning by doing as the student accessing the required knowledge directly, computer is the best education tool for this purpose(Çankaya, 2007). All studies included in the study have used computer technologies in mathematics teaching environments. The effect of studies that examine the contribution of mathematics teaching carried out using technology during the last 14 years on the attitudes of students towards mathematics course via meta-analysis method which is defined as a systematic reevaluation of experimental studies has been examined as part of the study.
Accordingly, the study seeks answers to the following questions:

- What is the general effect of mathematics teaching via technology on the attitudes of students?
- Does the effect size of mathematics teaching via technology on the attitudes of students vary with regard to the type of the academic study carried out?
- Does the general effect size of mathematics teaching using technology on the attitudes of students vary according to class level?

METHOD

Meta-analysis method was used to calculate the effect size of mathematics teaching using technology on the attitudes of students. Meta-analysis can be defined as, "a research method aiming to quantitatively integrate the results of a group of primary studies on a certain topic in order to decide on the latest developments in that topic" (Sanchez-Meca & Marin-Martinez, 2010).

DATA ACQUISITION

Studies carried out for determining the attitudes of students towards mathematics teaching using technology (computer aided education, computer games, smart board use etc.) were included in the study. The studies consist of articles and theses. ProQuest, EbscoHost, Wilay, Eric, Google Scholar and Ulakbim databases were used to access the articles, whereas YOK national thesis center and ProQuest international thesis center databases were used to access theses. Attitude towards mathematics, computer and technology keywords were used while carrying out a literature survey. A total of 28 publications were reached comprised of 11 thesis and 17 articles. One of the groups using the pre-post test experiment design was determined as the group in which technology is used after which publications that make comparisons between groups or that have included statistics that can be used in meta-analysis (n, $\bar{X}$, ss, t, p) were included.

CODING OF DATA

The included studies were coded as researcher(s), year of publication, type of publication (article, Ph.D. thesis, M.Sc. Thesis), study group (primary, secondary, high) via Excel software. Proper data were then included after each study was examined in detail.

CMA program requires the correlation between pre-test and post-test scores in pre-test post-test studies with control group. Only post-test data were taken into consideration since correlation value was determined in none of the studies. Research data using t-test for dependent and independent groups were included.

VALIDITY AND RELIABILITY OF THE STUDY

All studies encompassing the years 2002-2015 were tried to be included in order to increase the validity of the study focusing on the effect of technology use on attitude in mathematics courses. Funnel Plot suggested by(1979) was used for determining the reliability of the study(Sterne & Harbord, 2004).

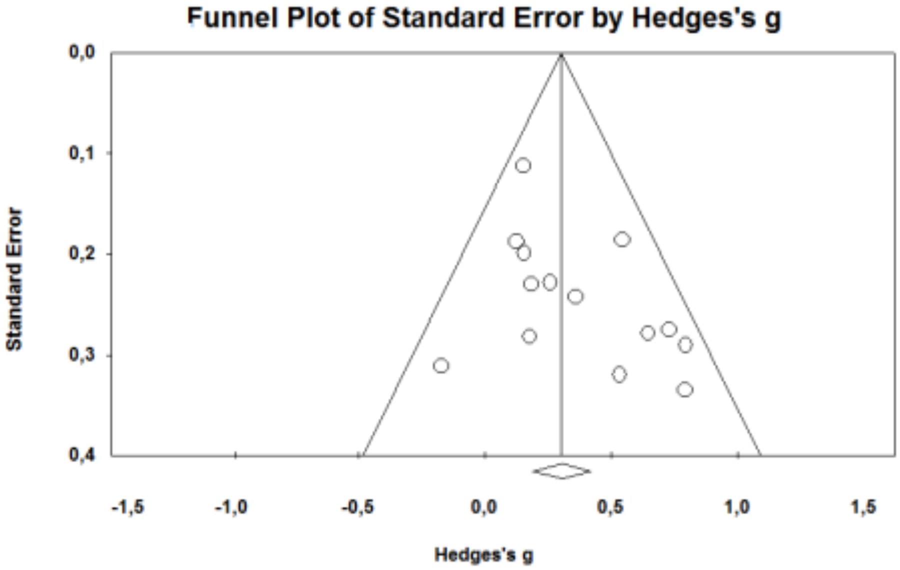

Figure 1. Funnel Plot Used for Determining the Reliability of the Study (ForestPlot)

When Figure 1 is examined, it can be stated that the 14 studies are distributed symmetrically around the effect size vertical line and that they are positioned close to the effect size value placed at the center of weight region. The fact that studies are distributed symmetrically in the center in addition to the fact that they are positioned close to the effect size value can be interpreted as having no publication bias (Borenstein et.al., 2009).

DATA ANALYSIS

Hedges's g was used in the study for calculating the effect size and the significance level for statistical analyses was determined as 95%. In addition, the following level classification put forth by Thalheimer and Cook (2002) was used for interpreting the magnitudes of influence.

	Effect size	≤ 0,15	insignificant level
0,15	< Effect size	≤ 0,40	low level
0,40	<Effect size	≤ 0,75	moderate level
0,75	< Effect size	≤ 1,10	high level
1,10	< Effect size	≤ 1,45	very high level
1,45	< Effect size		perfect level

Chi-square heterogeneity test Cochran's Q was used for evaluating whether the studies included have real heterogeneity or not. A p level that is determined at the end of the heterogeneity test as lower than the accepted level of significance indicates that the study results should be considered as heterogeneous according to the established hypothesis and thus the requirement for using random effects model (Dinçer, 2015). Comprehensive Meta Analysis (CMA) software was used in the study for calculating the effect size variances for all included study, whereas Microsoft Excel package software was used for data coding and recording.

RESULTS

When all 14 studies included in the meta-analysis were taken into consideration, the number of samples in the experiment group was determined as 454 (52%), the number of samples in the control group was determined as 426 (48%) for a total of 880. A total of 12 publications were included in the study 7 of which are articles and 5 are theses. Since 2 of the theses carried out a comparison of two different technologies, these were also taken as sub-groups. Of the 7 theses, 4 were Ph.D. theses and 3 were M.Sc. theses. A total of 14 studies were included. Of the studies included, primary school students were used in 2, secondary school students were used in 7 and high school students were used in 5.

Table 1. Effect size of the Studies and Various Statistical Values

Name of the Study	Type	Class	Effect S.	Standard Error	Variance	Lower Limit	Upper Limit	Z	p
Griffin1, (2008)	Thesis	High School	0,15	0,20	0,04	-0,24	0,54	0,78	0,44
Griffin2, (2008)	Thesis	High School	**0,13**	0,19	0,04	-0,24	0,49	0,67	**0,50**
Aliasgari,(2010)	Article	High School	0,79	0,29	0,08	0,22	1,36	2,73	0,01
Leng,(2005)	Article	High School	0,54	0,19	0,03	0,18	0,91	2,94	0,00
Birgin,(2015)	Article	Secondary	0,18	0,28	0,08	-0,38	0,73	0,63	0,53
Curaoğlu,(2012)	Thesis	Secondary	**-0,17**	0,31	0,10	-0,78	0,44	-0,55	**0,58**
Pili, (2008)	Thesis	Primary school	0,73	0,28	0,08	0,19	1,27	2,65	0,01
Eck,(2006)	Article	Secondary	0,36	0,24	0,06	-0,11	0,83	1,49	0,14
Sulak,(2002)	Thesis	Secondary	0,26	0,23	0,05	-0,19	0,70	1,13	0,26
Çankaya,(2008)	Article	Primary school	0,15	0,11	0,01	-0,07	0,37	1,37	0,17
Boyraz1,(2008)	Thesis	Secondary	0,53	0,32	0,10	-0,09	1,16	1,67	0,09
Boyraz2, (2008)	Thesis	Secondary	0,79	0,33	0,11	0,14	1,45	2,37	0,02
Hangül,(2010)	Article	Secondary	0,64	0,28	0,08	0,10	1,19	2,32	0,02
Avcı,(2014)	Article	High School	0,18	0,23	0,05	-0,27	0,63	0,80	0,42

When Table 1 is examined, it is observed that 2 (14%) studies are insignificant, 6 (43%) are at the small, 4 (29%) at the medium and 2 (14%) at the wide level. It can be interpreted when these results were taken into consideration that the effect of technology on the attitude towards mathematics course is low.

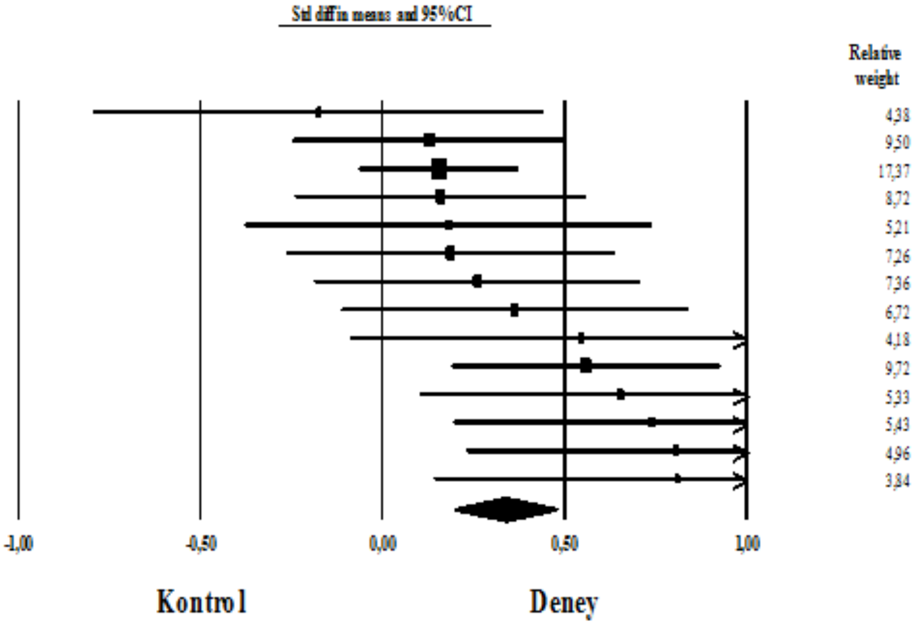

Figure 2. Forest Plot Indicating the Effect Direction of the Studies

When the forest plot was examined, it was observed that studies are mostly at the small effect level and that 2 studies pass the line of insignificance. When the horizontal lines passing through the squares are considered, it was observed that the 95% reliability intervals of the studies by Çuraoğlu(2012), Boyraz1 and Boyraz2(2008) were wide and that it was narrow for the study by Çankaya(2008). When the sizes of the squares inside the lines were taken into consideration, it can be observed that the weights of individual studies in the meta-analysis did not differ significantly. Whereas the diamond at the bottom gives us information about the size and location of the general effect.

Table 2. Effect Sizes and Homogeneity Values of Studies Based on Fixed Effects Model

Model Type	**N**	**Z**	**p**	**ES**	**Q**	**95% Reliability Interval for Effect size**	
						Lower Limit	Upper Limit
Fixed Effects Model	14	5,23	0,000	0,30	17,23	0,19	0,42

When the table given above is examined, it is observed that the statistics are significant (z=5,23; p<0,01). Q value was calculated for determining the model to be used and it was found to be Q =17,23. Chi-square table value was observed as 22.36 at 13 degrees of freedom. Effect size distribution was observed to be homogeneous since the Q value (17.23) was lower in comparison with the critical value of 22.36, hence fixed effects model was used for calculating the average effect size.

The average effect size calculated was 0.30. Since this value is within the limits of the reliability interval, it can be stated when these 14 studies are taken into consideration that the students have a positive attitude towards mathematics course in case technology is used. Again, it can be observed that this effect is at a low level when the level classification of Thalheimer and Cook (2002) are taken into consideration.

Table 3. Effect Sizes and Homogeneity Values According to the Type of Study

Study Type	**N**	**Z**	**p**	**ES**	**Q**	**95% Reliability Interval for Effect size**	
						Lower Limit	Upper Limit
Article	7	4,27	0,000	0,32	8,33	0,17	0,46
Thesis	7	3,03	0,002	0,28	8,83	0,10	0,47

When Table 3 is examined, it can be observed that the statistics for the articles were significant (z=5,23; p<0,01). Q value was calculated for determining the model and it was determined as Q =8.33. Chi-square table value is observed as 12.59 at 6 degrees of freedom. It was observed that effect size distribution was homogeneous since the calculated Q value (8.33) was lower in comparison with the critical value of 12.59, hence fixed effects model was used for calculating the average effect size. The average effect size calculated for articles was 0.32. Since this value is inside the reliability interval limits, the article studies carried out by the researchers indicate that students have a positive attitude towards mathematics course when technology is used during the course.

It is observed when the theses were examined that the statistics was significant (z=3.03;p<0.01). Q value was calculated for determining the model to be used for the theses and it was determined as Q =8.83. Chi-square table value is observed as 12.59 at 6 degrees of freedom. It was observed that effect size distribution was homogeneous since the calculated Q value (8.33) was lower in comparison with the critical value of 12.59, hence fixed effects model was used for calculating the average effect size. The average effect size calculated for articles was 0.28. Since this value is inside the reliability interval limits, the article studies carried out by the researchers indicate that students have a positive attitude towards mathematics course when technology is used during the course.

Again, it can be observed that this effect is at a low level when the level classification of Thalheimer and Cook (2002) are taken into consideration.

Table 4. Effect Sizes and Homogeneity Values According to the Class Where the Studies were Carried Out

Study Type	**N**	**Z**	**p**	**ES**	**Q**	**95% Reliability Interval for Effect size**	
						Lower Limit	Upper Limit
Primary school	2	2,27	0,02	0,24	3,74	0,03	0,44
Secondary School	7	3,38	0,001	0,35	6,55	0,15	0,56
High School	5	3,40	0,001	0,32	6,26	0,14	0,50

When Table 3 is examined, it can be observed that studies carried out at the Secondary School level put forth the highest effect (ES=0.35) according to the class levels. It is observed that the statistics for all school levels (z(primary school) = 2,27; p<0,02, z(Secondary School)= 3,38; p<0,001, z(High School) = 3,40; p<0,001) are statistically significant. Q values were calculated for determining the model to be used for each class level. Q values were determined respectively as 3.74; 6.55; 6.26. Chi-square table values were determined as 3.84 at 1 degree of freedom for primary schools; as 12.59 at 6 degrees of freedom for Secondary Schools; as 9.49 at 4 degrees of freedom for High Schools. The Q values calculated for all class levels were observed to be smaller than the chi-square table values. Since it was observed that the effect size distribution was homogeneous and therefore fixed effects model was used for calculating average effect size.

The average effect sizes calculated for class levels are inside the reliability intervals. Hence, it can be stated that the students put forth a positive attitude towards mathematics course when technology was used during mathematics courses in each class level.

Again, it can be observed that this effect is at a low level when the level classification of Thalheimer and Cook (2002) are taken into consideration.

DISCUSSION RESULTS AND SUGGESTIONS

Each of the 14 studies subject to meta-analysis were studies in which education using technology and ongoing education were compared. Even though a difference in favor of the attitude of students towards the use of technology in mathematics course was determined in 6 of the 14 studies, no statistically significant difference was determined in 8 studies. It was observed when all studies were evaluated together that the use of technology in mathematics courses puts forth a statistically significant difference even though it is a small one.

A statistically significant difference was not determined between the effect sizes of the theses and articles regarding the use of technology during mathematics courses. Effect sizes were determined to be at low levels for both study types.

It was examined whether the studies carried out were effected from the studied group or not and no statistically significant difference was determined between the groups, whereas the effect sizes were determined to be at low levels.

When all these results were taken into consideration, it can be stated that the use of technology in mathematics courses has a statistically significant effect on the attitudes of students towards mathematics course. However, it was observed that studies should be carried out for determining the effect of technology use when it was taken into consideration that this effect has stayed at a low level. Therefore, it is thought that the general effect size may be high in future studies in case the education environment is arranged in accordance with the topic and when the education duration, technology knowledge of the trainer that will provide the education, technology knowledge of students along with the use of high quality software and technologies.

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Effective Project Management For Creative Europe

Eva SVIRAKOVA
Tomas Bata University in Zlín, Czech Republic
svirakova@fmk.utb.cz

ABSTRACT

The article focuses on increasing the efficiency of management of projects supporting European cooperation and mobility in the field of culture. The main research method of the article is the system dynamics (Forrester, 1961, Sterman, 2000), which is based on the concept of system thinking (Bertalanffy, 1976, Senge, 2006). The article presents a case study of a project and characterizes problems that need to be addressed by a project manager during the project management. The main tool of analysis is the system dynamic model. This model offers three options of policies as decision-making mechanisms of a project manager. Finally, using the cost-effectiveness analysis we chose the most suitable solution for a given type of the project. The system dynamic modelling of projects is a powerful tool for increasing the efficiency of decision-making in organizations that invest into development and innovations in the European environment of cultural and creative industries. The research is aimed at creating a simulation of the implemented project in order to improve teaching project management.

INTRODUCTION

Global competition between the regions in Europe is getting stronger. We may observe there is a deepening polarization between the successful and unsuccessful regions, which forces certain localities to search for innovative development strategies. Since this is a new approach to the development of the economies in these regions, it is considered a new cultural policy. The cultural offer is an important soft factor of development that attracts citizens, tourists and investors, while it contributes to the improvement of the image of the given locality. Cultural offer may be an opportunity for regional development and one of the factors and possible solutions. Culture creates image: holding various events (cultural, sports, educational) with the aim of triggering media interest creates a specific environment (Richards and Wilson, in Marková, 2012). The mere fact that "something is happening" means that the region will attract other people who will be interested in creating new projects in the region. That is one of the reasons why former factory halls or other buildings are being turned into new cultural centres, company or shop clusters or renovated premises designated for cultural life and educating people from the city. The aim of municipal and regional strategies is actually very clear: preventing its inhabitants from leaving for work to other places where there is more action. It is quite the other way round: cities want to create localities that will attract new young people.

Let us take the city of Zlín, for example, where the university was involved in the preparation of an international project. The project is described as a case study and elaborated into the form of a system dynamics model. The model serves for demonstrating three decision-making strategies of a manager who is facing a serious problem: the project is behind the schedule. When creating the project we called this approach "Creative project management". (Svirakova, 2014).

The basic objective of project management is the design and implementation of a successful project (Lacko, 2004), i.e. achieving the target in the planned period of time, with defined costs and available resources. Creative project management is a way of creating new value, which is based on unique and talented personality of its creator oriented to creation of a quality product within the specified limits. But in fact, a method of forming new value lies in appropriate setting of processes for creative project management. In addition to project management processes, managers of creative projects must also consider the talent of the creator. Creative project is a temporary organization which is created for the purpose of delivery of original and formally perfect products containing intellectual property, delivered in accordance with pre-agreed target and within specified limits (Svirakova, 2014).

The basis for successful implementation of creative project is a good plan. The purpose of planning is not to create a timetable of tasks, but it is an integrated view of the way we achieve goals. Methods that lead to improved decision-making of managers are highly desirable (Krejčí, Kvasnička and Dömeová, 2011). In our approach to using system thinking and system dynamics, we teach culture managers how important the plan is, what parameters we plan, should plan and what we observe in reality. Modelling is seen as an innovative means of obtaining new knowledge about the course of the implemented project.

ANALYSIS OF A CASE STUDY OF A PROJECT FOR CREATIVE EUROPE "THE CELL FOR DESIGN"

With this project we want to support the effort of the city to keep graduates of Tomas Bata University in Zlín as a creative workforce that will bring about economic development. Zlín is a regional city with a large and previously unused creative potential. By means of exhibitions and simulation of Coworking Design Centre in Zlín we want to increase the demand for the products resulting from the process of creative design. We also want to increase the cultural image of the city by concentrating creative projects in the centre of Zlín and on the factory compounds and thus support the ideal of attractiveness and usability of the former factory for cultural experiences with a high degree of interaction and getting a new public involved.

Mandate for a creative project under the programme: Creative Europe, partial programme Culture)
General objectives of the program are defined as follows: (1) Enhancing the skills, competences and know-how of representatives of creative industries including the use of digital technologies, innovative approach to the development of the public and business and managerial models; (2) Promotion of the mobility of cultural actors (artists, experts, etc.) and the circulation of artworks. The vision of the Cell for Design project is to contribute to an increase in demand for design products. We want to achieve the vision through the fulfilment of the project objectives. The basis for the Cost-Effectiveness analysis is the indicator of the expense-to-revenue ratio in relation to goodwill, which represents the degree of how an investor is satisfied with the project results and the quality of communication during the project.

General business case of the Cell Project
The vision of the Cell for Design project is to contribute to an increase in demand for design products. Cell designs and manufactures products with original design by request of the audience. We want to achieve the vision through the fulfilment of the objectives of the project, which is the partnership between the four stakeholders: city, art school studios, major galleries and audience. The project will include three joint exhibitions in the cities of partners, i.e. Zlín, Sofia and Wroclaw and one joint exhibition of all the partners in Riga. The project will also include three seven-day simulations of the Coworking Design Centre in Zlín, Sofia and Wroclaw with four activities. The first activity is Coworking Community, its aim is to build creative teams at social contacts and creative work. The second activity is Coworking Round Table as the focal point for creative companies that are planning to upgrade their products. Contact with a new audience is established using the third activity Coworking Square Table. The fourth activity is the Coworking Academy, which will provide space for lectures and practical workshops, whose mission is to share knowledge and skills. Throughout the project there will be an interactive website, whose main target group is the new audience of the general public. In the course of the project a manuscript will be created that records 20 new design stories.

WBS as a plan of the Cell Project
The project plan indicates 12 summary products, each of which fulfils the objective of the project: (1) Project management, (2) Interactive website The Cell for Design, (3) 3D interactive promotional tools The Cell for Design project, (4) Exhibition in Zlín: Recycling Design, (5) Coworking Design Centre in Zlín, (6) Exhibition in Sofia, (7) Coworking Centre Sofia, (8) Exhibition in Wroclaw, (9) Coworking Centre Wroclaw, (10) Final Exhibition: results from all Coworking Design Centres in Zlín, Sofia and Wroclaw, (11) Printed book Design Stories, (12) Final meeting of the project team members. These products are further using WBS (hierarchical structure of the product) divided into more or less extensive products so that their delivery can be more easily controlled. Overall, we awarded the project 2,000 difficulty points according to these deliverables. The planned project duration is 50 months. The total budget of the project is 333 thousand Euros. These three data, i.e. the duration of the project, costs and estimated difficulty of the project scope are fundamental border parameters of our system dynamic model.

PROBLEM FORMULTIAON AND METHODOLOGY

Tracking the actual course of a project is a difficult managerial task. If it is not determined in advance what the project intends to achieve, we can make no assessments as to how big deviation from original objectives occurred and whether the project was successful or not. In the project portfolio in the environment of cultural and creative industries we are still struggling with the same problem: project managers do not have a plan of their project. It is not possible to compare it during the project implementation. Managers control the course of a creative project intuitively and underestimate the importance of planning. Consequently, they are unable to track its actual performance and they are not able to notice project delay. They argue that sophisticated methods, for example Earned Value Management method (PMBOK® guide, 2013) that requires constant updating through working time expressed in cash, is inapplicable. In the environment of cultural and creative industries we often work with a team of volunteers, it is then logical that the measuring of the team performance with help of money is artificial and ineffective. Yet even project managers in the field of culture need to use a sophisticated method to assess their progress. Project managers in the environment of cultural and creative industries need to know where they are in the project, what the delay is and what is needed to counterbalance the plan and reality (Rehacek, 2015). Clients and sponsors of this type of projects require objectively verifiable information that the task has been fulfilled and whether the project achieved the expected results.

System dynamics is a scientific method of investigation focused on solving real-world problems. At present time knowledge and tools of system thinking play an important role in streamlining the organization management (Kolerova, Bures and Otcenaskova, 2014). System dynamics is aimed at study of behaviour of complex social systems. This scientific methodology helps to better quality understanding of systems, where there is a high degree of detail and dynamic complexity. Specific methodology of system dynamics lies in representation of system issues that we want to solve. These systems are networks of closed loops of feedbacks which constitute levels and flows, are performed in time and are subject to delay. System dynamics relies on simulation in the sense, that with the help of model it is able to introduce a system in a simplified way, and describe the problem which is intended to be solved. Feedback loops and delays are visualized and formalized through levels and flows (Mildeová and Kalina, 2013). In fact, every decision is a risk for the company (Taraba, et al., 2015).

MODEL AND DATA

The model is an appropriate platform because it represents a simplification of reality. Model is a mediator and interpreter between theory and practice. On model we can test the correctness of settings of creative project plan and compare it with the actual project development. From the system dynamics perspective, a model is developed to address a specific set of questions. One models problems, not systems. We emphasize the point because the purpose of a model helps guide its formulation. The problem to be addressed, the audience for the results of the study, the policies one wishes to experiment with, the implementation desired, all influence the content of the model. (Richardson & Pugh, 1981).

Formulating system dynamics model

Forrester, founder of system dynamics, claims (in Glaiel, 2012) that feedback processes control all overall growth, deflections and a decrease (decline). They are determining basis for all changes. They allow new insights into the nature of managerial and economic systems, which in the past were not included in descriptive and static analyses. System approach, which includes also system thinking and mental models, directs the manager during the project to successful process of elements integration in higher unity. The system is visualized through levels and flows. Thanks to understanding the principles of system thinking we are better able to assess the correctness of our decision, and especially its consequences (Senge, 2007 Šviráková, 2014).

System dynamic models are called diagrams of stocks and flows, and generally they are more accurate than diagrams with causal feedback. To design system dynamic models we use the following elements: accumulation, flow, variables and constants. If the system accumulates, it is said to be dynamic. In models we recognize both positive and negative feedback, with the existence of nonlinearities and delays in relations among elements of the system.

Lyneis and Ford (2007) claim we can define general structures that serve as a basis for feedback loops that influence the progress of a project. System dynamics focus on modelling features found in the current systems. The typical features are the progress of a project in time, in terms of sources, managerial mental models and decision-making. Principal project features are the amount of work that is to be done (Work to Do) and amount of work that has been completed (Work Done), handed over and approved (Work Done Approved). The levels of Work to Do and Work Done are connected by a flow that is characterized by the gerund Working. The levels change in time and they are only influenced by the flow. The speed of the flow is influenced by managerial decision-making and the work efficiency of the team.

Products finished in the project are presented to the project manager in the approval procedure, which is connected with quality management of the project and influences further advancement of works on the project. If an output is not approved, the project team needs to rework it. The reworking cycle is not a part of the plan model, but when implementing a project we need to take it into account, as it always arises during the project implementation stage – to a greater or lesser extent. It is the cause of problematic behaviour of a project that often occurs: a delay. Figure 1 below shows the basic structure of the reworking cycle. The variable representing the amount of work that still needs to be done (Rework to Do) includes all the products the manager has found as failing to meet the required (planned) parameters. Therefore, they are submitted to the rework procedure and increase the amount of work that needs to be done under the project. The sooner the handed-over products are checked, the more time there will be for the project team to deliver reworked products and thus decrease the amount of work that still needs to be done.

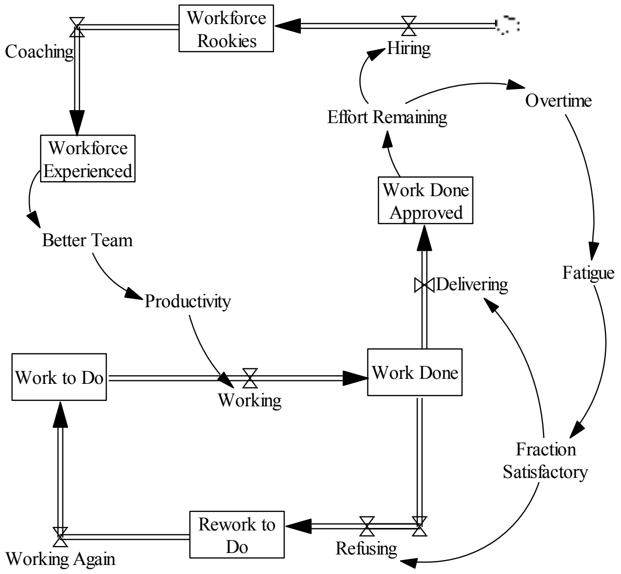

Fig. 1: Basic system dynamics model

Entering data into the model
The project performance is typically measured using the following indicators: extent, time and adhering to the budget. The project extent is often accompanied by the term "quality", since these two terms are closely related. If we determine the expected extent of a project, which is done using a structured schedule of project results, we also need to define these results with quality parameters. These three project aspects, which have to be measured at all times, form a so-called triple constraints of a project, which means they influence one another, i.e. decreasing a value of one of them results in affecting the value of the two other aspects.

For an alternative method of navigation in the project a measurable parameter will be difficulty of accessibility of planned products (not activities) of the project, which must be estimated as well. We searched for a suitable approach to estimating the work difficulty, which will be simple and understandable for the project team, and we have chosen the point method. This method consists of a point system and allows for determining the difficulty of each project product.

PROBLEM SOLUTION

For manager's interferences management the key variable is, in terms of flow between two levels, Working (Fig. 1). It is a quantity which is measurable in number of points for outcomes of the project team members have to finish (Planned Value) or finished (Earned Value) in one week. Variable Working is dependent variable and is affected by two other variables: real productivity and impact of remaining work on productivity.
Thanks to the obtained data that define the difficulty level for achieving the project products in the course of time we were able to prepare a project plan in a graphic form. The total value of the project is 2,000 difficulty points to be obtained in the course of 50 weeks. The Work Done Approved variable was established on the basis of the simulation results. Figure 2 below shows three strategies we used for simulated project behaviour. The first strategy shows zero reaction to delays in the project (Curve 1). The second strategy reacts to a delay in the project by requesting additional workforce in the last stage of the project (Curve 2). In the third case we start strengthening workforce in the month when a delay is detected (Curve 3).

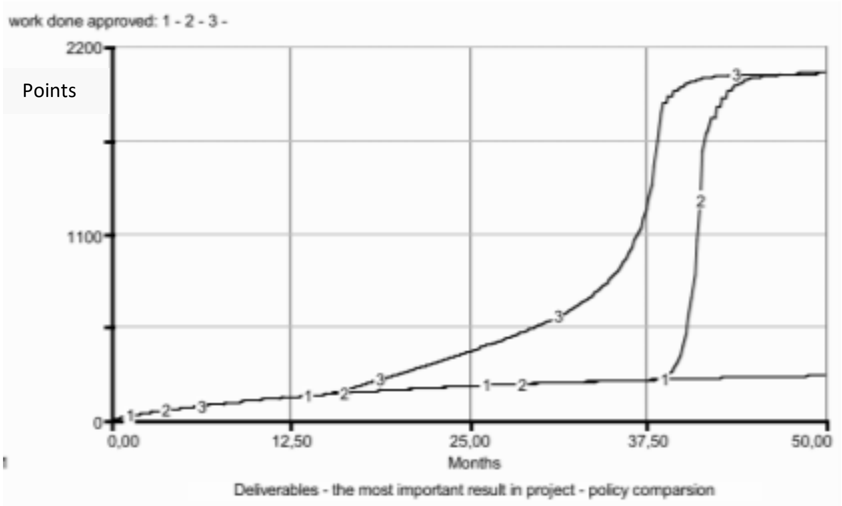

Fig. 2: Graph: Expected project result, work done approved
Source: own, iThink SW for system dynamics modelling

Figure 3 below shows the cost effectiveness analysis of these three simulated strategies. The analysis is influenced by two variables: workforce costs and customer satisfaction with communication during the project. The third decision-making mechanism in this analysis is at first more expensive than the other two strategies. However, if a decision is taken not to care about the project delay (Curve 1), the project is penalized as it has not met its objective. Therefore, the third decision-making strategy is favorable from the perspective of the cost effectiveness analysis as well as from the perspective of the lowest risks linked to this strategy. In comparison with Strategy No. 2 products are completed at earlier stages of the project, not in its last stage (Fig. 2).

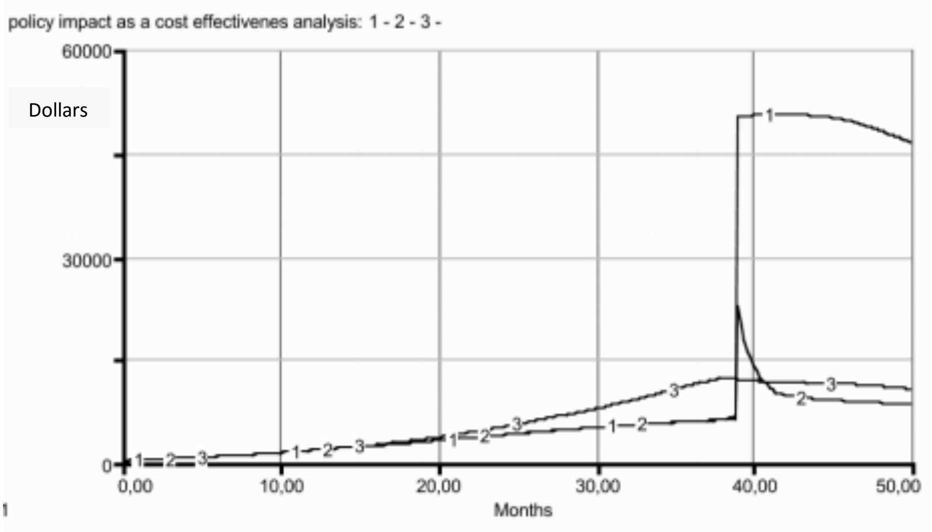

Fig. 3: Graph: Expected cost benefit analysis: three decision-making strategies
Source: own, iThink SW for system dynamics modelling

CONCLUSIONS

Projects in the environment of cultural and creative industries are specific projects the organization of which conceals hardly predictable and not always satisfactorily resolvable challenges. Project manager is usually not capable to assess well in advance the impacts of current delay of reality contrary to whole project to its end. Traditional approach to project management is based on detailed planning of all activities from the beginning to the end of a project and on the evaluation of project implementation on the basis of workforce costs. The presented approach, which is a foundation for modelling the project course, is based on project planning through the point system: to set the difficulty of each project product. At the end of each stage the managerial progress of work within a given stage is evaluated, value of actually achieved outputs measured and compared with the plan. Creative project management is built on the ability of measuring the achieved quality of a project as well as on precognition of its future development. Tool for dynamic planning and monitoring the development of the project with incorporating prediction is simulation of project development. System dynamic modelling method meets new requirements that are placed on project management: to go beyond technical and engineering disciplines, to create a process that will comply with transdisciplinary and integration approach (Saynisch, 2010). As Soukalová (2011) stated, the essence of management can be simply characterized as an information-communication activity the aim of which is to transfer the information quickly, efficiently, accurately and reliably. Cultural and any other creative or scientific projects cannot be in the 21st century built on rigid and bureaucratic practices that hardly detect problematic project behaviour. Creative environment must remain dynamics and must offer new challenges including an integrated possibility to make changes in planning process.

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Effectiveness Of Internship Practices By Students Of Medical Services Vocational Schools Of Higher Education

Nurhan GÜMRÜKÇÜOĞLU
Vocational School of HealthScience
Karadeniz Technical University,Turkey
ngumrukcuoglu@ktu.edu.tr

ABSTRACT

As in the curricula of all disciplines based on practice, theoretica linformation and practic eshould complement one another in the Vocational School of Health Sciences.Clinical practices constitute a significant part of the education provided in the Vocational High Schools. In thi scontext, internship practices provide the students with a significant opportunity to improve their skills. In the present study, the aim is to determine the contributions of internship practice stop reparing studentst professional life and provide recommendations for possible problems. The study group consists of 120 second-gradestudents studying at theVocational Health High School of Karadeniz Technical University in the fall semester of 2015-2016 academic year. Data of there search were obtained via “Internship Efficiency Survey”. At the end of the analysis of the data, it was found out that students generally find internship activities, which are practice-based trainings, useful and beneficial.

INTRODUCTION

It is important to set up a visual and auditory background to establish persistency in vocational school of higher education (VSHE) education. While people are able to remember 10% of things they read, 20% of things they see, 50% of things they see and hear and 70% of things they mention, they remember 90% of the things they do and mention(http://www.willarworklearning.com/2006/10/people-remember.html).

In this case, technical background is important. As it is in the training schedules of all disciplines based on practice, theoretical information and implementation mush complement each other in medical services VSHEs. Internship practices constitute a significant portion of the education in VSHEs. In this context, internship implementations provide significant opportunities for skill development in students Mcmillan&Schumacher (2001).

Internship practices as indispensable elements of medical services VSHEs, ensure the development of positive behavior changes by providing students with the means to spend considerable amount of time with several possible role models (Velioğlu 94). However, in order to establish permanent behavioral changes in students, practice areas must be appropriate for the purposes of the training. In planning the internship training, in addition to the suitability of the practice areas in terms of the training, other things such as the numbers and skills of the educators who will manage and evaluate students are also important. The roles and function of the educators during the internship training are very significant for the students. Three factors that support learning in practice are the sufficient amount of trainer support, improvement and monitoring of internship training areas, and increased cooperation with the management of hospitals for placement of students in suitable clinics (Abaans, 1997, Karaöz, 1997, Brown et al., 2005).

Internship training leads to the incorporation of the theoretical knowledge and practice, as well as learning by doing in a real life environment Aştı&Taşocak (1995). The goal is to firstly achieve the improvement of psychomotor skills of the students, and then combine/integrate their theoretical knowledge with their technical skills, and establish permanent behavioral changes (Sözen, 2003, p.10).

The student, by showing cognitive and psychomotor improvements through his/her clinical experience, develops the necessities of professionalism such as adequacy in providing services, communication, decision making and being able to work as a team memberGünay&Özer (2014).

This study aims to determine the contribution of internship practices in preparing students for professional life and suggest solutions to possible issues.

The following research questions were considered in order to reach this aim:

- What are the levels of the students in terms of their awareness and behaviors regarding internship practices?

- Is there a statistically significant difference in the students' awareness and behaviors based on their sex?
- Is there a statistically significant difference in the students' awareness and behaviors based on their departments of study?

THE STUDY

This study is a descriptive work based on a screening method on the effectiveness of internship training of students of medical services vocational schools of higher educations in hospitals. In screening models, the even, individual or object that is subject to the research is aimed to be described as it stands in its own conditions(Karasar, 2006).

Population and Sample

The population of the research consists of second year students enrolled in the Medical Services and Techniques department of the Medical Services Vocational School of Higher EducationatKaradeniz Technical University in the fall semester of the year 2015. The sample of the study consists of associate health personnel candidates (N=120) including students in programs of Medical Lab. (N=43), Medical Doc. (N=42) and Emergency Medicine Tech. (N=35). Demographic characteristics of the participating students are given in the table below.

Table 1 - Distribution of Students Based on Their Demographic Characteristics

	Variables	**f**	**%**
Sex	Male	68	56.7
	Female	52	43.3
Program	M. Lab.	43	35.8
	M. Doc.	42	35.0
	E. M. Tech.	35	29.2

Data Collection Tools

The data of the study were collected with '*Internship Effectiveness Awareness*' and '*Internship Effectiveness Behavior*' scales by utilizing the existing literature and referring to expert opinion. Each scale consisted of 13 items and items were prepared in the form of 5-point Likert-scale. The '*Internship Effectiveness Awareness'* scale was assessed based on responses 'completely agree', 'agree', 'undecided', 'disagree' and 'completely disagree', while the '*Internship Effectiveness Behavior'* scale was assessed based on responses 'always', 'mostly', 'sometimes', 'rarely' and 'never'. The Cronbach Alpha internal consistency coefficient of the Internship Effectiveness Awareness Scale was 0.78, while the same coefficient was 0.74 for the Internship Effectiveness Behavior Scale.

Table2 - IntervalsConsidered in Analyzingthe Data of theMeasurementTool

Rating	**Response Interval**
Completely Agree	4.20-5.00
Always	
Agree	3.40-4.19
Mostly	
Undecided	2.60-3.39
Sometimes	
Disagree	1.80-2.59
Rarely	
Completely Disagree	1.00-1.79
Never	

Analysis of the Data

- The data were analyzed in the SPSS-17 software. In the analysis of the data, in addition to the assessment of descriptive statistics, independent samples t-test was also used.

FINDINGS

The scores students received from the '*Internship Effectiveness Awareness and Behavior'* scales were analyzed using descriptive statistics regarding the 1st research question, and independent samples t-test regarding the 2nd and 3rd research questions. Arithmetic average and standard deviation distributions are given in the tables.

Table3 - DescriptiveStatistics on theInternshipEffectivenessAwarenessandBehaviorScales

Type of Scale	**N**	**Minimum**	**Maximum**	**X**	**SD**
Int. Eff. Awareness	120	1.00	5.00	4.24	0.44
Int. Eff. Behavior	120	1.00	5.00	3.41	0.45

Table three shows the scores of 120 prospective medical professionals. If we look at the table, the arithmetic average of the scores the students received from the internship effectiveness awareness scale was X=4.24, while the average was X=3.41 for the internship effectiveness behavior scale.

Table4 - InternshipEffectivenessAwarenessScale t-test Results of the Prospective Associate Healthcare Professionals Based on Their Sex

Sex	**N**	**X**	**SD**	**t**	**dF**	**p**
Female	68	4.49	0.43	2.09	44	0.03*
Male	52	4.23	0.65			
*p<0.05						

Table 4 shows that there is a statistically significant difference in favor of female students in the internship effectiveness awareness scores [t(44) =-2.09; p<0.05]. It may be seen that female students had an average score of 4.49 in the internship effectiveness awareness scale, while male students had an average score of 4.23.

Table5 - InternshipEffectivenessBehaviorScale t-test Results of theProspectiveAssociate Healthcare ProfessionalsBased on TheirSex

Sex	**N**	**X**	**SD**	**t**	**dF**	**p**
Female	68	3.12	0.62	-1.38	44	0.18
Male	52	3.311	0.58			

Table 5 shows no statistically significant differences in the internship effectiveness behaviour score based on the students' sex [t(44)=-1.38; p>0.05]. It may be seen that female students had an average score of 3.12 in the internship effectiveness behavior scale, while male students had an average score of 3.31.

Table6 - InternshipEffectivenessAwarenessScale t-test Results of theProspectiveAssociate Healthcare ProfessionalsBased on The Programs TheyAreEnrolledIn

Prog.	**N**	**X**	**SD**	**t**	**dF**	**p**
M. Lab.	43	4.18	0.42	-0.07	44	0.12
M. Doc.	42	4.23	0.42			
E. M. Tech.	35	4.31	0.39			

Table 6 shows no statistically significant differences in the internship effectiveness awareness score based on the programs the students are enrolled in [t(44) = -0.07; p>0.05]. The average internship effectiveness awareness scores of M. Lab., M. Doc. and E. M. Tech. students were 4.18, 4.23 and 4.31 respectively.

Table7- InternshipEffectivenessBehaviorScale t-test Results of theProspectiveAssociate Healthcare ProfessionalsBased on The Programs TheyAreEnrolledIn

Prog.	N	X	SD	T	dF	p
M. Lab.	43	3.32	0.41	-0.38	44	0.82
M. Doc.	42	3.37	0.36			
E. M. Tech.	35	3.46	0.39			

Tablo 7 shows no statistically significant differences in the internship effectiveness behavior score based on the programs the students are enrolled in [t(44)=- 0.38; p>0.05]. The average internship effectiveness behavior scores of M. Lab., M. Doc. and E. M. Tech. students were 3.32, 3.37 and 3.46 respectively.

CONCLUSIONS

- In this study which examined the internship activity awareness and behavior of prospective associate healthcare professionals, it was observed that the students generally had high scores in terms of both awareness and behavior. The minimum score on the scales was 1.00, while the maximum was 5.00. These findings show that the average scores of the participating students were on the level of ‘completely agree’ for the *Internship Effectiveness Awareness Scale,* and on the level of ‘mostly’ for the *Internship Effectiveness Behavior Scale.*
- The participating students generally agreed that internship activity, which is a training in practice was effective. It was observed that the skill training was important for their profession, the skill training duration was adequate, they were regularly inspected by the faculty members of the school, and they were satisfied with their participation in the training.
- Based on the results of this study, it may be argued that, while they have some shortcomings, internship skill trainings are generally functional and they serve their purpose. However, it was determined that internship students had negative views about abiding by hospital rules during their internship. Additionally, the students stated that emergency treatment and first aid training were not provided adequately in their schools. It may be argued that implementations supervised by responsible experts would lead to more serious and effective results and provide students with opportunities to functionally improve themselves before their profession.
- According to the analysis of the content in the internship effectiveness behavior scale, it was determined that skill training was important, the students had the chance to practice what they had learned, they complied with hospital regulations and the staff supported the students. However, it was found that the students attending the internship programs did not have adequate first aid and emergency treatment training, and they may pose serious problems in cases of emergencies. This situation may be considered as a negative point in terms of the effectiveness of the implementation.
- While there were no statistically significant differences found in the students’ internship effectiveness behavior scale scores in term of their sex, there were significant differences in their internship effectiveness awareness scales scores in favor of the female students.
- The reason for the result in favor of female students might have occurred as a consequence of the model citizen image attributed to women’s role in almost every society (Sadık&Çakan, 2010). According to Kağıtçıbaşı (1990), women are generally expected to be warm-hearted, empathic, sensitive, tolerant, compassionate, thoughtful, tidy and responsible. It is believed that this expectation of roles in by the society lead women to be more sensitive in communication (cited in Sadık and Sari, 2010; Çimen, Yılmaz&Çimen, 2001). Gama (2003) suggested that this result might be considered positive as female students will be prospective mothers in the future.
- There were no statistically significant differences found in the students’ average scores in both scales based on the programs they were enrolled in. Additionally, E. M. Tech. students had higher scores in both scales. Consequently, it was observed that the students built up an awareness towards internship practices, however small this awareness might be, and this awareness was reflected on their behaviors in parallel to the education they received. However, these data also show that the reflection of awareness onto the students’ behaviors is not on the desired level.
- It is a known issue that the supervising staff in hospitals cannot spare adequate amounts of time for students during their skills training, as the staff have other duties. Therefore, this issue may be resolved by dedicating personnel responsible only for these activities and allocating the entire shifts of these employees to the guidance of the students.

- Students receiving skills training in hospitals are treated like personnel, and they are included in departments where there are shortages of employees. This is not done by assessing the skills and knowledge bases of the students. Thus, the shortcomings of the students may create problems at some points. Therefore, managers of such establishments should stop seeing the students as personnel, and remember that they are students who are there to reinforce their education.
- It would be useful for students to be involved in departments where they can get rid of their shortcomings, reinforce the theoretical education they have received, and find a chance to practice, instead of departments with shortages of personnel. Additionally, in order to eliminate theoretical or practical shortcomings detected, capable personnel in the hospital may provide in-service training, and such issues may be resolved.

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Effects Of An Integrated Approach Program For The Korean Alphabet Learning Of Children With Reading Disability

Kiju Kim[1]

Jakyoung Kim[2]

Sungwook Jang[3]

[1]Sorinara Speech and Language Therapy Center
[2,3]Department of Special Education, Pusan National University
Korea
solinala@naver.com

ABSTRACT

This study investigates effects of an integrated approach program for the Hangul (Korean Alphabet) learning of children with reading disabilities in Korea. The integrated approach program incorporates the structured activities that provide training of the word structure (spelling), word sound (pronunciation) and word understanding (meaning). In order to verify the improvement of the Hangul learning over the program, reading fluency, phonological awareness, and naming speed (objects, colors of RAN) were measured. Single-group pretest-posttest design was used for the study. The integrated approach program consists of 20 sessions and has applied to 24 elementary students (Grade 1~3) with reading disabilities. Our findings indicate that the integrated approach program for the Hangul learning is effective. The results indicate that the scores of reading fluency and phonological awareness increases, and the RAN for objects and colors has improved. Therefore, this study has significance that the integrated approach program for Hangul, performed in terms of the simultaneous application of the three main elements of word reading, is effective to the children with reading disabilities.

INTRODUCTION

Reading itself is a major curriculum and the basis of learning. Early reading difficulties may cause serious reading disabilities later. Thus, it is important to teach reading accuracy and reading fluency from an early school age (Kim & Kim, 2006). Reading is a complex process which consists of word recognition, accessing meaning, information integration, and inferences. Skilled reading is the result of highly interactive process of the three major elements: alphabetic knowledge, phonetic knowledge, and semantic knowledge (Kim & Kim, 2012; Adams, 1990). Therefore we should include the three elements simultaneously for the effective teaching of reading (Adams, 1990).

However, in a large number of reading intervention studies for children with reading disabilities has focused on a single cause of reading disabilities such as phonological awareness (Kim, 2002; Song & Park, 2003; Lee, 2003), naming speed (Kim & Kim, 2006), or neurological imprinting (Kim, Kim & Lee, 2012). This causal approach could improve reading skills partially, but there are limitations to learn Hangul (Korean alphabet) effectively. Also, an intervention that focuses on weaknesses of children with reading disabilities such as phonological awareness or naming speed lead to decrease their motivation to learn (Jin et al., 2006). Therefore, an integrated approach program is needed for children with reading disabilities to teach Hangul effectively. This study develops the integrated approach program for the learning of Hangul for children with reading disabilities and investigates the effects of the program.

METHOD

1. Participations and Procedures

1) Participants

24 students, who had difficulties in learning Hangul or reading in grades 1 through 3, participated in this study. Intelligence test (K-WISC Ⅲ) and reading measure (KEDI – Individual Basic Learning Skills test, Reading Ⅰ) were used to identify children with reading disabilities. The participants were the students who scored more than -1 SD in intelligence and less than -1 SD in reading measurement. Participants were composed of 10 students in grade 1, 7 students in grade 2, and 7 students in grade 3.

2) Test and Procedures

Each student was administered the reading fluency, phonological awareness, and naming speed (objects and colors of RAN) tests individually by the examiners who were trained for the work. Testing was completed before and after the intervention period. Each intervention was a 30-minute session and conducted one or two sessions per week, a total of 20 sessions. The integrated approach program divided into four steps and we selected each student's step depending on the grade level.

2. The Development process of the integrated approach program for Hangul learning

The integrated approach program was constructed through a review of the literature. And the concurrent validity was verified by two professionals in special education with Ph.D. and two speech & language therapists. For the development of the program, we applied the program to 12 children over 4 years, and potential problems have been resolved. The principles that applied on the integrated approach program for the Hangul learning are as follow.

First, we used the 'matching word and picture' strategy to teach the Hangul principles naturally. For this purpose, we chose the words that could be stimulated by picture (Bowen, 1982; Kim, 1994).
Second, the program was composed of the words whose meaning children already know (Lee, 2004).

Third, a neurological imprinting method was implemented using children's songs and sentences (Bender, 1992; Holling & Renzel, 1988; Kim, Kim, & Lee, 2012).
Fourth, this program includes training of the phonological awareness and the rapid naming that are fundamental for reading abilities (Gerber & Klein, 2004; Kim & Kim, 2006; Kim & Kwon, 2011).
Fifth, the words with phoneme fluctuation were assigned for the last level(Jeon & Koh, 2007).
Sixth, it consists of only six words at a session to motivate students' learning (Lee, 2009; Sperling & Head, 2002)

On the basis of the principles, the integrated approach program consists of 4 steps. Step 1 has 65 words without a closed syllable that are included in the preschool curriculum. Step 2 has 84 words with a closed syllable that are also included in preschool curriculum. Step 3 has 96 words that are included in grade 1 & 2 curriculum. Step 4 has 96 words with phoneme fluctuation that are included in grade 1 & 2 curriculum. A total of 341 words are selected for the program, and only 6 words are used in each session.

RESULTS

The results of the integrated approach program are as follows. Table 1 shows the mean and standard deviation for the each individual measurement. Reading fluency improved from 83 to 129 syllables per minute. Phonological awareness improved from 15 to 27 point. Naming speed also improved after the program. The response time for naming was shortened from 34 to 28 for objects RAN, from 37 to 30 for colors RAN.

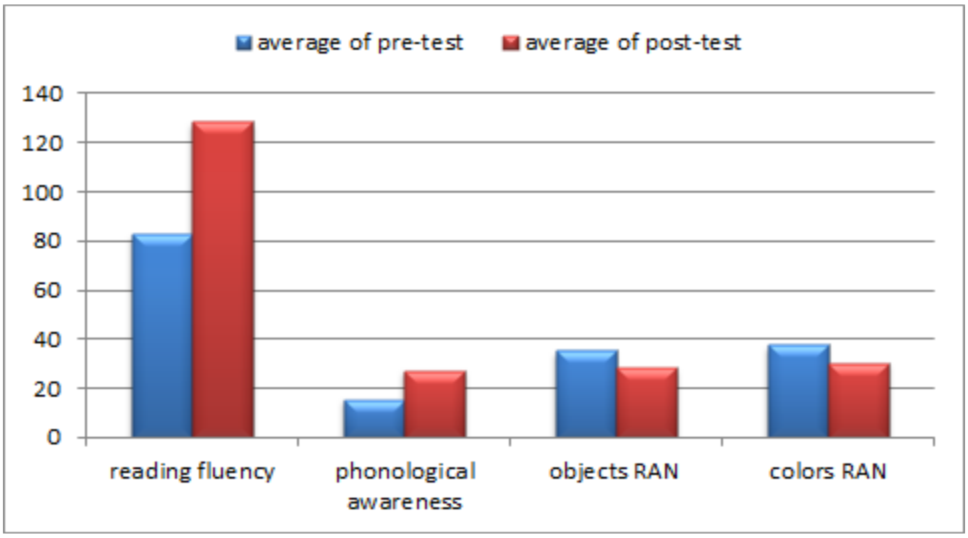

Figure 1: Pre- and post-test performance in four variables

The results of a paired sample t-test are shown in Table 1. The paired sample t-test results show significant differences between pre- and post-test of reading fluency (t=-13.0, p<0.001), phonological awareness (t=-9.05, p<0.001), RAN for objects (t=7.46, p<0.001), RAN for colors (t=5.96, p<0.001). This study shows the effects of the integrated approach program for the Hangul learning for children with reading disabilities.

Table 1: Descriptive Statistics and Comparisons of pre- & pst-test scores on measures

variables		Pre-test		Post-test		N	Pre-post differences		t
		M	SD	M	SD				
reading fluency (# of syllables per 1-minute)		83.75	59.13	129.92	62.83	24	-46.18	17.40	-13.00***
Phonological awareness		15.12	10.96	27.38	9.50	24	-11.96	6.47	-9.05***
RAN (response time)	objects RAN	34.83	8.50	28.04	7.13	24	6.79	4.46	7.46***
	colors RAN	37.88	10.05	30.50	9.34	24	7.38	6.07	5.96***

$^{***}P < .001$

DISCUSSION

This study developed and performed an integrated approach program for the Hangul learning for children with reading disabilities. According to the results of this study, the integrated approach program for the Hangul learning is effective to improve reading fluency, phonological awareness, and naming speed which are primary elements of reading abilities. This study implies that the integrated approach program can be used as an early reading intervention for children with reading disabilities to improve their basic reading skills more effectively.

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Effects Of Discovery Learning And Student Assessment On Academic Success

Nilgün SUPHİ
School of Computing and Technology
Eastern Mediterranean University
Turkey

Hüseyin YARATAN
Faculty of Education
Cyprus International University
Turkey

ABSTRACT

In this study the effect of Discovery Learning and course evaluation based on Bloom's Taxonomy on the academic success of undergraduate students in Northern Cyprus was investigated. One demographic questionnaire was distributed to 829 students and two questionnaires were distributed to these students' instructors in order to collect information on the extent they used the Discovery Learning method as well as ascertaining the complexity level of learning intended to be achieved based on the criteria used for course evaluation (e.g. homework, project, and examination). Fourteen instructors of a total of nine courses and 34 classes participated in this study. The results indicated the higher the use of Discovery Learning during the course the lower the course grades were found to be. Also the higher the cognitive level of learning (e.g. analysis, synthesis and evaluation used by the instructor for the course, the lower the course grade was achieved by the students.

Key Words: Discovery Learning, Cognitive Level of Learning, Academic Success

INTRODUCTION

In the last few decades the approach to education is increasingly steering towards more student centered approach of which Discovery Learning is a part. The reason for this is it has been found to instil curiosity and motivation in students to analyze and make sense of the information they encounter (Castronova, 2002). This in return results in better knowledge retention (Balım, 2009).

While expository teaching is based on teachers (who are believed to be an expert on their subject) planning and presenting the information in a set timeframe, generally in an atmosphere where students are passive listeners (Terzi, Eryılmaz, Anadol & Kaya, 2009), Discovery Learning is where the teacher's role is more in the line of being a facilitator helping the students to discover information by deduction and construction (Kaufman, 1971). The main initiators of this approach to learning is Bruner (Denbo, 1994), John Dewy, Jean Piaget, and Lev Vygotsky based on their constructivist learning theories (Castronova, 2002) as well as Hilda Taba's curriculum based projects on Discovery Learning in the 1960's (Kaufman, 1971).

Light, Calkins and Cox (2009), in their book Learning and Teaching in Higher Education, state one of the most prominent and important challenges in teaching in higher education today to be the necessity for teachers to be aware of and accept that just presenting preplanned information to a passive audience is not enough to motivate students to independently "attain and construct their own knowledge during and after higher education" (p. 11). Graduates who will be the new generation of all types of professions need to know how to continuously learn and construct new knowledge by using their high level cognitive skills that they acquire during their higher education.

Although lower level skills in Cognitive Domain (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) such as Knowledge, Comprehension and Application (renamed Remembering, Understanding and Applying by Anderson et al., 2000), skills in Affective Domain (Krathwohl, Bloom, & Masia, 1964) and skills in Pychomotor Domain (Dave, 1975; Harrow, 1972; Simpson, 1966) are important for education, higher level cognitive skills are preferred during higher education and beyond. These are Analysis (which involves comparing and contrasting), Synthesis (which involves creating, designing, hypothesizing, inventing and developing) and Evaluation (which inolves judging, recommending, critiquing and justifying) (Huit, 2011). These three cognitive

levels were later renamed as Analyzing (which involves comparing and contrasting), Evaluation (which involves criticizing, defending, justifying and summarizing) and Creating (which involves combining, composing, designing, modifying and reorganizing) (Anderson et al., 2000).
Based on the examples given for each of the higher level Cognitive Domain skills (Application, Synthesis and Evaluation), it can be seen that acquiring these will not only help students enrolled in the Faculty of Education be successful in their studies, but when in employment whether they will be teachers, academicians or heads of departments, it will also enable them to compare and contrast information available for course content and/or curriculum, reflect with a critical eye teaching and/or learning processes and enable them to defend and/or justify their ideas to modify, reorganize or design a new course, curriculum or method of education. This in return will help them reach new horizons in the field of education nationally as well as globally. So, not only does higher education have to incorporate this higher level of education using a student centered approach such as Discovery Learning, it also needs to evaluate their practices to see whether it is actually leading to academic success.

Many studies on Discovery Learning versus Expository Teaching have conducted research incorporating a control and experimental group where the pretests have shown students pre-test achievement scores to have no significant difference and in the post-test have shown the Discovery Learning method to have a significant positive effect on the students' academic achievement. Examples of such studies conducted in three different parts of the world are one conducted on fifty-seven seventh grade students in İzmir, Turkey and based on a science course (Balım, 2009), a second on 48 High School students in Pakistan based on a mathematics course (Perveen, 2010), and the third on 160 undergraduate students in Texas, USA based on a biology course (Wilke & Straits, 2001).

There seems to be a consensus within the literature that the approach to education should be more about students discovering and constructing their own knowledge thus leading to the use of higher level cognitive skills, but how are the teachers actually faring? Is there a shift from the use of Expository Teaching to Discovery Learning? Are instructors evaluating the use of higher level cognitive skills? What are the factors that contribute towards the chosen method of teaching? According to Entwistle, McCune & Hounsel, 2002), it is the teachers' past experience (how they were taught as students) and beliefs that shape the method of teaching they choose to adopt. This may be an important factor to consider when choosing an educational approach or a teaching method for students enrolled in programs in the Faculty of Education as they will be the new generation of educators. It is therefore important to find out how the present situation stands.

THE STUDY

This study aims to find the relationship between the instructors' use of Discovery Learning versus Expository Teaching on the Cognitive Domain level of learning and on academic success of students enrolled in the Faculty of Education in Northern Cyprus.

Research questions

1. How is the use of Discovery Learning related to academic success?
2. How is student assessment of homework, project and examination based on Bloom's Taxonomy Cognitive Domain level of learning related to academic success?

Sample

The sample consisted of all except the first year students enrolled in the Faculty of Education in the Eastern Mediterranean University during the 2010 – 2011 academic year Fall semester. Out of the valid 829 cases the majority 465 (54%) were 4th year students followed by 244 (29%) 3rd year students and 138 (17%) 2nd year students. These students were in one of nine courses and 34 groups taught by a total of fourteen instructors.

Instruments

Three instruments were used for this study. The first was the Student Information Questionnaire which aimed to obtain information on the students' year of study, their student number, course and group number (in order to ascertain their instructor). The student number was necessary to be able to obtain their final course grades from the portal. The students were informed of this process and their permission was taken.

The second instrument was the Teaching-Learning Methods Instrument designed by the authors. The participant is requested to mark on the given scale the percentage that they use the Discovery Learning and Expository Teaching for each course they are teaching to the students participating in the study. This and the third instrument was given to the fourteen instructors teaching the 34 groups of 829 students.

The third instrument, Identifying the Level of Learning Questionnaire which was also designed by the authors with the aim of ascertaining the level of learning the instructor aims to assess their students under the following categories: the level of homework, project, examinations and based on the Cognitive Domain of Bloom's Taxonomy. The questionnaire begins with a brief description of the aim of the study and asks the participants to fill in the course code and group number of the students they are teaching. Following this, a table containing three main sections can be found for each category to be assessed eg. homework, project, examinations. The first column of the table contains the levels of the Cognitive Domain namely Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation, the second column gives a brief description of the corresponding Cognitive Domain levels and the final section incorporating five columns has the following headings: Never/hardly ever, Sometimes, Half of the time, Usually, Always/nearly always, and asks the participants to tick how often they give e.g. homework that covers each of the levels of the taxonomy.

ANALYSIS

The data collected from the instructors was entered alongside each corresponding students' student numbers, course codes and group numbers using SPSS (version 18). Data gathered from the Teaching-Learning Methods Instrument was entered as the percentage they were using the Discovery Learning method as the opposite percentage showed the use of the Expository Teaching method.

When analyzing the data collected from the Identifying Level of Learning Instrument, each level of the Cognitive Domain was given a value. As can be seen in Table 1 one for Knowledge, two for Comprehension, three for Application, four for Analysis, five for Synthesis and six for Evaluation. The frequency of use of each of the Cognitive Domain levels were also given values starting from one for 'Never/hardly ever used', two for 'Sometimes used', three for Used half of the time', four for 'Usually used' and five for 'Used always/nearly always'. The cells ticked by the instructors were multiplied by the points assigned for the corresponding vertical and horizontal headings as shown in Table 1 and the summation of these was plugged in for each evaluation criteria such as homework, project and examination separately. This was done for all 34 courses.

Table 1 Calculation table of points allocated for each criteria

Points Allocated for Each Level of Complexity	**Never/Hardly Ever Used (1)**	**Used Sometimes (2)**	**Used Half of the Time (3)**	**Usually Used (4)**	**Used Always /Nearly Always (5)**
Knowledge (1)	1 x 1	1 x 2	1 x 3	1 x 4	1 x 5
Comprehension (2)	2 x 1	2 x 2	2 x 3	2 x 4	2 x 5
Application (3)	3 x 1	3 x 2	3 x 3	3 x 4	3 x 5
Analysis (4)	4 x 1	4 x 2	4 x 3	4 x 4	4 x 5
Synthesis (5)	5 x 1	5 x 2	5 x 3	5 x 4	5 x 5
Evaluation (6)	6 x 1	6 x 2	6 x 3	6 x 4	6 x 5

The students' grades were obtained from the portal and coded as follows: F = 1; D- = 2; D = 3; D+ = 4; C- = 5; C = 6; C+ = 7; B- = 8; B = 9; B+ = 10; A- = 11; A = 12.

FINDINGS

Using SPSS (version 18) Pearson product-moment correlation analysis amongst five variables the following correlation coefficients showing the extent of their relationship were found. These correlations can be found in Table 2.

Table 2: Correlations between Discovery Learning, Course Grade and Levels of Learning of Homework, Project, and Examination based on Bloom's Taxonomy Cognitive Domain

Variables	1	2	3	4	5
1. Discovery Learning	1.00				
2. Level of Homework	.255**	1.00			
3. Level of Project	-.479**	.076	1.00		
4. Level of Examination	-.013	.859**	.330**	1.00	
5. Course Grade	-.061	-.161**	-.033	-.064	1.00
Mean	29.34	62.93	83.93	64.21	8.73
Standard Deviation	24.46	13.37	17.41	19.78	1.89
N	829	517	609	829	829

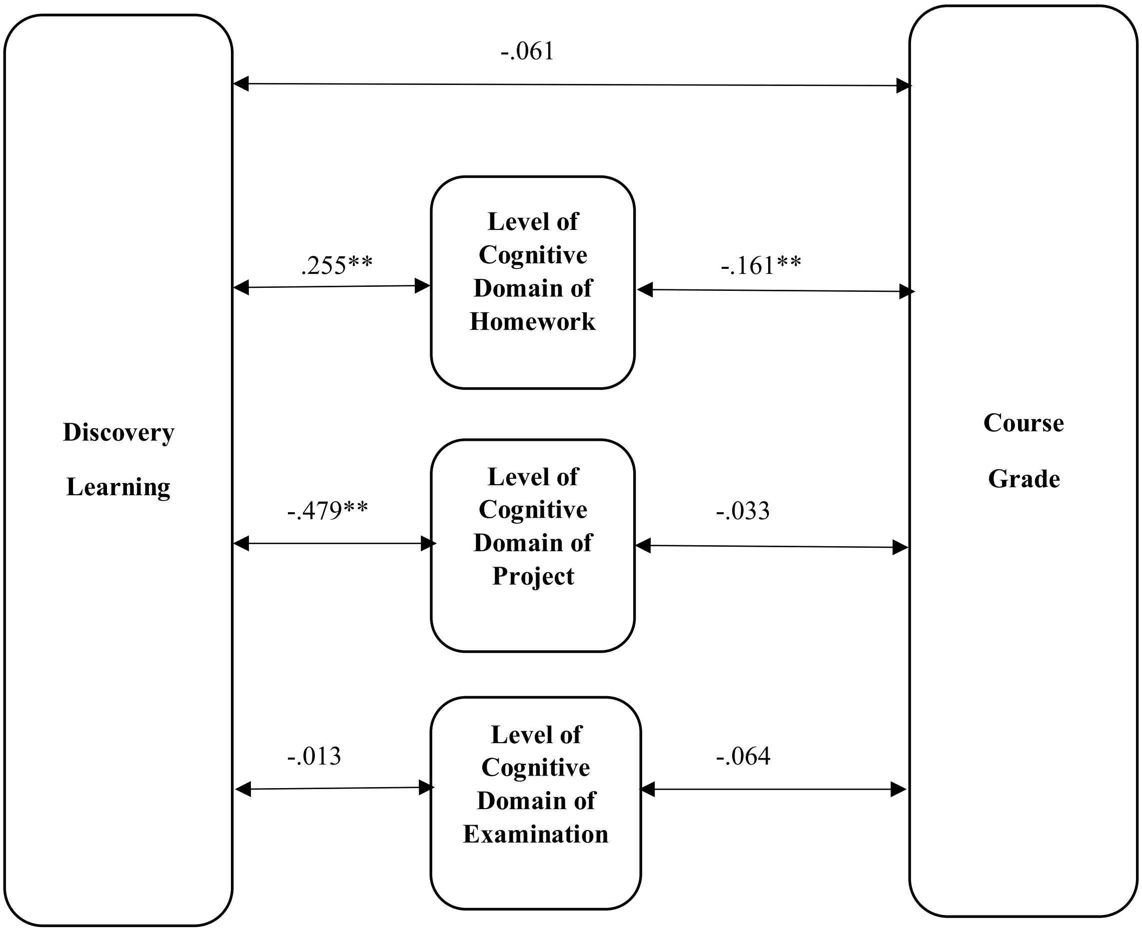

Figure 1 Relationship between Discovery Learning, Course Grade, Level of Learning of Homework, Project, and Examination based on Bloom's Taxonomy Cognitive Domain

Table 2 and Figure 1 show the correlations and relationships between Discovery Learning, Course Grade, Level of Learning of Homework, Project, and Examination based on Bloom's Taxonomy Cognitive Domain. It can be seen that out of the 829 valid cases all 829 of the students' evaluation criteria included examination, only 517 included homework and 609 included projects. The results show a positive significant relationship (r = .255) between Discovery Learning and level of learning Homework based on Bloom's Taxonomy Cognitive Domain Level showing that the more the Instructor uses the Discovery Learning mode of education the higher the Cognitive Domain level of complexity the instructor aims at using when assigning homework. Although this may show that the Instructor believes this mode of education will enable students to accomplish higher cognitive levels when homework is assigned, the relationship between Cognitive Domain complexity level of homework and course grade shows a negative significant relationship ($r = -.161$) showing the student grades to be lower when homework is assigned at this higher complexity level and vice versa.

The correlation between the use of Discovery Learning and level project assignment on Bloom's Taxonomy Cognitive Domain levels shows a negative significant relationship ($r = -.479$) meaning the more the instructor uses Discovery Learning the lower the level of learning (based on the Cognitive Domain) is set for the project assignment. In addition to this an insignificant negative relationship is found between course grade and the level of learning of project assignment in the Cognitive Domain ($r = -.033$). Furthermore, the level of complexity of examinations based on the Cognitive Domain has a negative and insignificant relationship with both Discovery Learning and course grade ($r = -.013$ and $-.064$ respectively). As the latter has a p value close to .05 ($p = .067$) this may point out that students obtain lower course grades when a higher level of Cognitive Domain assessment is used.

There was no significant relationship between Discovery Learning and course grade only a small negative relationship ($r = -.061$ with a p value of .080) which may slightly indicate the higher the use of Discovery Learning the lower the course grade.

CONCLUSIONS AND DISCUSSIONS

The study's first aim was to find out whether the use of Discovery Learning has a relationship with the course grade. This study did not find any conclusive evidence showing any significant positive relationship but only an indication at the $p = .080$ level that as the use of Discovery Learning increases course grades drop and vice versa. This could be due to the students' prior educational experience and background cultures where they are used to having a teacher, who they believe to be an authority in their field, pass on the information in class. Also, the university entrance examinations in Turkey and North Cyprus are both based on a set curriculum and their evaluation is based on multiple choice questions. Therefore during the lengthy preparation for this examination, students may not have had the opportunity to gain experience or acquire the skills related to discovering their own learning and/or be able to succeed at answering questions involving analyzing, synthesizing and evaluation. It may take these students a little more time to adjust to this way of learning and prepare for the higher cognitive assessment levels. It is important to bear in mind, the majority of the sample consisted of 4th year students showing that they don't seem to have mastered these skills even towards the end of their studies at higher education. This result may also mean that the instructors are more ambitious when it comes to Discovery Learning and because their students are seen to be involved in what they are doing in class, the instructors' expectations of the students may become too high when setting complexity levels for assessment. Further studies can be made to ascertain the underlying problems.

When the first research question is looked at from the Expository Teaching perspective there seems to be a tendency pointing towards the higher the use of Expository Teaching the higher the course grade maybe showing that students are more accustomed to this method of teaching and know what to expect and how to study for this level of evaluation.

The study's second aim was to ascertain how the complexity levels based on the Cognitive Domain on homework, project and examinations affect course grade. The academic term assessments usually begin with homework and some quizzes generally just before the midterm examinations. After some of the material has been covered, a project may be given followed by a final examination. Looking at the correlations depicted in Figure 1 it can be seen that the instructor using more Discovery Learning in class gets more ambitious with the level of complexity when assigning homework but on seeing the homework mark results may realize the students are struggling to cope at this level and so may opt to lower the assessment levels for the project while continuing with Discovery Learning. Correlations between project level of complexity and course grade as well as Discovery Learning and examination level of complexity do not come up significant signalling an area that may need further research. Only a slight significant negative relationship between complexity of level of examinations and course grade was found. This may point to students struggling when instructors use higher cognitive domain levels in examinations.

Again, when the results are taken from the perspective of Expository Teaching, it can be seen that the higher the use of Expository Teaching method in class, the lower the assessment level of homework given is and the students receive a higher course grade. So, in this case it seems the instructor using Expository Teaching gives out projects with complexity at the higher cognitive level after which the correlations between project level of complexity and course grade become insignificant. Again, further investigation is required.

As a result of these findings there may be a message to curriculum designers and instructors to determine the students'educational background and slowly introduce Discovery Learning from the first year of university. Where deemed necessary, instructors may be given in-house training to empower them to use this method more effectively and efficiently. Also when entering university, students' present cognitive domain level skills can also be determined and where necessary the upper cognitive domain skills such as comparing, contrasting (analysis), designing, developing (synthesis), criticizing and justifying (evaluation) can be incorporated within class time, again starting with year one, initially in homework and assignments. Extra class or tutorial time may be allocated for students to do rewrites after continuous feedback and encouragement from the instructors. This will take time, effort and practice for it to become a skill and may initially take time away from the actual subject matter being taught but hopefully the rewards of such activities will be reaped in later years. In order to allow for constant feedback for these skills to be assimilated by the student, preferably within the first year of university, curriculum designers and instructors need to also incorporate sufficient time for this to be able to happen within feasible class sizes.

Although there is a continuous rise in the number of new universities being established both in Turkey and North Cyprus, competition for students should not pressurize instructors to lower the level of cognitive complexity to allow for the average number of students to pass. Instead remedial strategies should be put into place to equip the students with the necessary skills so they can reach and pass their assignments and examinations at the required cognitive level for higher education.

More in depth research by way of interviews with instructors need to be conducted to ascertain their struggles with Discovery Learning whether it be training requirements for themselves or based on students' requirements due to prior different educational backgrounds. With these modifications this esteemed higher educational institution will hopefully be better armed and ready to effectively and efficiently prepare and equip the new generation of educators with the relevant skills to help educate the following generation to also be able to compete in all fields nationally and globally, facilitate better national economy and have a higher standard of living.

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Efficiency And Tendency Of The Educational Computer Games In Education: A Document Review

Mustafa YAĞCI
Ahi Evran University Faculty of Education
TURKEY
mustafayagci06@gmail.com

ABSTRACT

The computer and internet technologies which show an immediate change and development, show its effect in educational field as well as all fields of life. One of the implementation areas of computer and internet technologies is the computer games. While the computer games provide recreational time to the users, it may provide environments for learning some information. Particularly, the usage of the computer games which the school-age children like every much and play without getting bored in education, is an important matter to be considered. The purpose of this study is to determine the efficiency and integration process of the educational computer games to educational environments on the basis of literature by reviewing within the frame of the performed studies. Therefore, 45 thesis and articles including the scientific studies and the educational computer games till 2015, have been analyzed with the document analysis method. It is found in the document analysis that educational computer games have positive results nearly in all studies. It is observed that it has positive effects on the academic successes, problem solving skills, motor skills and attitude, affective specifications like motivation and self-efficiency of the students.

Keywords: Educational computer games, integration, document analysis, computer aided education.

INTRODUCTION

Studies are made for a long time for the integration of education process and educational computer games (Altun, 2013), because, it may be provided to the students to learn with entertainment by using the computer games for education. It is required to provide maximum benefit from technology for obtaining permanent information and entertaining courses. As parallel to the developments in today's information and communication technologies, the computer games shows constant development (Tüzün, 2007). The insensible usage of computer games causes much time and effort loss particularly for the school-age children. From this point of view, the integration of the education and the computer games which the children spend much time and the amount of its benefit, is a major issue which is required to be researched.

As known, the game is an ongoing concept which bases on ancient era. Today, many adults spend most of their times by playing games (Karasan, 2013). To transfer the information and activities to the students through games, is an issue to be considered (Yeşilkaya, 2013). The perspective of the children who play educational games to their environment, world and life and they started to have a critical point of view. The child starts to question his environment and tries to evaluate as depending on the cause-effect relation. The child likes to know therefore he wants to play constantly and the games draw his attention (Fırat, 2011). Today, the adults and the children like computer games very much. The children generally play games in internet cafes due to the pressure and restrictions of the children. The addiction of the children for the computer games may be turned into an opportunity by being transported to class environment in educational game form.

Another point to be considered is the necessity of designing the games in the form that the children shall understand and play without getting bored. In the design of an educational games, the development specifications, individual differences, color tones, purpose of teaching the subject, self-evaluation of the child, the conformity of the behaviors shall be considered, because there are individual differences in the development levels of the children. The children have specific periods and these periods may be critical (Demiral, 2010). These critical periods may be intangible operational period or concrete operational period. Therefore, the development periods and stages are the important factors to be considered while designing and implementing the educational games. A sound basis of a modern education may be laid by providing the development of all kinds of physical, mental and psycho-motor by providing a good education to the children (Çağıltay, 2008).

The educators currently seek ways for including the educational games to the class studies (Su, 2008). In addition to this, there are many issues required to be considered before introducing the games to the class environment. Burenheide (2006) has determined six factors affecting the decisions of the teachers related with the usage of the games in class education:

a. *Curriculum:* Providing or not providing outsources and evaluations mentioned in the curriculum in game environment.
b. *Time:* To have wide curriculums and limited implementation time.
c. *Logical concerns- teacher focused:* The problems that may occur in the organization of the environment and providing the control of the students in the classroom environment where the game is used.
d. *Logical concerns- student focused:* Concerns related with the behaviors of the student during the activity (to make noise, not to sit down etc.).
e. *Concerns of students' learning:* Whether the game provides active learning.
f. *Concerns of students' satisfaction:* The feeling given by the educational games to the students, whether the game meets the needs like social interaction.

Different presentations of the information are needed in learning environment and opportunities must be created for providing this information in virtual word. Therefore the learning process must be supported and become easier (Pivec, 2007). However, the process must not be started before having the schools and teachers adapt to the ideas and techniques used in the new teaching methods. An unexpected technical failure may affect the motivations of the students. Therefore, the teacher must have the skill to solve the problems when needed. The digital games based learning is a new, unused approach in lifelong learning. While participating the students into this environment, the pedagogic experience shall be explained by making an orientation and the effects of a potential conflict that may arise from previous habits and experiences, must be minimized (Bakar, Tüzün, Çağıltay, 2008). If the games have a target for entering to the classes in schools, it must be used and loved by whole students. The game must be designed appropriately and must be designed according to the environment, a game environment with good scripts persuades the student groups for cooperation and orients the process.

Tüzün (2007), has mentioned about the high expectations of the students, the hardness of a logical harmony of the game environment and game fiction and the limitation conceptual frame by the students. However; he has expressed that the reliability of the infrastructure, efficiency and convenience of the information technologies shall be burden to the schools with limited budget. According to İnal (2007); the computer games shall have specifications that shall preserve the motivation in high level and shall attract the attention of the students. While providing the motivation, the educators shall consider to use the games for education, not for only entertainment. As can be understood from the literature, the computer games draw the attention of persons in all ages, particularly the children. This shows the importance of developing education computer games that shall turn the addition of children to the computer games into an opportunity. Therefore, the researchers are interested in the issue whether these games provide the learning and how much are these games efficient in education. From point of this view, the purpose of this study is to examine the integration process and efficiency of educational computer games to educational environment within the performed studies and to determine the confronted elements as depending on the literature. In this respect, the articles and dissertations till 2015 related with the educational computer games, are analyzed and the results are discussed.

METHOD

Document reviewing method is used in this study for determining the tendency in the scientific studies for educational computer games. The research is limited with master-doctoral dissertations and articles. Document reviewing is a technique which carries out the analysis of printed and written materials in a specific matter (Yildirim & Simsek, 2005).

Data Collection Tool

The literature search related with the educational computer games is made by using keywords like “game use in education”, “integration of game play in Education”, “game implementation in Education”, “game-based learning”, “educational computer games” and “educational games”. The search of the scientific researches is made in database of Web of Science and Google Academic. The search is limited with the experimental studies. At the end of the searches, total 75 studies are achieved. As the result of the prior review, 45 of the articles and dissertations are taken for analysis. The articles are analyzed with the Article Information Collection Form which is developed by the researcher.

Analysis Of The Data

In the analysis of the data which are obtained through the document reviewing, frequency (f) and percentage (%) is used as descriptive statistics.

FINDINGS

The purpose of the studies which are examined in research and these researches, methods, examined themes and results are given in Table 1. When Table 1 is analyzed, it may be expressed that the results are found as positive almost in whole studies and the educational computer games have positive effect on the sub-themes. Then, it is analyzed in terms of variables like yearly distribution of the studies, subject, participants, number of samples, research method and learning field. The obtained findings are given in graphics.

Table 1: The specifications of the studies which are analyzed in research

Author	**Year**	**Aim of The Study**	**Method**	**Sample Size**	**Grade Level**	**Instrumentation**	**Examined Themes**	**Result**
Offenbach	1964	To determine the effect of award and punishment in having pre-school and elementary school 4th grade students predict the most possible case by designing a game in probability.	Qualitative	60	Junior school	Achievement test	AS	Experiment group is more successful than control group
Polat ve Varol	2002	To analyze the effect of the hard, intangible, memorization-based subjects of Social Information course on the academic success with the education given by game.	Mixed	30	Junior school	Achievement test, survey	AS, AC	Experiment group is more successful than control group / Experiment group is more motivation than control group
Tüzün	2004	To identify the motivation elements for an online, multi-user educational computer game. To compare the experiences of the participants.	Qualitative	20	Secondary school	Observation, interview form	AC	Experienced students is more concerned than other
Danet	2004	To analyze Quest Atlantis (QA) games as an alternative educational tool. To measure the usability of a virtual environment for educational purpose.	Qualitative	7	Secondary school	Video recording, interview form	AC	Favorable
Altunay	2004	To determine the effect of game-supported mathematic education on the success of the students in courses and permanency of the learned information	Quantitative	67	Junior school	Achievement test	AS	Experiment group is more successful than control group
Şaşmaz Ören ve Avcı	2004	To analyze the educational games in science course on the academic success	Quantitative	33	Junior school	Achievement test	AS	Experiment group is more successful than control group
Mcechar n	2005	To analyze the effect of the games on the learning.	Quantitative	31	Undergraduate	Achievement test, survey	LA	Favorable
Kula ve Erdem	2005	To analyze the educational computer games on the basic arithmetical process skills	Mixed	46	Junior school	Achievement test, interview form	AS, AC	Male students is more successful than female students

Obut	2005	To analyze the effect of the educational games designed in computer environment on the learning level of students of elementary school 7th grade	Quantitative	70	Junior school	Achievement test	AS	Experiment group is more successful than control group
Tural	2005	To determine the effect of education with the games and activities on the attitude of the students against the mathematics in elementary school 3rd grade mathematic course	Quantitative	52	Junior school	Achievement test, survey	AS, AC	Experiment group is more successful than control group
Zhang	2005	To compare the efficiency of the computer aided education method in teaching triangles with the traditional teaching methods.	Quantitative	108	Secondary school	Achievement test	AS	Indifferent
Hamalainen ve diğ.	2006	To determine the effect of 3-dimensional game environments on the cooperative learning.	Mixed	24	Undergraduate	Survey, Achievement test, Video recording, interview form	LA	Favorable
Lim, Nonis ve Hedberg	2006	To determine the effect of playing 3-B multi-users games in virtual environment on the attractiveness of Science Course	Quantitative		Junior school	Survey	AC	Favorable
Kızılkaya, Yılmaz-Soylu ve Tüzün	2006	To analyze the computer literacy of the university students in multi-user virtual environment	Quantitative	53	Undergraduate	Achievement test, survey	AS, AC	Favorable
Neimeyer	2006	To analyze whether the educational computer games have effect on the mathematical successes of the students	Quantitative	50	Secondary school	Achievement test	AS	Control group is more successful than experiment group
İnal ve Çağıltay	2007	To analyze the flow experience of the children within an interactive social game.	Mixed	33	Junior school	Observation, survey	LA	Puzzle style games in male, story-style games in female is more effective than other
Yağız	2007	To analyze the effect of the educational computer games on the successes in computer course and computer self-efficiency of the elementary school students	Quantitative	51	Junior school	Achievement test, survey	AS, AC	Indefferent
Tüzün	2007	To analyze the major issues and problems of the learning-purpose usages of video games (computer games) used in the classroom.	Mixed	77	Junior school, Secondary school Undergraduate	Achievement test, interview form	AC	Favorable, Experiment group is more successful than control group
Bayırtepe ve Tüzün	2007	To analyze the effect of the educational computer games on the successes in computer course and computer self-efficiency perceptions of the elementary school students	Mixed	51	Secondary school	Achievement test, survey, interview form	AS, AC	Favorable

Olson	2007	To determine whether the games have roles on developing the mathematical reasoning of the students	Qualitative		Junior school	Observation	RD	Favorable
Yağız	2007	To analyze the effect of the game-based learning environment on the successes in computer course and computer self-efficiency of the elementary school students	Quantitative	51	Junior school	Achievement test, survey	AS, AC	Favorable
Robertson ve Howells	2007	To analyze the motivations and determination of 6th grade students by having them design their own games	Qualitative		Secondary school	Observation	AC	Favorable
Abrams	2008	To analyze the effect of the computer games related with mathematic on the motivation and successes of the elementary and secondary school students	Quantitative	75	Junior school, Secondary school	Achievement test, survey	AS, AC	Success: Indifferent Attitude: Experiment group is more successful than control group
Kebritchi	2008	To analyze the effect of mathematical games on the mathematical successes and motivations of the high school students	Quantitative	193	High school	Achievement test	AS, AC	Experiment group is more successful than control group Motivation is indiffirent
Bakar-H.Tüzün-K. Çağıltay	2008	To determine the opinions of the students related with the educational computer games in courses at formal training.	Qualitative	24	Secondary school	Interview form	AC	Experiment group is more motivation than control group
Virvou ve Katsionis	2008	To analyze the usability and lovability of the virtual reality games for the education	Qualitative	50	Secondary school	Interview form	AC	Experiment group is more effective than control group
Biriktir	2008	To present the interaction between the geometry teaching with game and the student	Quantitative	41	Junior school	Achievement test	AS	Experiment group is more successful than control group
Tatsis et all.	2008	To determine the thoughts of the children related with whether these games are fair by designing two games consisting of probability concepts for the pre-school	Qualitative		Kindergarten	Interview form	AC	Favorable
Erkuş	2008	To present whether the computer games with single user have effect on the word learning for university students.	Mixed	70	Undergraduate	Survey, interview form	AS	Indiffirent
Tüzün, Yılmaz-Soylu, Karakuş, İnal ve Kızılkaya	2009	To analyze a computer game for geography learning for elementary school students	Quantitative	24	Junior school	Achievement test, survey	AS, AC	Experiment group is more intrinsic motivation than control group
Avcı, Sert,	2009	To determine the usage effects of the education computer games in	Quantitative		Junior school	Achievement test	AS	Favorable

Özdinç, Tüzün		information technologies course						
Malta	2010	To analyze effect of the educational computer games on the academic successes of the students	Quantitative		Secondary school	Achievement test	AS	Indiffirent
Demiral	2010	To analyze the effect of judo educational games on the psycho-motor skills in the children between 7-12 years old who learn judo.	Mixed	69	Junior school	Test form of motor skills	MS	Favorable
Long ve Frankie	2010	To develop the mathematical problem solving of the students with digital game design process.	Mixed		Secondary school	Survey, interview form	AC	Experiment group is more successful than control group Experiment group is more attitude and motivation than control group
Baytak ve Land	2010	To provide nutrition habits to the students by having the students design an education game -.	Qualitative		Junior school	Observation	AC	Favorable
İnal	2011	Physical interactive educational game design for children; to determine the design principles	Mixed	50	Secondary school	Achievement test, survey, Observation	AS, AC	Favorable
Güler	2011	To analyze the effect of educational games on academic achievement of 6th grade students on the topic of " Cell and its organelles"	Quantitative	50	Secondary school	Achievement test	AS	Experiment group is more successful than control group
Fırat	2011	To examine the effect of computer assisted instructional games on conceptual knowledge regarding some concepts of the topic of probability.	Quantitative	90	Junior school	Achievement test	AS	Experiment group is more successful than control group
Canbay	2012	To examine the effect of educational games on self-regulated learning strategies, motivational beliefs and academic achievements of 7th grades.	Mixed	52	Secondary school	Survey, Achievement test, interview form	AS, AC, LA	Experiment group is more successful than control group Experiment group is more motivation than control group
Yıldırım	2012	To analyze the effect of educational mobile games , independent from time and space and more flexible in terms of learning compared with educational computer games, on academic achievement of elementary school students	Mixed	82	Secondary school	Survey, Achievement test, interview form	AS, AC	Experiment group is more successful than control group Experiment group is more motivation than control group
Altunay	2013	The analyze effect of educational games treated regularly on problem	Quantitative	60	Secondary	Survey	PSS	Experiment group is more

		solving skill of children from 11-12 age group.			school			successful than control group
Duman	2013	To determine the effect of educational games on children's attitudes towards fine arts.	Mixed	40	Junior school	Achievement test, survey, Observation	AS, AC	Favorable
Yeşilkaya	2013	To determine the effect of educational games on 7th graders' academic achievement and attitudes toward social sciences studied the topic of "science over time"	Quantitative	50	Secondary school	Achievement test, survey	AS, AC	Indiffirent
Kızılkaya, Cumaoğlu	2014	To examine the effect of using different educational software for word teaching on students' academic achievements and word learning strategies word teaching. (Tutorials and educational games)	Quantitative	68	Secondary school	Achievement test, survey	AS, LA	Favorable
Bulut	2015	To examine effect of educational games designed by 5th and 6th graders through blended learning method on creative thinking skill.	Mixed	23	Secondary school	Survey, Observation	AC	Favorable

Examined Themes: Affective Characteristics (motivation, attitude, self-confidence): AC
Problem Solving Skills: PSS
Academic Success: AS
Learning Approach : LA
Reasoning Development: RD
Motor Skills: MS

Distribution of studies published on Journals by years

The distribution of studies examined is given on the figure 1. It can be seen that empricial studies regarding educational games mostly were published on 2007 (21%) and 2008 (18%). Until 2011 this topic was preferred by researchers; however it lost its popularity in subsequent years. This finding shows that the effects and educational aspects of educational computer games have been discussed mostly between the years of 2005-2011.

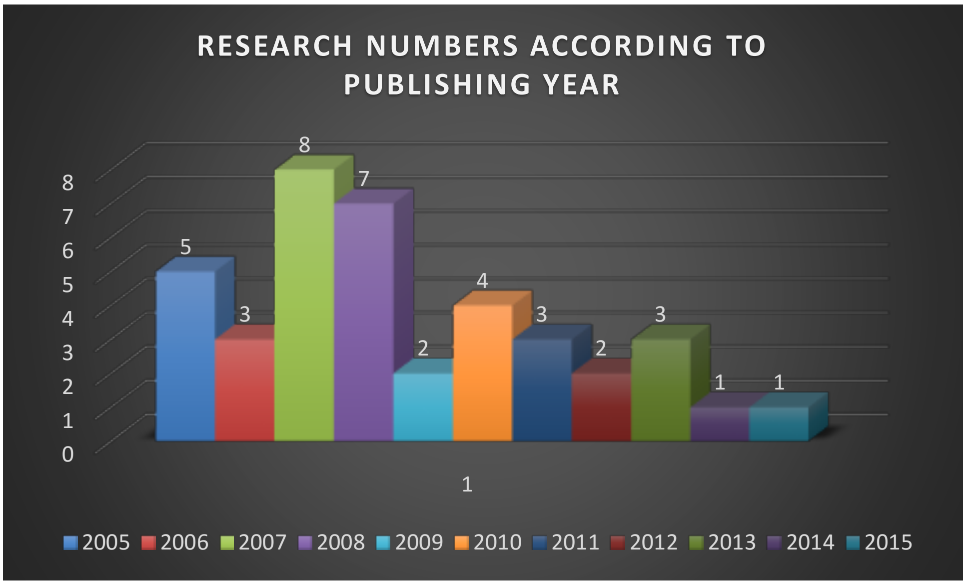

Figure 1. The yearly distribution of the analyzed researches

The distribution of the researches based on participants

The distribution of target group in studies examined is given on the figure 2. It can be seen that from the figure 2, researchers have preferred mostly to work with elementary school students (43%) and secondary school students

(41%). This finding shows that educational games mostly used in elementary and secondary school level. It is also found that the topic that will be gamificated is chosen based on easy fictional and requiring simple operations. Moreover, when age groups are considered, it can be said that mostly students aged 9-14 were mostly preferred to work with.

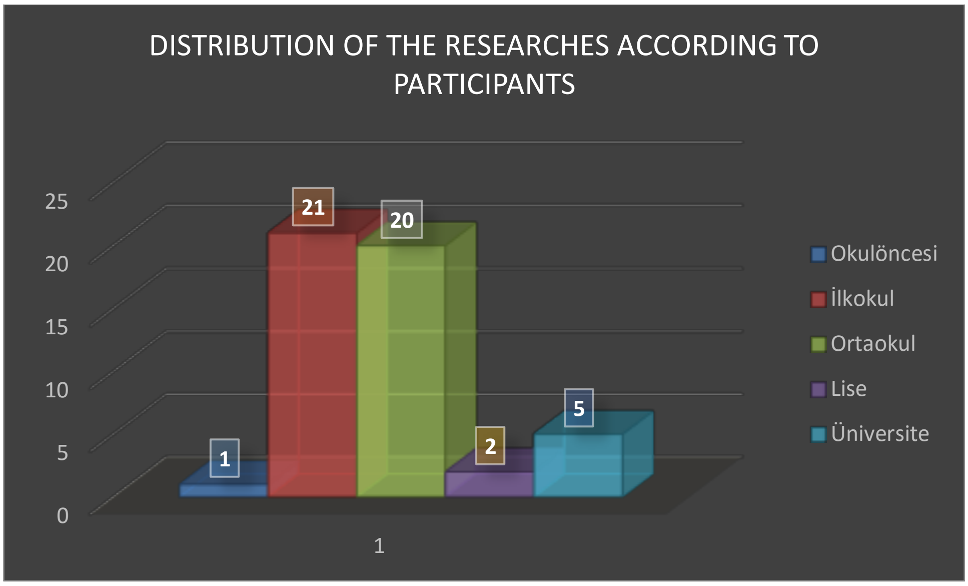

Figure 2. Distribution of the researches according to participants

Data Collection Tools used in the research

Data collection techniques used in the framework of research methods is given in the figure 3. It shows that researcher mostly have used academic achievement test (40%) and questionnaire (29%) which are quantitative data collection tools. In most of researches, control group pretest - posttest experimental design was chosen. The difference between participants' academic achievement, and affective characteristics including attitudes and motivations were mostly examined in researches. The figure shows the percentages of using interviews in researches is 20.

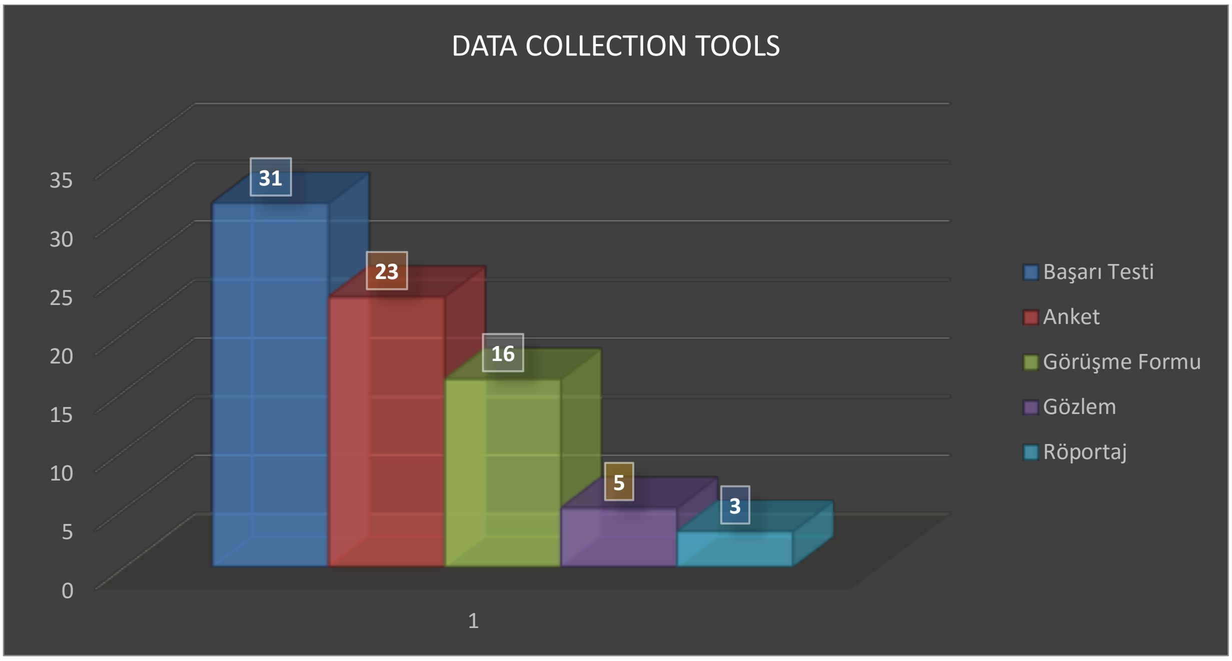

Figure 3. Data collection tools used in analyzed researches

The distribution of topics analyzed in researches.

The topics analyzed in researches are given on the figure 4. The issues handled in researches can be divided into six categories; academic achievements, affective characteristics (motivation, attitude and self-confidence), the effect of learning approach, developing reasoning, problem solving skills and motor skills. The figure 4 shows that the most examined issued are academic achievement (44%) and affective characteristics (40%). In addition, the development of reasoning, problem solving and motor skills have been also examined.

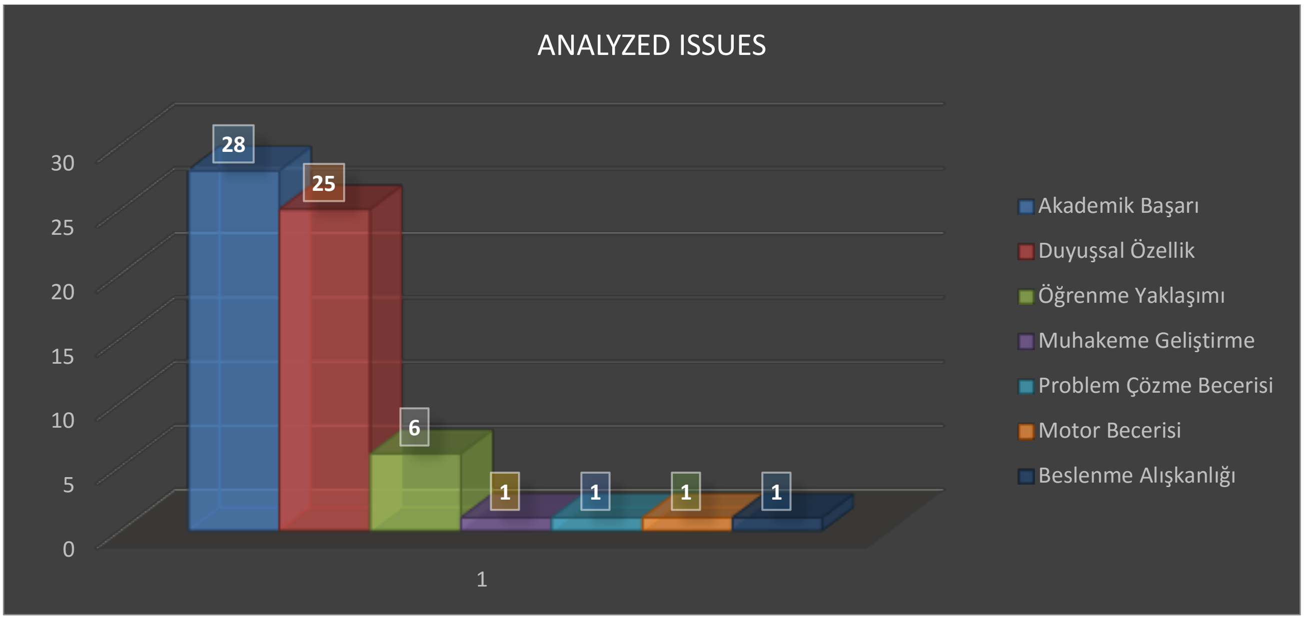

Figure 4. Examined issues

DISCUSSION AND RESULT

In this study, 45 theses and articles cover in scientific studies conducted about educational computer games until 2015 by document analysis method and it is found that educational computer softwares provide positive results. It is seen that educational computer software has positive effect on students' academic achievements, problem solving skills, motor skills and affective characteristics including attitude, motivation and self- sufficiency. Moreover, the target population is mostly preferred as elementary and secondary school students. In most of studies, quantitative data collection tools including academic achievement test and questionnaire have been used. There are limited number of qualitative researches.

As a result of document analysis, it is concluded that educational computer games may help to learn abstract concepts that are difficult to learn and to establish more powerful relational connections among them.
As a result of researches and literature analysis conducted, it is found that design elements of educational computer software has impact on learning. It is also seen during treatment some problems aroused due to limited time, technological infrastructure and participants' behaviors and attitudes. Moreover, it is also found that in the integration process of technology and rich educational innovation to formal education, some factors including technological infrastructure compliance, plan and preparation, teacher training, orientation, increasing in workload of teachers, technical support and guidance should be considered. About the design of education software, some problems aroused about necessary financial resources and time, fictionalization of a pedagogically good story, high expectation of users and orientation of users into game environment. It is also seen that students have high expectations on game-based learning environment.

The integration process of computer based environment into educational environment has four components such as pedagogical aspect, technical infrastructure aspect, students and teacher and student size and peer-to-peer size. There are some issues to be considered in the design process of the model to be developed by considering these components. One of them is to develop flexible education programs which provide opportunity for using computer games because implementing educational games to the traditional education programs, is a hard process. Another issue is that the computer games must be designed within the frame of updated learning approaches because the updated learning approaches adopt the progressivism in educational philosophy and this student-centered educational philosophy takes the student to the center and designs the process accordingly. Therefore, in the design of the complex technology implementations such as computer games used in educational environment, the classic design methods such as ADDIE are insufficient. Updated methods like design-based research method which shall make contribution to both design and research of these kind of technologies in developing such environments. The individual difference must be considered and the design shall be made by considering the individual specifications of the student. To implement the educational computer games into class environment is a hard process. In-service trainings for using the computer games in class environments, should be given to the teachers who have major responsibilities in this process. Besides, it is obligatory for the game environment and the game fiction to have a logical harmony. The designers must spend more time in design process by considering such cases.

Under the light of this information, below suggestion may be provided.

- The educational computer games shall be designed by considering the individual specifications of the students.
- The educational computer games shall be designed within the frame of updated learning theories.
- The educational computer games shall be in the qualification that shall provide upper level thinking skills to the students.
- The researches which select the university students as the participants, may provide more different sizes for the educational computer games.
- It maybe suggested to use qualitative tools like observation form, interview form rather than quantitative data collection tools in the studies to be performed.

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Elearning Courseware Development With Project-Based Blended Learning For Enhancing Teachers' ICT Skills

Narong SOMPONG
Department of Educational Technology, Faculty of Education,
Kasetsart University, Bangkok,Thailand
fedunrs@ku.ac.th

Nattaphon RAMPAI
Department of Educational Technology, Faculty of Education,
Kasetsart University, Bangkok, Thailand
fedunpra@ku.ac.th

Yaowaluk PIPATJUMROENKUL
Faculty of Education
Rajamangala University of Technology Thanyaburi, Thailand
dr.kungza@gmail.com

ABSTRACT

The objectives of this research were to: 1) develop the eLearning Courseware with Project-based and Blended Learning for learning achievement and ICT skills enhancing in 21st century for secondary school teachers in Thailand following the ICT4T-C21 Model; 2) evaluate the eLearning Courseware with Project-based and Blended Learning for enhancing ICT skills; and 3) investigate the opinion of the learners in courseware learning. The research sample included of 30 teachers in 8 schools in Nakornnayok Province in Thailand by using stratified sampling technique from 4 districts. The research instruments of eLearning Courseware was developed following by ICT for Teacher in 21st Century Model (ICT4T-C21), pretest and posttest, ICT skills assessment form and a questionnaire for teachers as well as an evaluation form for experts. The eLearning Courseware had been developed following the ICT4T-21C Model, then was used by the sample and evaluation were conducted. This research revealed that learning results by achievement posttest was higher than pretest and the courseware could enhance teachers' ICT skills in 21st century. These results could be confirmed that the ICT4T-C21 Model could be applying for eLearning Courseware design and development for teacher learners successfully.

INTRODUCTION

In the age of information and communication technology, the knowledge currently emerged and grew very fast, but the teachers and learners could not learn a huge of knowledge up to date. Then the teachers must have skills to learn the information technology faster, as well as the facilitators for managing the learning process to follow up the technology and innovation transferring (Sompong, 2016). Blended learning are a great way to initiate an organization into e-learning. Using blended learning benefits the learner, the training staff and the organization's bottom line. However, we should thinking about how to achieve the appropriate learning objective and the availability of the organization infrastructure and supporting learning resources to serve this new idea . Blended learning allows organizations to gradually move learners from traditional classrooms to e-learning in small steps making change easier to accept. Working in a blended environment enabled instructors and instructional designers to develop the skills needed for e-learning in small increments (Driscoll 2003). Centeno and Sompong, (2015) give the suggestion that Students recommended that effective learning experience would take place if an equal mix of individual and group activities depending on lesson objectives would be implemented both in F2F instruction and online learning. They preferred to have learning tools and technologies that would enable rich interaction among students, and between the teacher and students, and those that could facilitate collaborative learning in the delivery of learning content.

As well as the Project-based Learning (PBL) is an innovative approach to learning that teaches a multitude of strategies critical for success in the twenty-first century . Students generally work in small, collaborative groups in the project-based learning model. They find sources, conduct research, and hold each other responsible for learning and the completion of tasks. Essentially, students must be "self-managers" in this approach to instruction. (Mergendoller, J. & Thomas, J. 2000). The teacher training in ICT skills possibly integrated using both blended learning and project-based learning for enhancing the competence of teacher under the eLearning Courseware.

In Thailand, Office of Basic Education Commissions have a policy for in-service teacher training project on ICT Learning Enhancement for Teacher but a problem of teachers occurred when teacher were leaving their class to train outside their schools. So, they could not maintain full-time class teaching along the whole period. This problem brings about the idea of using blended learning for training teachers by using eLearning Courseware to enhance the teachers' ICT skills in 21st Century. The project-based learning process also could come to integrate the learning process, so that they could do the learning and teaching innovation practicing by group collaboration in school and home to match with their teaching current subject. Consequently, they could avoid for leaving their class presence.

This research in the first phrase, therefore would to develop the model to train teachers' ICT skill in 21st Century in Nakornnayok, a central Province in Thailand in the first phrase. Then at the second phrase, the appropriate model would be used for developing eLearning Courseware for training teachers and investigated the effectiveness of this eLearning Courseware with the teachers. So, this investigation would be insisted that the learning process in learning design with blended and project-based learning which following the ICT4T-C21 Model in the first phase would be applicable to the teachers' ICT skills development.

THE STUDY

The objectives of this research were to: 1) develop the e-Learning courseware with Project-based and blended learning model (ICT4T-C21) for development of ICT skills for teachers in 21st Century in Thailand, 2) evaluate the e-Learning Courseware with Project-based and Blended Learning for enhancing ICT skills, and 3) investigate the opinion of the learners in courseware learning.

The research sample included the total of 40 teachers who were drowned up from the Office of Basic Education Commission working at 8 schools in Nakornnayok Province in Thailand. They were selected for 5 teachers in each school using stratified sampling technique from 4 districts: Muang District, Banna District and Pakplee District. However, the sample size finally remained 30 teachers because some of them dropped out during the process of training, so the sample still be in active on 3-4 teachers in each school.

RESEARCH INSTRUMENTS

The research instruments composed of the eLearning Courseware which was designed and developed by Moodle LMS Version 3.0 following the conceptual design of the **ICT for Teacher in 21st Century Model (ICT4TC21)** that had been developed in Phrase I (Sompong et. al, 2016), the learning achievement pretest and posttest, an evaluation form for the experts in the quality evaluation of the courseware, ICT skills assessment forms for instructors and learners as well as an evaluation form for experts toward eLearning Courseware were applied.

This research methodology composed of 3 steps. The first step, an eLearning Courseware had been designed and developed following the ICT4T-21C Model. After that, this courseware had been used for training 30 teachers who were the sample at the respective schools. Lastly, eLearning Courseware had evaluated after finishing the revision program under experts' recommendations. Development of eLearning courseware on ICT skills development had designed in Moodle learning management system (LMS). Then, one month training course had launched for teachers in April 2016.

ICT skills development training program had integrated cognitive leaning and practice on Web-based Instruction and face to face learning in the classroom. The learners could achieved for four ICT learning skills : Information Literacy, Media Literacy, ICT Literacy and Innovation. These learning methods were blended with two modes of learning. The first mode gave the sample study in Web-based Instruction and doing workshop some days in the classroom on the other hand. The pedagogical framework of Blended Learning in this study was applied by Venn diagram which face to face instruction was partly overlap by online learning with the proportion 40 by 60 percentage approximately.

Meanwhile, project-based learning (PBL) was implemented to 8 groups of teachers following the certain model. There were 8 stages to hand-on practices in PBL: 1) Defined the problem, 2) Planning the project, 3) Searching and Sharing, 4) Collaborating, 5) Presentation, 6) Reflection, 7) Application, and 8) Evaluation. The learners was guided to use social networks to communicate each other in the groups.

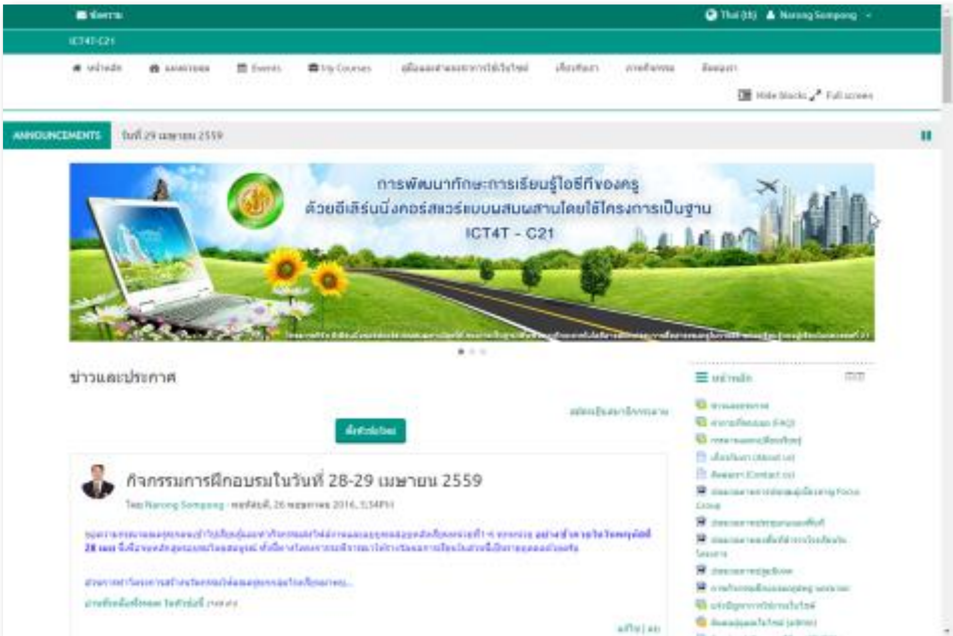
The participants also participated eLearn courseware through face to face and offline learning which composed of fives components. They learned circumstance on **live event** environment with their **self-paced learning** and study together in their group by using the **collaborative learning** technique. Learning **offline resources and Materials** had been used for active learning. The Learning outcome was assessed and evaluated by evaluation form during the learning process and used achievement test at the end of learning.

DATA COLLECTION

The eLearning Courseware had been used for training 40 participants who were the sample of the teachers at conference room of the District Office of Basic Education Commission, however, 10 of the participants dropped out, so there were 30 teachers to continuing participation until the end of training with 3 stages. There were Orientation the course, online learning with Web-based Instruction and Hand-on Practices in the classroom, and learning assessment and evaluation respectively.

Online Learning through Moodle LMS Moodle Version 3.0 was used for Learning Management Systems (LMS) design on new department website (http://course.edu.ku.ac.th/training/). The courseware module composed of 7 Units including **pretest** at the beginning of first unit and **posttest** at the end of seventh unit.

Unit 1 ICT Learning in 21st Century
Unit 2 Communication Literacy
Unit 3 IT Literacy
Unit 4 Media Literacy
Unit 5 Innovation Literacy
Unit 6 ICT Skills by Project-based Learning
Unit 7 Project Presentation and Evaluation



ข่าวและประกาศ

กิจกรรมการฝึกอบรมในวันที่ 28-29 เมษายน 2559

Figure 1 Website: first page of the eLearning Courseware http://course.edu.ku.ac.th/training/

The designed components of eLearning Courseware on **Web-based Instruction** were Learning information and message, learning module with 7 Units. The first page in each unit was held in consequence of the investigation which composed of the learning objectives, pretest, subject contents, video of the presentation, the learning resources, exercises, and posttest. **Supportive components** showed on the main page with Login System, Web links, QR code, social network links, such as Facebook, YouTube, Google applications and Gmail address of the project as well as a group of existing **evaluation buttons** for learning evaluation by experts, peer to peer and learners . Moreover, the first page windows also showed calendar, online user, counter of hit number and survey application form (poll) were created by the Moodle module.

Table 1 Using tools to practice in Learning ICT skills development in the eLearning Courseware

ICT Skills	**Purpose**	**Tools**
Communication	- Search and Sharing information practice	Gmail Facebook Hangout Line
Information Literacy	- Workshop on how to use and point setup on Map - Workshop on how to download and upload the	Google Maps Google Drive
Media Literacy	- Workshop on photographic and video production - Workshop on how to loading and sharing the video on YouTube - How to use QR Code and Infographic to media distribution	Mobile camera taking YouTube Viva video QR Code Infographic
Innovation in Education	- How to create and organize the media and contents mapping	Mind Mapping

In Table 1, the research result showed the various tools that could be used for practice ICT skills in class workshop. The learners could use these application to create the instructional innovation for their projects-based learning. The ICT skills could using tools for searching, sharing and restore data and information in their project.

FINDINGS

1. The result of the qualities of the eLearning Courseware by the experts.

Table 2: The Quality of eLearning Courseware evaluated by the experts

Evaluation Items of eLearning courseware	$\bar{x}$	S.D.	Level of Suitability
1. Learning activities	4.75	0.29	Highest
2. Collaborative learning	4.70	0.29	Highest
3. Assessment and evaluation	4.67	0.33	Highest
4 .Contents	4.46	0.37	Highest
5. Image and Sound	4.17	0.33	High
6. Media design and techniques	4.00	0.33	High
7. Interaction design	3.74	0.42	high

In Table 2 showed the opinion of the experts toward the qualities of the eLearning Courseware in the various items. The research result revealed that almost highest quality was foundin the learning activities

2. Learning achievement of the learners compare by pretest and posttest.

Table 3: The testing hypothesis of pretest and posttest score

Acheivement Tests	**Total No. of Learner**	$\bar{x}$	**S.D.**	**t**
-Pretest	30	57.97	10.36	9.89*
-Posttest	30	75.30	12.69	

* Significant level at .05

In Table 3, showed the research result which revealed that learning achievement of posttest score was higher than pretest score at the significant level 0.5. It could refered that the learning courseware on ICT skill development could enhance learners' ICT skills in 21st century significantly. .

3. The opinion of the learners toward the eLearning Courseware

Table 4: The opinion of the learners toward the eLearning Courseware

Evaluation Items	$\bar{x}$	S.D.	Level of Suitability
1 .Contents of the courseware	4.53	0.03	Highest
2. Clear, precise and utilization	4.52	0.06	Highest
3. Project-based Learning process	4.48	0.07	High
4. Learning Objective	4.40	0.06	High
5. Blended learning	4.31	0.04	High

In Table 4, the research found that the learners gave the opinion that eLearning Courseware was evaluated at the highest level in Contents of the courseware and Clear, precise and utilization. The project-based learning, Learning objective and blended learning were at the high level.

4. The result of ICT learning skills for teachers in 21st Century, evaluating by the instructors.

Table 5: The result of ICT learning skills for teacher in 21st Century by the instructors

Name of the Group Learners in School	$\bar{x}$	S.D.	Level
1. Pothitan	4.00	0	Very High
2. Ban Klong 14	3.60	0.55	High
3. Ban Prik	3.60	0.55	High
4. Wat Prome Pet	3.40	0.55	High
5. Wat Yotee Ratsattatam	3.40	0.55	High
6. Wat Santayaram	3.20	0.84	High
7. Ban Koksawang	3.00	0	High
8. Wat Nongree	2.80	0.45	High
Total	3.37	0.43	High

In Table 5, the research results revealed that blendeded and project-based learning were applied in the process of learning with eLearning Courseware was high achievement skills in the 21st Century. This table showed the mean score which came from the project output evaluation of the instructors by using Rubric Score technique.

CONCLUSIONS

This research results could be confirmed that the ICT4T-C21 Model with project based and blended Learning instruction could be applying for eLearning Courseware design successfully. The ICT4T-C21 that composed of 3 components, ICT skills for teacher in 21st Century, Blended Learning and Projected-based Lerning in the eLearning Courseware integration were acceptable by the experts to use for eLearning Courseware design in the second phrase.

The researchers gave the recommendation that designer of eLearning courseware should understanding about how to use the instructional tools for supporting the instruction systems in developing ICT skills of the teachers and learners. The instructional technology would concern in the theory of design in terms of contents, objectives, the media presentation and the interaction among the learners and teachers and the learner and learners. Assessments and evaluation have to applied in the systems.

The result of this study could be confirmed that the teachers in secondary schools should use the blended leaning for ICT development for learners by using the innovative devices such as the smart phone and tablet with applications to learn and practice both modes, online and offline in and out of the class. Moodle LMS could used for create the learning online program in the various purposes, and connection with social media utilizing for learning integration with LMS.

Project-based Learning (PBL) is the best activities to the real practice in real situation so that the teachers could try to create the innovation with ICT skills by using this teaching methods. The result reveal that this methods can help the teacher to learn ICT actively. However, the basic supports in the network accessibility and the network stablility is very high significant factor to facilitate teachers and students in the prosess of learning ICT skills, so the administrators have to support the facilities as the hardware and software for sustain the network providing to the learners continuingly. PBL could be implement better under this factors.

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Electronic Waste: The Social And Environmental Importance Of Thai Teenager Consumer Awareness

Thanyaluck YIMYONG[1*]

Thepparat PHIMOLSATHIEN[1]

Wanno FONGSUWAN[1]

[1]*Faculty of Administration and Management*
King Mongkut's Institute of Technology Ladkrabang, Thailand
[*]*thanyalucky1069@gmail.com*

ABSTRACT

According to the United Nations 42 million metric tonnes of e-waste were generated around the globe in 2014 which represented some US$52 billion of potentially reusable resources referred to as the 'urban mine', little of which however was collected for recovery. The importance of the proper disposal of e-waste and its hazardous effects to the environment and humans is little understood as well. Electronic Waste which represented seven percent of the world's e-waste is different from general waste as there are many diverse and complex parts including heavy metals and hazardous substances such as lead, mercury, and cadmium. Improper handling and disposal can cause significant harm to the environment as well as pose a health hazard to humans. Solid waste management is a complex task which requires the use of advanced technology and specialized process controls. Most e-waste facilities are using aged equipment and techniques which must be upgraded to international standards. Over the years many countries have embraced an Extended Producer Responsibility but today more is needed as the problem has reached unsustainable levels. Stronger legislation in the form of Thailand's WEEE Management Act unfortunately is tied up in a bureaucratic process with many levels of approval necessary before it can be enacted.

One possible solution is the education of the consumer segment most likely to be using these devices, teenagers. Reaching out to teenagers to understand the environmental and human health effects of the improper disposal of discarded, toxic e-waste is a possible solution for the future. Governmental regulation alone will not be adequate to curb the mindless disposal but instead must be supplemented with an education campaign at the earliest stages of consumption, the teenager. This therefore is the reasons for the proposed study.

INTRODUCTION

Electronic Waste or e-waste is the toxic legacy of our digital age with electronic waste creating 42 million tons of e-waste each year around the globe, with this 'urban mine' of electrical and electronic equipment waste estimated to have a value of $52 billion, an amount that would fill 1.15 million 18-wheel trucks, which if lined up would stretch from New York to Tokyo and back ("Global E-Waste Volume," 2015; Baldé, Wang, Kuehr, & Huisman, 2015). According to a 2014 report from the ITU (International Telecommunications Union), mobile-cellular subscriptions will reach almost 7 billion at the end of 2014, with 3.6 billion of these in the Asia-Pacific region (ITU, 2014), The increase is mostly due to growth in the developing world where mobile-cellular subscriptions will account for 78 per cent of the world's total, but at some point, most purchase a new phone and discard their old one as 'e-waste'.

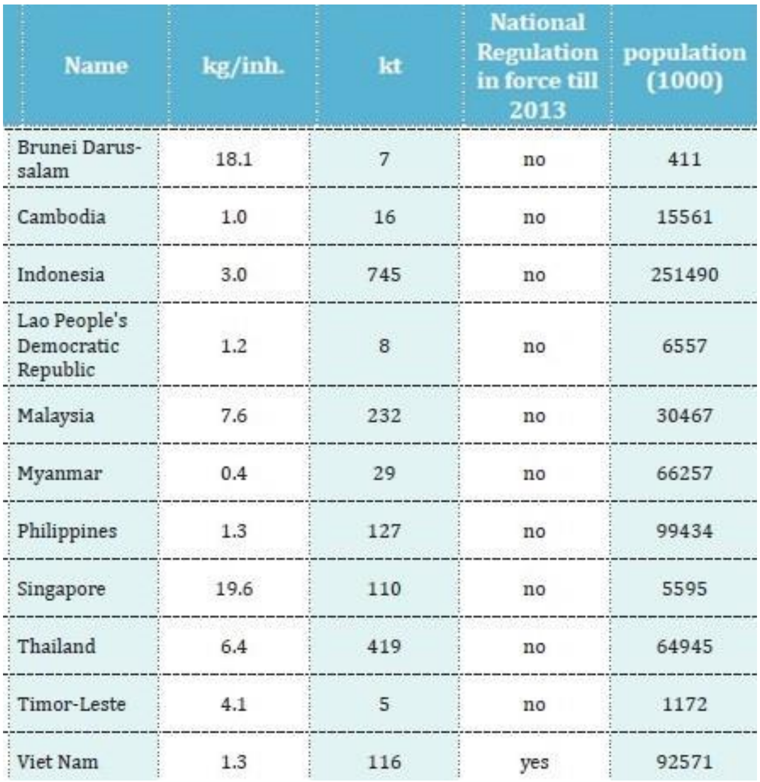
E-waste is one of the largest known sources of heavy metals and organic pollutants with hazardous or toxic materials like lead, mercury, cadmium, chromium, brominated and chlorinated compounds posing a threat to humans and the environment, if they are improperly disposed of (Deccan Chronicle, 2016). E-waste is a term used to cover all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without intent of re-use (Baldé et al, 2015). In Asia, the total e-waste generation was 16.0 million tons

(Mt) in 2014 with China, India, Japan, Hong Kong, South Korea, Vietnam, Bhutan, Cyprus and Turkey having national e-waste related laws (Baldé et al, 2015). In China, national e-waste legislation manages the collection and treatment of TVs, refrigerators, washing machines, air conditioners and computers (desktop and laptops) and in 2013, it officially collected and treated around 1.3 Mt. of these five types of e-waste, which was 28 per cent of the total e-waste generated for all categories (Wang, Kuehr, Ahlquist & Li, 2013).

According to a fourth quarter 2015 study by Telenor of Norway on what it referred to as ‘digital frontrunners’, young smartphone users between 16-35 in Asia are pushing the popularity of new mobile services (“Survey: Smartphone usage,” 2016). In Thailand, teenagers, also called ‘Teen Genz’ were found to have the most frequent screen use of the estimated 44 million Thai smartphones (“Line, Facebook top smartphone use,” 2015), from which in 2016, nearly 25 percent, or 11 million phones will be discarded (Chareonsong, 2014).

It is this huge ‘Teen Genz’ consumer group that must be brought into the discussion about the safe and healthy disposal of their electronic devices when they upgrade. Survey apps track usage, why not ‘e-waste’ apps to make users more aware of their social and environmental obligations of the safe disposal of their devices when they are no longer needed?

In Table 1 we can see statistics for ASEAN (plus Timor-Leste) domestic e-waste generated for each country in 2014. ASEAN, the Association of Southeast Asian Nations, is a powerhouse in the production and use of consumer electronics and appliances as well.



Name	kg/inh.	kt	National Regulation in force till 2013	population (1000)
Brunei Darus-salam	18.1	7	no	411
Cambodia	1.0	16	no	15561
Indonesia	3.0	745	no	251490
Lao People's Democratic Republic	1.2	8	no	6557
Malaysia	7.6	232	no	30467
Myanmar	0.4	29	no	66257
Philippines	1.3	127	no	99434
Singapore	19.6	110	no	5595
Thailand	6.4	419	no	64945
Timor-Leste	4.1	5	no	1172
Viet Nam	1.3	116	yes	92571

Table 1. Domestic E-Waste Generated per Country in 2014

In Vietnam alone, in the first six months of 2015, Vietnam produced 107.3 million mobile phones which was a massive 68.8 percent increase compared to the same period in 2014. The export value of cellphones and components in the six-month period topped US$14.7 billion, up 27 percent from the first half of 2014 (Tuoi Tre News, 2015). Additionally, there were 2.16 million televisions produced, all of which eventually ends of being disposed of somewhere.

In Thailand, the electronic waste disposal problem has also risen dramatically in recent years with the ever quickening development of consumer products and their subsequent demand and eventual disuse. In 2009 there was an estimated 80,000 tons of e-waste including more than 2.5 million units of e-waste (How Lead Affects the

Way We Live & Breathe, 2006). This however had increased to an estimated 400,000 tons according to a survey conducted by Thailand's Pollution Control Department in 2012 with another report in 2013 by the Thai Industrial Works Department showing 20.88 electrical and electronic devices being disposed including 9.14 million landline telephones, 2.43 million television sets, 3.3 million portable audio and video players, 1.99 million personal computers, 1.5 million fax machines, 710,000 air-conditioners and 872,000 refrigerators (Vipoosanapat, 2014).

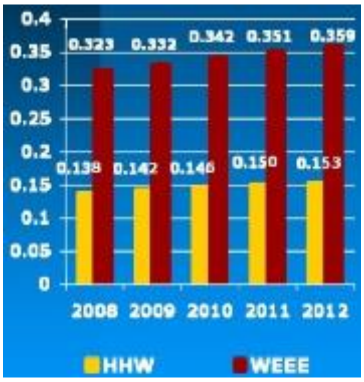


Figure 1: Thailand's E-Waste and Trends Source: HHW & WEEE Inventories, Thailand's HHW-Hazardous Household Waste/WEEE- Waste, Electrical and Electronic Equipment Pollution Control department (PCD) 2008, Waste Management in Thailand (2014)

As can be seen from these statistics and figure 1, the problem is large and growing ever quicker. Thailand from 2005 has made multiple efforts to draft legislation to deal with electrical and electronic waste. In its most recent incarnation, a 2014 draft was mirrored from the "extended producer responsibility" concept that allows goods producers to take responsibility for the products throughout the products' entire life chain, including the recycling or disposal (The State of Play on Extended Producer Responsibility, 2014).

Making the disposal process more complex and dangerous is the nature of the components and materials in the products themselves. Often times, these materials include hazardous substances such as heavy and toxic metals with many recyclers unaware or uncaring about their effects on the environment or people.

In Thailand today, there is no national waste disposal system or process to deal with what is potentially a highly toxic and hazardous environment posing health risks to the citizens of the nation. As stated, legislation has been drafted but as yet, no final action of the draft law has been taken including the fines and penalties necessary to help enforce the law. Along with the law, actions must be studied to reduce the risk of pollution to the environment allowing for an industry that is healthy, sustainable and competitive.

In a special report by the Bangkok Post, the headlines boldly heralded 'Thailand Government Reviews Electronic Waste Management Bill' on December 16, 2014 (Wipatayotin, 2014). In the following year on May 19th, a draft resolution entitled 'Draft Waste Electrical and Electronics Equipment (WEEE) Management Act, B.E. …. 'was submitted to the Thai cabinet. By the end of the day the government had resolved to approve in principle the draft Waste Electrical and Electronics Equipment (WEEE) Management Act, B.E. …. as proposed by the Ministry of Natural Resources and Environment. The draft act would then be submitted to the Office of the Council of State for consideration, and later to the coordinating committee of the National Legislative Assembly before proposing to the National Legislative Assembly. Ministry of Natural Resources and Environment would then proceed with the establishment of the waste equipment information center under the Department of Pollution Control (Royal Thai Government, 2015). As can be seen, there are many involved in the regulatory process of e-waste and related consumer product recycling and destruction in Thailand.

Thailand's Department of Pollution Control (DPC) has drafted a new law to address electronic waste dumping in public landfills and recycling of hazardous waste throughout the Kingdom which includes "provision for a hazardous waste tax, recycling, and a compulsory take-back scheme where manufacturers have to take back old products when consumers turn up to buy new ones" (Thailand Lawyer Blog, 2014). The WEEE draft law would make dumping electronic or electrical equipment in a public space illegal.

The DPC has also reported that in 2013 Thailand created 368,314 tons of waste from electric and electronic equipment, up from 359,070 tons in 2012. This is consistent with e-waste growth projections which state that by

2017, the volume of discarded e-products worldwide is expected to be 33 percent higher than in 2012 and weigh the equivalent of eight Great Pyramids of Egypt. In an IISD (International Institute for Sustainable Development) conference in 2015 in the Maldives, it was stated that 41.8 million metric tons of e-waste were generated in the world in 2014, 38% of this e-waste was produced in Asia (IISD, 2015). The worldwide smartphone market is also growing 13.0% year over year and in quarter two of 2015, there were 341.5 million shipments of smartphones globally (IDC, 2015). Another report from ABI Research predicts that the market for recovering and recycling used electronics will reach $14.7 billion by 2015 (ABI Research, 2010).
As we can see the problem is massive and is not going away and international bodies, conferences and individual countries and communities are trying to tackle the global problem. An example can be found in the United Nations Environmental Programme (UNEP) through its International Environmental Technology Centre (IETC) which is focusing on WEEE/E-waste management under its waste management programme.

Other experts such as Australia’s Sunil Herat (IISD, 2015) highlights the business opportunities for recovering valuable materials from e-waste, and recommended a four-step approach for environmentally sound management of e-waste, including to: strengthen collection systems; understand the current financial, policy, and institutional set-up; examine policy measures implemented similar to EPR (extended producer responsibility); and incorporate expertise from an EPR panel on the technological, policy and financing aspects of e-waste management.

The Ministry of Natural Resources and Environment in Thailand, has also introduced an emerging WEEE legal framework based on the EPR principles and a national integrated WEEE management strategy in Thailand at the international Malé, Maldives IISD conference in 2015 (IISD, 2015).

Extended Producer Responsibility (EPR) is increasingly recognized worldwide as an efficient waste management policy to help improve recycling and reduce landfilling of products and materials. The basic feature of EPR is that producers assume responsibility for managing the waste generated by their products put on the market (OECD, 2014). In 2001 OECD defined EPR as “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle”.

Going back as far as 1990, one can find the origination of Thailand’s present EPR strategies as articulated by Lindhqvist (2000) who first formulated the first definition of the extended producer responsibility (EPR) concept. Today, almost all OECD countries have formulated EPR policies and it is now possible to get a clearer understanding of the way the EPR principle can work under various conditions. In particular, the concept of EPR is as a policy principle to promote environmental improvements of products and product systems, and identifies possible approaches to key concerns in the implementation of EPR which builds on the preventive environmental strategies.

The current landscape of EPR in Asia varies significantly across countries and between OECD and non-OECD members. Industrialized OECD economies like Japan and the Republic of Korea have already well-established EPR schemes and regulations in place on the key waste streams, supported by a solid monitoring and enforcement framework. Some rapidly emerging economies, such as the People’s Republic of China (PRC), India and Indonesia have started to develop EPR programmes even though these are generally not yet fully implemented and functioning. Malaysia and Thailand are also embarking the path towards EPR for e-waste, although these initiatives generally rely on voluntary participation of producers (OECD, 2014).

In Indonesian as in most places across Asia, there is a 2008 law on waste management but a regulation to elaborate on the law has still not been made. The law required that producers handle their own waste (like in Thailand) but in Indonesia that has been interpreted to mean only the packaging (Elyda, 2016).

In 2010, National Statistics Office of Thailand has done a survey of the usage of IT and communication showing that there were 38.2 million people obtained mobile phones, within this group, the majority was teenagers. They have been cultivated to have more responsibility to society and environment insufficiently. Yet, they have been lack of the knowledge about E-waste laws and regulations. However, Thailand is in the process of releasing legal aspects in E-waste and it is a mandatory for teenagers who are the biggest electronic and electrical product consumers to understand and have an understanding in the coming up laws related to E-waste laws. Therefore, this research is to focus on the study of the teenager's awareness on environmental impact from electronic waste.

THE STUDY

Electronic waste isn't just waste; it contains some very toxic substances, such as mercury, lead, cadmium, arsenic, beryllium and brominated flame retardants. This toxic mix is now being referred to by UN studies as the 'toxic mine' (Baldé et al, 2015). When the latter are burned at low temperatures they create additional toxins, such as halogenated dioxins and furans – some of the most toxic substances known to humankind. The toxic materials in electronics can cause cancer, reproductive disorders, endocrine disruption, and many other health problems if this waste stream is not properly managed (Wang, Cai, Jiang, Leuang, Wong, & Wong, 2005).

Yu, Gao, Wu, Zhang, Cheung, and Wong (2006) studied soil contamination from e-waste recycling center in Southeast China using 'primitive technology' and analyzed the concentration, distribution, profile and possible source of polycyclic aromatic hydrocarbons (PAHs) in the soil. Researched discovered sixteen USEPA priority PAHs in 49 soil samples. The dominant PAHs were naphthalene, phenanthrene and fluoranthene, which were mainly derived from incomplete combustion of E-waste (e.g. wire insulations and PVC materials), and partly from coal combustion and motorcycle exhausts.

Gullett, Linak, Touati, Wasson, & King (2007), researched air emissions and residual ash samples from experiments of open, uncontrolled combustion of electronic waste (e-waste), simulating practices associated with rudimentary e-waste recycling operations. It was found that the value for the insulated wire is about 100 times higher than that for backyard barrel burning of domestic waste. Fly ash samples from both types of e-waste contained considerable amounts of several metallic elements and halogens; lead concentrations which were more than 200 times the United States regulatory limits for municipal waste combustors and 20 times those for secondary lead smelters. Leaching tests of the residual bottom ash showed that lead concentrations exceeded U.S. Environmental Protection Agency landfill limits, designating this ash as a hazardous waste.

Bi et al. (2007) analyzed e-waste from across the world where in Guiyu, South China, the e-waste is dismantled and discarded. Concentrations of polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), and organochlorine pesticides (OCPs) were measured in serum from residents of the e-waste dismantling region, where 80% of families work in e-waste recycling, and compared to a matching cohort from a nearby region where the fishing industry dominates (Haojiang). The median BDE-209 concentration in Guiyu was 50-200 times higher than previously reported in occupationally exposed populations.

Zheng et al. (2008) also studied local children under the age of 8 years old in China's e-waste recycling region of Guiyu and stated that from the primitive electronic waste (e-waste) recycling process that the toxic heavy metals may keep on threatening to the health of local children. Children living in Guiyu had significantly higher BLLs (blood lead levels) and BCLs (blood cadmium levels) as compared with those living in Chendian. It was also stated that there was a significant increasing trend in BLLs with increasing age in Guiyu. The risk factors related to children's BLLs and BCLs mainly included father's engagement in the work related to e-waste, children's residence in Guiyu and the amount of time that children played outside near the road every day.

The management of e-waste is a major challenge in developing and transition countries (Mmereki, Li, & Li'ao, 2015). Obsolete electrical and electronic equipment (EEE) are a complex waste category containing both hazardous and valuable substances. In developing countries and regions, infrastructure, pre-processing, and end-processing facilities and innovative technologies for end-of-life management of e-waste are noticeably absent due to lack of investment and high costs of its management.

Although it has been established that e-waste is toxic and both dangerous and toxic to the environment and humans, e-waste also contains many valuable, recoverable materials such as aluminum, copper, gold, silver, plastics, and ferrous metals (Baldé et al, 2015). In order to conserve natural resources and the energy needed to produce new electronic equipment from virgin resources, electronic equipment can be refurbished, reused, and recycled instead of being landfilled (Kansas Department of Health and Environment, 2015).

In many places however e-waste recycling falls onto the backs of enterprises such as junk dealers who have no knowledge of the toxic nature of their 'junk' nor the technology necessary to extract the precious metals. Most of these firms are unregulated and unregistered as well further complicating the process of regulation and prevention of pollution caused by hazardous substances and heavy metals in the product waste.

In Indonesian as in most places across Asia, there is 2008 law on waste management but a regulation to elaborate on the law has still not been made. The law required that producers handle their own waste (like in Thailand) but in Indonesia that has been interpreted to mean only the packaging (Elyda, 2016). In Thailand there is no specific law or regulation regarding e-waste other than the Hazardous Substance Act B.E. 2535 (1992) and its amendment B.E. 2556 (2013) (Chareonsong, 2014) which covers chemical waste which must require a permit. Used electrical and electronic and appliance enterprises are currently exempted for the need of a permit or to register but importing conditions for used electrical and electronic equipment is required by DIW (Department of Industrial Works) (Chareonsong, 2014). Thailand also participates in the International E-Waste Management Network (IEMN) to obtain and exchange information on e-waste issues.

Table 2 shows an estimation of Thailand's current and projected domestic e-waste generation. In 2016 it is expected that nearly 11 million phones will be discarded along with 2.8 million TVs and over 1.5 million refrigerators and washing machines, which at present times Thailand's disposal policies are mirrored after the OECD/European ideas of 'Extended Producer Responsibility' (EPR) (Lindhqvist, 2000). In Thailand however, there is no real enforcement ability and the program presently appears to be more voluntary than mandatory.

Product type	Waste generation (1,000 units) in year							
	2014	2015	2016	2017	2018	2019	2020	2021
TV	2,587	2,689	2,790	2,889	2,986	3,081	3,174	3,264
Digital camera/VDO camcorder	875	983	1,059	1,065	1,055	1,106	1,192	1,289
Media player	3,476	3,537	3,571	3,588	3,598	3,611	3,630	3,653
Printer	1,520	1,532	1,542	1,546	1,547	1,545	1,543	1,540
Mobile phone/Land line	9,750	10,337	10,907	11,456	11,983	12,486	12,966	13,419
PC	2,210	2,421	2,630	2,834	3,032	3,222	3,402	3,572
A/C	740	766	796	832	871	911	949	983
Refrigerator	922	972	1,023	1,074	1,125	1,174	1,223	1,271
Microwave	313	346	382	419	456	492	527	559
Washing Machine	467	495	523	551	581	611	644	681
Fan	1,916	1,996	2,079	2,164	2,251	2,340	2,431	2,524

Table 2 Estimation of Thai e-waste generation 2014-2021 (Chareonsong, 2014)

Lindhqvist (2000) formulated the first definition of the extended producer responsibility (EPR) concept around 1990. Today, almost all OECD countries have formulated EPR policies and it is now possible to get a clearer understanding of the way the EPR principle can work under various conditions. In particular, the concept of EPR is as a policy principle to promote environmental improvements of products and product systems, and identifies possible approaches to key concerns in the implementation of EPR which builds on the preventive environmental strategies as promoted by, for instance, UNEP in the Cleaner Production Programme. In the United Kingdom, the letters ERP became the 'European Recycling Platform' and since 2007 the UK has reported to have recycled half a million tonnes of e-waste.

In ASEAN (Association of Southeast Asian Nations) however, we find Thai Generation-Y/Z consumers to be some of the most connected users in the world. Thai Generation-Y (or millennials) alone have become the largest consumer segment in the country with a lifetime spending potential of over USD $5 trillion (Siam Commercial Bank Economic Intelligence Center, 2015). Additionally, these same Generation-Y consumers are also the largest owners of smartphones within the population and some of the most connected youth on earth. With researchers from Thailand currently reporting 97 million mobile connections representing 149 percent of the population, it is easy to understand why (eMarketer, 2013; Kemp, 2015). It is therefore not unreasonable to project that the next generation (Generation Z) of Thai teenagers will mirror and exceed the above statistics concerning smartphones and consumer habits. It is these generations that education and knowledge of the importance of proper e-waste disposal must be targeted. This is consistent with a US study which indicated that adolescents and children now influence over $600 billion a year in consumer spending (Linn, 2004).

It therefore becomes socially and environmentally responsible for this same electronics consumer segment to be informed about the environmental and human health impact from the disposal of the millions of legacy phones, new generation smartphones, tablets, and other electronic devices. Although EPR places much of the burden of disposal on the manufacturer, with 7.1 billion mobile subscriptions worldwide, a consumer disposal approach that is socially and environmentally friendly might be warranted. Also, since Thailand's largest segment of mobile users is Thai teenagers and young adults, with an average of 1.94 mobile subscriptions per unique user, a new investigation towards e-waste disposal that is environmentally sound and focused on the consumer is warranted.

Additionally, within Asean's 628 million consumer community, there are 233 million active mobile social media users (Line, WhatsApp, Facebook, etc.) which have a 776 million mobile connections, representing 124 percent of the region's total population (representing subscriptions, not unique users) (Kemp, 2015). Also, as a subset of this, the Thai Office the National Broadcasting and Telecommunication Commission (NBTC, 2015) reported that there were three major mobile operators at the end of 2015, which accounted for a total of 82.99 million subscriber lines. Any way you look at it, there are a lot of teenagers and young adults (Generation Y/Z) who are electronic device consumers who at some point will be disposing of their phones for a more modern one.

From the above, the researchers have developed the following 3 hypotheses for the study (Figure 2 below):
Proposed Research Hypotheses
H1: E-waste environmental impact has a direct effect on e-waste teenager awareness.
H2: E-waste environmental impact has a direct effect on e-waste disposal management.
H3: E-waste disposal management has a direct effect on e-waste teenager awareness.

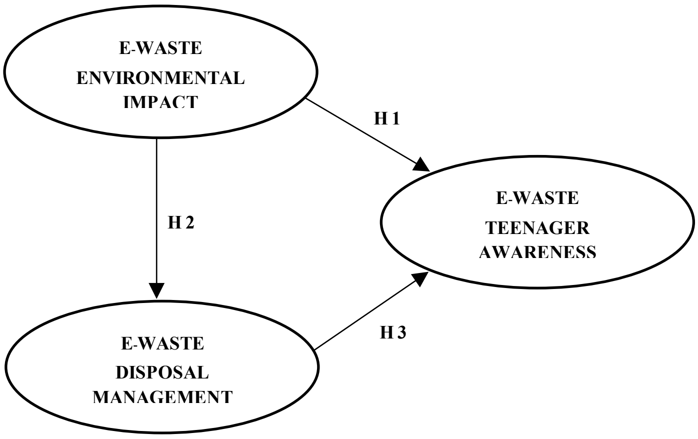


Figure 2: Proposed Conceptual Framework

FINDINGS

Methodology
This research aims to model the structure of Thai teenager e-waste environmental awareness, so the researchers wish to determine the details from the methods below:

The approach used in the study.
For this study the researchers will use both quantitative and qualitative research from both primary and secondary data. The researchers have thus far determined the following steps for this study:

Secondary Data Research.

Thus far, research has been comprised of published research, textbooks, internet materials, media reports, and data which has been cleaned, analyzed and collected to develop a conceptual model for the variables that affect Thai teenager environmental awareness and their decision to dispose of their electronics and mobile devices in an environmentally safe and healthy way.

Quantitative Research Methods.

Quantitative research will be performed from the primary data by collecting a questionnaire from the target sample. The questionnaire to be used to collect data will be structured and written in a realistic, easy-to-understand format which is deemed to be reliable and reasonable. Further reliability validation will be undertaken as follows:

1. Questionnaire review will be conducted by academic scholars to validate the investigation questions and the use of rhetoric and the simplicity and comprehension of the questions.
2. During the questionnaire trial stage, questions and responses will be monitored so better clarity can be achieved. Questions will be updated as needed.
3. Perform data collection statistical analysis.

Qualitative Research Methods.

Qualitative research will involve confirming the model of the quantitative research. As there are three latent variables and 12 observed variables anticipated for the study, using a ratio of 20:1 (Schumacker & Lomax, 2010), it is anticipated that a total of 240 Thai teenagers who are smartphone users will be queried. The criteria for the selection of the sample population will be teenagers living and going to school within the Bangkok metropolitan area sampled by Simple random sampling.

Population and sampling.

The populations in this study are Bangkok metropolitan teenagers who are technological savvy and use smartphones.

Quantitative research.

Schumacker and Lomax (2010) stated that Structural Equation Modeling (SEM) uses a variety of models to show the relationships between observed variables with the same basic goal of providing a quantitative test of a theoretical model hypothesized by a researcher. Meldrum (2010) further stated that a sample size smaller than 100 should not be used in SEM as it is unreliable. This is consistent with other research on the 'Rule of 100' including Gorsuch (1983), Kline (1979), and MacCallum, Widaman, Zhang and Hong (1999). No sample should be less than 100 even though the number of variables is less than 20. Therefore, using a factor of 20 for each of the 12 variables from the research survey, it is anticipated that a total of 240 samples are adequate to assure a reliable sample size (Schumacker & Lomax, 2010).

Self-administered questionnaire (SAQ).

For this research, the measurement instrument or questionnaires utilized will be prepared from the literature. A self-administered questionnaire (SAQ) is being used as it is exploratory in nature and serves as a starting point for other methodologies.

Qualitative Research

Berk (1984) stated that an evaluation of the congruence between items and objectives is the most important assessment during the content validation stage. If there is insufficient evidence that the items are measuring what they are intended to measure, the remaining item analyses are useless. An efficient measure for numerically assessing content expert's evaluations of items is the index of item-objective congruence (Rovinelli & Hambleton, 1977), in which ratings from content specialists are obtained in order to evaluate the match between test items and the table of specifications (Berk, 1984). For this study, 5 experts in their related fields will be chosen with questionnaire tems having an Item-Objective Congruence (IOC) index higher than 0.5 being considered acceptable. Additionally, the IOC index developed by Rovinelli and Hambleton (1977) will be employed to carry out the screening of questions to a pilot group of ten individuals. The research will then proceed to select items that have an IOC index higher than 0.5, which will be considered acceptable.

Research quality inspection tools.
The research will be conducted to determine the quality and reliability of the instruments used in the research. Tools used to measure quality include content validity and construct reliability (Hale & Astolfi, 2014).

Questionnaires will be constructed as a tool to measure concept definition and practice and will use a 5-Point Likert Scale (Likert, 1970). This research will conduct Confirmatory Factor Analysis (CFA) and subsequently reliability analysis to measure Cronbach's alphas (Cronbach, 1951) to ensure internal consistency. Multi-item measures will be developed based on Cronbach's alpha >0.68. This study will then calculate Cronbach's alphas for each construct. If the value is below 0.50, the research question will be cut off. This is considered highly reliable. The responses to the questions capturing focal constructs will use a five-point Likert scale (rating statements 1-5; 1 = strongly disagree and 5= strongly agree) (Likert, 1970).

There will also be an inspection by 5 experts including:

Thai academic scholars	3 members
Industry e-waste experts	2 members

Data Collection
Primary data.
Primary data is a collection of factors that influence environmental impact from e-waste, teenager's awareness on e-waste and e-waste disposal management.

Secondary data.
Secondary Data consists of studying the theories related to the research from various sources; including books, manuals, tutorials, articles, research papers, etc., to define the concepts and theories used in the study.

Quantitative Data Analysis
Quantitative research is currently envisioned using the partial least squares (PLS) statistical method and hypotheses testing with PLS-Graph software (Chin, 2001), which analyses the display and model structure associated with the observed manifest variables with latent variables.

Analysis of quantitative data.
The analysis of quantitative data will be conducted using statistical analysis as follows:

1. An analysis will be conducted by descriptive statistics by characterizing the frequency, percentage, mean, and standard deviation.
2. An analysis will be conducted using structural equation modeling (SEM) to determine the relationship of the factors influencing environmental impact from e-waste, teenager's awareness on e-waste and e-waste disposal management.

Analysis of qualitative data.
To confirm the results of the quantitative analysis are credible and the findings reliable, the researchers will conduct interviews with those concerned with teenager awareness of the environmental impact from electronic waste. Afterwards, the researchers will proceed to interpret qualitative information including classified information.

CONCLUSIONS

According to the United Nations, nearly 42 million metric tonnes of e-waste were generated around the globe in 2014 ("Global E-Waste Volume," 2015). Which according to some, has a large environmental burden which if continued, is unsustainable. The global e-waste recycling and reuse services market however, which stood at US$9.84 billion in 2012, is expected to reach US$41.36 billion by the end of 2019 which the United Nations has referred to as the 'urban mine'. Part of the solution is the realization of this vast recycling market and by so doing, the development of a model that is sustainable. Experts concur on the role of the informal e-waste recycling sector; the need for data-driven policy and resources; and the possible costing impact of EPR. It has also been noted the importance of formalizing and incorporating the informal sector into WEEE management systems to create "win-win" situations. The need for occupational safety and health training also must be accessed. It is a known fact that proper and safe e-waste management and disposal is not an inexpensive proposition so therefore constraints must be overcome for investing in WEEE recovery and recycling facilities. In order to set up a market-based waste management system, data inventory and enabling regulations are needed while being sensitive to the cost of EPR being passed through to end-consumers. Under the concept of "product stewardship," cost increases are inevitable and all stakeholders involved in the electronics market have to become responsible.

EPR is effective and working but it is not enough and consumer education must be part of the mix, especially in places where regulatory control and government oversight is minimal. A viable option however is a direct approach to the consumers using and disposing of e-waste products. Teenagers are a key element in the purchasing, use and eventual disposal of electronic devices and it is this group therefore that methods need to be explored that will create a greater awareness of the toxic nature of their devices and how improper disposal represents a toxic and health threat to both humans and the environment.

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Elementary School Students' Opinions About Music Lessons And The Songs In The Music Books

Sabahat BURAK
Akdeniz University, Turkey
sabahatozmentes@gmail.com

ABSTRACT

In this study, it is aimed to acquire opinions of the students about music lessons and school book songs used which are the basic constituents of a music curriculum. Furthermore, effects of class variable which is an important factor about formation of opinions of students are also studied on. A total of 78 students of 4th, 5th and 6th classes who receive training at Emekevler Elementary School participated in the study. The data collection tool used in the study is developed by the researcher and consists of two parts. First part consists of 13 questions and it is aimed to reveal opinions and expectations of students about the music lessons. Second part consists of 7 questions. In this part, the aim is to acquire opinions of the students about the songs in the music lesson book. It is observed that answers of students to some questionnaire items vary by the classes. Besides, the literature about the findings of the study has been associatively discussed.

INTRODUCTION

Musical experiences gained during the primary education are of particular importance since it embodies basic skills, ability and behaviours in terms of musical development of the individual. In this sense, requirements, function of the primary school music education program and teaching is a subject that we need to deal with. Music education curriculum implemented during the period of primary education in Turkey was developed in 2006. Vision of the program is to make the music an integral part of lives of students by experiencing it via activities and raise happy, self-confident individuals with personality, open to any kinds of fine arts, being at peace with himself and people around, recognizing national and international cultures, loving the nation and homeland, sensitive to events, changes and developments around it. This curriculum is based on constructivist and student- -centered learning approach. According to constructivism theory, knowledge is not something received by our senses or various communication channels and existing in the outside world. On the contrary, the knowledge is constructed by the person knowing it, is produced for this reason constructions are unique to the person (Acikgoz, 2003;61). The constructivist perception in music education in 2006 music curriculum created from this point forth places emphasis on learning not teaching. It accepts the variety of individuals. It supports the researcher aspect of students. It attaches importance to earlier experiences during the learning process. It focuses on performance and activities in learning. It takes how the student learns into consideration. It adopts the perception that student learns in a social environment. It supports realism and functionality in teaching. It gives the opportunity of creating knowledge and inference by experiences. It is aimed with this learning approach adopted that students will not be passive at class but will attend the lesson more actively. Students attend the lesson via various musical activities, projects and narratives and control their own learning processes. Various activities are used for ensuring efficient participations of students at classes starting from the target of raising students with the skill in the areas of listening, singing, playing, musical perception and being informed, creativeness and with music culture. In Turkey elementary music education is implemented using different methods and approaches. And there is an increase in music education research about teaching music by different methods and approaches (Nuray, 2004; Bilen, 2010; Kuşçu, 2010; Eren, 2012). In addition, students may wish to spend music classes with different and various activities. Or it may be seen that students with negative attitude towards music classes usually love music very much, they like being interested in music in their daily lives and play an instrument. It is possible to correlate between the negative opinions of students about music lesson and teacher's characteristics, deficiency of physical facilities and characteristics of the curriculum. In addition to this, students usually think that the reason of failure of music lesson is that they don't like way of teaching music, material used and songs (Ozmentes, 2011). It is very significant and essential that opinions of students should be asked to create a curriculum and for good functioning. It was aimed to learn the opinions of students about material used (school book songs) and teaching the key elements of a curriculum in this study. Moreover, it was tried to reveal the effects of class variant considered as having an important effect on opinions of students.

THE STUDY

The study was conducted at Emekevler Primary School in Kepez county of Antalya. Total 78 students of 4th, 5th and 6th classes who received education at this school participated in the study. Opinions of students about teaching of music lessons and about music lesson book were interpreted by their classes. The distributions of students by classes are as follows in this sense: 28 of students attend to grade 4 (35.9%), 26 of them attend to grade 5 (33,3%), 24 of them attend to grade 6 (30,8%). Data collection tool used in this study was developed by the researcher. It was aimed to obtain opinions of students about teaching the lesson and songs in the music course book. For this purpose, 132 students attending to Maresal Fevzi Cakmak elementary school were asked to write essays about opinions about teaching the lesson and music course book. 64 items were selected from these essays. These items were evaluated in terms of whether they expressed the same meaning for everyone, there were analogous items or not, whether there were items divided into two different items or not, whether it reflected the possible conditions of students or not. Necessary changes and amendments were made as a result of evaluation, items were selected and the number was reduced to 20 items. The questionnaire comprises of two parts. The first part comprises of 13 questions and it was aimed o reveal the opinions and expectations of students about teaching the music lessons. The second part comprises of 7 questions. It was aimed to learn the opinions of students about songs in music course book. Opinions of students were presented in the section of findings as I agree, I slightly agree, I don't agree and descriptive analysis techniques were used for analyzing the answers of questionnaire. One-way Anova was used to reveal opinion differences of students. Scheffe and Dunnet C tests was used for the purpose of identifying the origin of differences as a result of variance analysis. The universe of study being students of grade 4, 5, and 6 and from low socio-economic level is one of limitations of the study.

FINDINGS

Answers of questionnaire were analyzed for the purpose of revealing opinions and expectations of students about teaching the music lesson first of all and then frequency and percentage was calculated. Relevant findings are presented in Table 1.

Table 1. Frequency and percentage values of opinions and expectations of teaching music lesson of students

	I agree		**I slightly agree**		**I don't agree**	
	%	F	%	F	%	F
I want to watch concert records at music lessons.	87,2	68	9	7	3,8	3
I want to listen to songs at music lessons	88,5	69	6,4	5	5,1	4
In my opinion music lessons are useful	79,5	62	12,8	10	7,7	6
I find teaching notes as boring.	21,8	17	20,5	16	57,7	45
I prefer playing melodica to flute at music lessons.	51,3	40	9	7	39,7	31
I want to learn notes with their names not with the shapes on staff.	46,2	36	6,4	5	47,4	37
I want the increase of music lesson hour.	66,7	52	7,7	6	25,6	20
I want to learn different kinds of music at the lessons.	89,7	70	3,8	3	6,4	5
I want to sing a song at the music lessons.	69,2	54	15,4	12	15,4	12
I don't find songs taught at music lessons entertaining.	41	32	17,9	14	41	32
I want to sing popular songs at music lessons.	57,7	45	19,2	15	23,1	18
I want to play different music instruments at music lessons.	79,5	62	10,3	8	10,3	8
I want to be taught songs we listen outside the lessons	78,2	61	10,3	8	11,5	9

It is seen in Table 1 that 89,7% of students want to listen to different sorts of music at music lessons, 87.2% of them want to watch concert records at music lessons, 88,5% of them want to listen to the songs at music lessons, 79,5% of them want to play different instruments at music lessons and find music lessons useful, 78,2% of them want to be taught songs they listen outside the lessons. Moreover, it was understood that 69,2% of students want to sing songs at music lessons, 66,7% of them want the increase of music lesson hour. In addition to this, 57,7% of students expressed that they did not think that teaching notes at music lesson was boring. Also it was understood that 57,7% of students stated that they wanted to sing popular songs, 51,3% of them preferred playing melodica to flute. 46,2% of students gave the answer of "I agree" to the expression of "I want to learn notes with their names not with the shapes on staff at the class", 47,4% of them gave the answer of "I don't agree". It was seen that 41% of students gave the answer of "I agree" to the expression of "I don't find songs taught at music lessons entertaining" 41% of them gave the answer of "I don't agree".

Table2. Frequency and percentage of opinions of students about songs in music course book

	I agree		I slighlty agree		I don't agree	
	%	F	%	F	%	F
I find songs in the music course book simple comparing to our level.	57,7	45	15,4	12	26,9	21
I think that there are not sufficient songs in music course book.	52,6	41	15,4	12	32,1	25
I want to see popular songs in music course book.	71,8	56	11,5	9	16,7	13
All songs in the music course book are similar to each other	41	32	16,7	13	42,3	33
I like songs in the music course book	64,1	50	17,9	14	17,9	14
Songs in the music course book are not irrelevant with the subjects.	25,6	20	15,4	12	59	46

It is seen in Table 2 that a large extent such 71,8% of students want popular songs in music course book, 64,1% of them love the songs in the music course book, 59% of them found songs in the music course book are relevant with the subjects. Moreover, 57,7% of students stated that songs were simple comparing to their levels. The rate of students thinking that there are not sufficient songs in music course book is 52,6%. It is understood that 41% of students agree with the expression of "All songs in the music course book are similar to each other" and 42,3% of them don't agree. Items of questionnaire were subjected to variance analysis for the purpose of understanding whether opinions and expectations about music lessons of students are significantly different by the grades or not. Findings are presented in Table 3.

Table 3 Results of variance analysis for opinions of students about music lesson by the grades

	Grade 4		Grade 5		Grade 6		F	p
	X	S	X	S	X	S		
I want to learn notes with the names not with the shapes on the staff.	1,85	1,40	3,69	1,46	3,58	1,55	13,176	,000*
I don't find songs taught entertaining	2,14	1,58	3,57	1,39	3,37	1,52	7,217	,001**

*p<.001, **p<.005

Answers given to the expression of "I want to learn notes with the names not with the shapes on the staff show significant difference by the grades as it is seen in Table 3 (F=13.176, p<.001). As per the result of Scheffe test one of the post-hoc analysis conducted to understand from which group the difference arises, average of answers to the same expression of grade 4 students (X=1,85) was calculated as significantly low comparing to students of grade 5. (X=3,69) and grade 6 (X=3,58). Moreover, expression of "I don't find songs taught at music lessons entertaining" shows significant difference by the grades of students (F=7,217, p<.005). Score averages of grade 4 students for the same expression (X=2,14) were calculated as significantly low comparing to averages of grade 5 (X=3,57) and grade 6 (X=3,37) students. Significant differences were not found between the grades for other items of the questionnaire. Relevant questionnaire items were subjected to variance analysis for the purpose of understanding whether opinions about songs in music course book of students are significantly different by the grades or not. Findings are presented in Table 4.

Table 4. Results of variance analysis for opinions of students about songs in music course book by the grades

	Grade 4		Grade 5		grade 6		F	p
	X	S	X	S	X	S		
I want popular songs in music course book	3,42	1,59	4,26	1,04	4,45	1,10	4,847	,010***
All songs in the music course book are similar to each other	1,78	1,42	3,50	1,24	3,37	1,46	12,947	,000*
I like songs in music course book	4,39	1,06	3,84	1,15	3,16	1,55	6,105	,003**
Songs in music course book are irrelevant with the subjects.	1,53	,96	3,03	1,53	2,45	1,55	8,338	,001**

*p<.001, **p<.005,***p<.05

As it is seen in Table 4, it is understood that significant differences are in question for answers of some questionnaire items by their grades. Scheffe and Dunnet C tests were conducted to understand from which groups the difference arose. Answers of grade 6 students to the statement of "I want popular songs in music course book" (X=4,45) are significantly higher than answers of grade 4 students (X=3,42). Answers of grade 4 students to the statement of "All songs in the music course book are similar to each other" (X=1,78) show significant differences comparing to grade 5 students (X=3,50) and grade 6 (X=3,37). Answers of grade 4 students (X=4,39) for the statement of "I like songs in music course book" were calculated as significantly higher than grade 6 (X=3,16) students. Answers of grade 4 students (X=1,53) for the statement of "songs in music course book are irrelevant with the subjects taught" were calculated as significantly lower than grade 5 students (X=3,03) and grade 6 (X=2,45) students. Answers of other items do not show significant differences by the grades.

CONCLUSIONS

It was seen that 89,7% of students want to listen to different kinds of music at music lessons. The fact that students are interested in different kinds of music, want to have information about this subject can be considered as a positive situation in the sense of increase of their musical culture and tastes. Again the point that 87,2% of them want to watch concert records show that students are in need of accumulation of knowledge in terms of musical enculturation. It was understood that 78,2% of students want to be taught songs they listen to outside the music lessons. In this sense, desire to see the music they listen to and like outside the school as a natural requirement can be considered as a factor facilitating learning by means of music they know, love and like. Thus, it can be assumed that attitudes of students towards music lessons will be affected positively. In addition to this, 57,5% of students' indicating that they want to song popular songs at the lesson and the fact that 71,8% of them being a great ratio, want to see popular songs in the music course book support the above-mentioned assumptions. 66,7% of students want music class hours to be increase. This can be interpreted as students have positive attitudes towards the music lessons. 46,2% of students answers the statement of "I want to learn notes with their names not with the shapes on staff at the class." as "I agree" and 47,4% of them gave the answer of "I don't agree". Students may sometimes have difficulty in reading notes at music lessons. They consider music class as an entertainment tool by nature apart from other theoretical courses and they may desire to entertain and relax at lessons. In addition to this, reading notes requires upper level cognitive skills and students may need to repeat more for reading notes easily. Non-presence of such programs and activities may make the students inadequate in this respect. Moreover, students' at the ratio of 47,4% giving the answer of "I don't agree" to the same statement can be interpreted as a perception that activities required to develop above-mentioned skills are carried out satisfactorily is in question. According to the significance test conducted for the same item, answers of grade 4 students for this statement show significant difference comparing to grade 5 and 6 students. Accordingly considering the fact that cognitive skills required for reading notes and required to be developed are seen in grade 5 and 6 students more it can be assumed that students at these classes will not have difficulty in reading notes, these results are very interesting. The reason of such an opinion for these students may arise from their teachers or readiness.

Moreover, answers of students for the expression of "I don't find songs taught at music lessons entertaining" show significant difference by their grades. It is understood by the study findings that students attending to grade 4 find the songs taught more entertaining than students of grade 5 and 6. This requires examining characteristics of teachers of relevant classes, qualities of songs in curriculum or compatibility with level and skills of students.

Another finding of the study is the answer of "I agree" for the expression of "I don't find songs taught at music lesson entertaining" with the ratio of 41% and 41% of them gave the answer of "I don't agree". This finding supports the finding of Ozmentes (2011) concluding that students find music course book boring and they don't like songs taught. Moreover, the fact that rate of students thinking that there are not sufficient songs in music course book in terms of number is 52,6% and the rate of students expressing that they don't like songs in music course book is 44,9 supports the above-mentioned assumptions. 57,7% of students expressed that they found songs in the music course book simple by their levels. This may make students get bored at lessons and reduction of performance and attitude towards music and may be considered as a negative situation for the quality of education. According to the theory of flow to be addressed in this sense, to ensure that a person learns a subject efficiently and is motivated well, the balance should be achieved between the perception of him/her about the competence and difficulty of the work (Csikszentmihalyi, 1990). According to the theory, if the task is very easy and level of skill is very high, boredom starts. Student' having these opinions about the songs in music course book will lead to negative motivation for the music lesson.

It is understood that opinions of grade 4 students about songs in the music course book are more positive than students of grade 5 and 6 based on the results of significance tests. This result may be interpreted that as the age of students' increases, songs in the music course book do not meet their expectations and don't match up with their likes. In this case, songs in primary school course book should be analyzed. As the ages of students increase, they have negative opinons about songs and necessity of implementation of song program and curriculum appropriate for their likes and age arises. Its reasons should be investigated and songs appropriate for their level and likes more should be incorporated into curriculum and course book. Opinions of students about curriculum should be taken into consideration at every grade of education. In this sense, the study can be applied to students at different education steps. Also the questionnaire can be improved and different questions may be added. The correlation of questionnaire questions with different variables such as age, sex, educational background of parent, musical background, etc. can be analyzed. Preference, opinion and expectation of students from different socio-economic levels about the music may be worked on. In this study, only opinions about teaching music and songs in the course book were asked. Studies may be conducted to reveal the opinions and expectations of students about characteristics of teacher, method, evaluation, etc. Such studies should be increased and current music curriculum should be regulated in line with the opinion and expectations of students or level, like, interest and readiness of students should be measured and taken into consideration for curriculums to be developed.

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Emotional Intelligence, Social Competence, And The Participation In Pop Culture Of Polish Students During Adolescence

Kamil KURACKI
Department of Pedagogical Therapy
The Maria Grzegorzewska University, Warsaw, Poland,
kkuracki@aps.edu.pl, kamillo17@wp.pl

ABSTRACT

The article presents the results of two studies conducted in the years 2015-2016 among students and teachers of secondary schools in Poland. The results of the first study include data focusing on the psychosocial functioning of Polish adolescents (N = 160), in particular, the relationship between emotional intelligence, social competence and participation in selected areas of pop culture, such as: social networking, new media and technologies, television programs, e.g. talent shows, popular literature etc. The results of the second study include data on the reflection of teachers (N = 140) on the opportunities and constraints arising from the inclusion of elements of pop culture in the process of education and therapy of students in adolescence, particularly in the process of developing internal resources, such as emotional intelligence and social competence.

CONCEPTUAL FRAMEWORK AND BACKGROUND

The development of social media, i.e. Facebook, YouTube, Myspace, Instagram, blogs, etc. (Sosnowski, 2012; cf. Feliciak, Danielewicz, Halawa et al., 2010), as well as new media and technologies, along with the ever-presence of the so-called temples of consumption (Ritzer, 2001), stimulate the research on the participation of adolescents in pop culture and the role of pop culture in shaping external and internal psychosocial resources of the youths as they grow up. More and more often, in the social literature, an emphasis is put on the pop culture, with its universality and openness, playing a crucial role in the identity building of the teenagers (Melosik, 2014) and the functioning of young adults (Zagórska, 2004). Many publications prove that using such products of the pop culture as social networking sites or new technologies, enhances the cognitive and social-emotional development of students with specific learning difficulties (A. Milani, M. L. Lorusso, M. Molteni, 2009; O. Barden, 2012; M. H. Schneps, J. M. Thomson, G. Sonnert et al, 2013). Because the pop culture is a natural development space of the adolescents, it seems especially important to explore the issue in the context of relations between participation in the space of pop culture, social competence and emotional intelligence, important for functioning at school, exhibited by the students. It is an area that has not been subjected yet to a complex, multifaceted research. In the empirical studies carried out so far, essential positive correlations have been demonstrated, between the emotional intelligence and school performance of adolescent students, especially with a regard to creative behavior (Przybylska, 2007), or between the social competence, educational achievements and risk taking (Zawisza-Masłyk, 2011). It seems, therefore, crucial to learn the opinions of teachers of the adolescents on the possibilities offered by the participation of the students in the pop culture space. It is them who, to a great extent, decide about including elements of pop culture into the educational space of the adolescents. Do the teachers see in the pop culture more opportunities or more threats to the development of the modern youths?

RESEARCH

The goal of the first phase of research was to study the level of emotional intelligence, social competence and the activity of Polish students during adolescence in selected areas of pop culture, as well as establishing relations between the aforementioned variables. With this set goal, the following research questions have been formulated: 1. What is the frequency of the adolescent students' participation in the selected areas of the pop culture? 2. Do any differences exist between the levels of emotional intelligence, social competence and activity in selected areas of the pop culture in Polish adolescent students, and if yes, then what are they? and 3. Are there any relations between emotional intelligence, social competence, and the participation in selected areas of the pop culture in the studied group of students, and if yes, then what kind of?
In the studies carried out through the diagnostic survey, three research tools were used: Social Competence Questionnaire A. Matczak (2007), Emotional Intelligence Questionnaire N.S. Schutte, J. M. Malouff, L. E. Hall,

D. J. Haggerty, J. T. Cooper, Ch. J. Golden, L. Dornheim, in A. Jaworowska and A. Matczak's Polish adaptation (2008) and a questionnaire for the studies of the participation of adolescents in the areas of the pop culture, developed by K. Kuracki. The study group consisted of 160 students (80 boys and 80 girls) from secondary schools (Polish gymnasiums). The age of the students was between 13 and 15 years (M=14.33; SD=.640).

The subject of the second phase of the research was gathering opinions of the secondary school teachers on the possible influence of various areas of the pop culture on the development of the modern youths. The main goal of the project was to recognize which spheres of the pop culture are seen by the teaches in the category of the greatest opportunities and which - as the greatest threats to the development of students during adolescence. In the study, an original questionnaire prepared by K. Kuracki was used, regarding the evaluation of the possible influence of the regular use of social networking sites and new media and technologies, watching entertainment programs like the talent shows, and spending free time in shopping centers and malls on the development of the adolescents. Overall, 140 people participated in that phase of the study (40 men and 100 women), all of them working in Polish secondary schools as teachers or specialized teachers. The age of the studied group was between 25 to 56 years (M=36.92; SD=8.833).

RESULTS

In the studies, it was shown, that the students' participation in the pop culture relies mostly on using social networking sites like Facebook, Twitter, MySpace, Instagram, etc., and on using new media and technologies (tablets, smartphones, smartwatches). Frequent and very frequent activity in those fields was declared by 60% and over 70%, respectively. The areas in which the Polish students participation was much less frequent were: watching entertainment programs like the talent shows, spending free time in shopping malls, putting their own works on the Internet and blogging. In each of those fields, a frequent and very frequent activity was declared by no more than 23% of the study group (Table 1).

Table 1: Frequency of participation of secondary school students (N=160) in selected areas of the pop culture

Studied group	Frequency	Using social networking sites		Using new media and technologies		Watching entertainment programs like talent shows		Spending free time in shopping malls		Putting own work on the Internet / blogging	
		N	%	N	%	N	%	N	%	N	%
Secondary school students	never	7	4.4	0	0	39	24.4	16	10.0	112	70.0
	rarely	18	11.3	18	11.3	66	41.3	105	65.6	29	18.1
	quite often	37	23.1	21	13.1	19	11.9	17	10.6	11	6.9
	often	36	22.5	53	33.1	26	16.3	18	11.3	6	3.8
	very often	62	38.8	68	42.5	10	6.3	4	2.5	2	1.3
	Total	160	100	160	100	160	100	160	100	160	100

Analyzes carried out with the t-Student test did not show any statistically relevant differences in the levels of emotional intelligence of boys and girls, both in the general and factorial results (Table2).

Table 2: Differences in average levels of emotional intelligence- general result (INTE O), Factor I: ability to use the emotion to support the thinking and actions) and Factor II: ability to recognize emotions, in the group of boys (N=80) and girls (N=80)

Variables INTE	Boys		Girls		t	Df	P
	M	SD	M	SD			
O	121,33	14,345	120,31	20,704	,360	140,639	,720
Factor I	61,08	7,841	59,28	11,923	1,128	136,572	,261
Factor II	43,16	6,101	43,88	7,469	-,661	158	,510

*statistically relevant result

Source: Own work based on SPSS 23.0

No statistically relevant results have been obtained between the studied groups also in the case of the levels of social competence, both in general results, as well as in sub-scales of intimacy, social exposure, and assertiveness (Table 3.)

Table 3: Differences in average levels of social competences – general result (O), components: intimacy (I), social exposure (ES), assertiveness (A) in the group of boys (N=80) and girls (N=80)

Variables KKS	Boys		Girls		t	Df	P
	M	SD	M	SD			
O	170,95	24,478	171,60	22,434	-,175	158	,861
I	42,34	6,310	43,86	6,274	-1,533	158	,127
ES	49,55	9,385	50,23	7,402	-,505	149,862	,614
A	48,50	7,973	46,03	8,725	1,873	158	,063

*statistically relevant result; p<0.05 Source: Own work based on SPSS 23.0

There was a relevant difference, however, between adolescent boys and girls attending Polish secondary schools, in relation to the participation in the pop culture. As the analysis with the t-Student test indicated, the mean result in the area of electronic media and new technology usage obtained by the boys (M=4.34; SD=.871) was much higher than the mean result obtained by the girls (M=3.80; SD=1.060), $t_{(152.243)}=3.504$, p<0.01. Boys show a much higher activity in the area of usage of such devices as tablets, smartphones, and smartwatches. In other areas of participation in the pop culture, no significant differences between the groups have been observed (table 4).

Table 4: Differences in average frequency of participation of boys (N=80) and girls (N=80) in selected areas of the pop culture

Variables	Boys		Girls		t	Df	P
	M	SD	M	SD			
Using social networking sites	3.71	1.245	3.89	1.147	-.925	158	.357
Using new media and technologies	4.34	.871	3.80	1.060	3.504	152.243	**.001***
Watching entertainment programs	2.25	1.175	2.53	1.211	-1.458	158	.147
Spending free time in shopping malls	2.30	.892	2.31	.894	-.089	158	.930
Putting own work on the Internet / blogging	1.49	.827	1.48	.927	.090	158	.928

*statistically relevant result; p<0.05 Source: Own work based on SPSS 23.0

In the first part of the research, weak positive correlations have been demonstrated between using social networking and emotional intelligence - with the general result (r=0.22; p<0.01), factor 1, understood as the ability to use emotions to support thinking and actions (r=.22; p<0.01), and factor 2, understood as the ability to recognize emotions (r=.195; p<0.05), as well as moderate positive correlations between using social networking sites and social competences - with the general result (r=.39; p<0.01) and its components, i.e. social exposure (r=.42; p<0.01) and assertiveness (r=.37; p<0.01). Weak positive correlations have been demonstrated between using new media and technologies and emotional intelligence - with the general result (r=.27; p<0.01), factor 1 (r=.29; p<0.01) and factor 2 (r=.176; p<0.05), as well as between using new media and technologies and social competence - with the general result (r=.22; p<0.01), social exposure (r=.23; p<0.01) and assertiveness (r=.22; p<0.01). Analogically, weak positive correlations have been demonstrated between watching entertainment programs like talent shows and emotional intelligence - the general result (r=.21; p<0.01), factor 1 (r=.21; p<0.01) and factor 2 (r=.24; p<0.01), as well as between watching entertainment programs and social competences - the general result (r=.25; p<0.01), social exposure (r=.27; p<0.01) and assertiveness (r=.21; p<0.01). Weak and moderate positive correlations have also been demonstrated between spending free time in shopping malls and social competences - the general result (r=.24; p<0.01), social exposure (r=.31; p<0.01) and assertiveness (r=.19; p<0.05), whereas weak positive correlations have been demonstrated between putting own work on the Internet and the ability to recognize emotions (r=.18; p<0.05) and social exposure (r=.18; p<0.05) (Table 5). No statistically relevant relations have been found between the other variables.

Table 5: r-Pearson's correlations between participation in selected areas of the pop culture and variables: emotional intelligence – general result (INTE O), factor I (INTE 1), factor II (INTE 2) and social competences – general result (KKS O), components: intimacy (KKS I), social exposure (KKS ES), assertiveness (KKS A) in a group of secondary school students (N= 160)

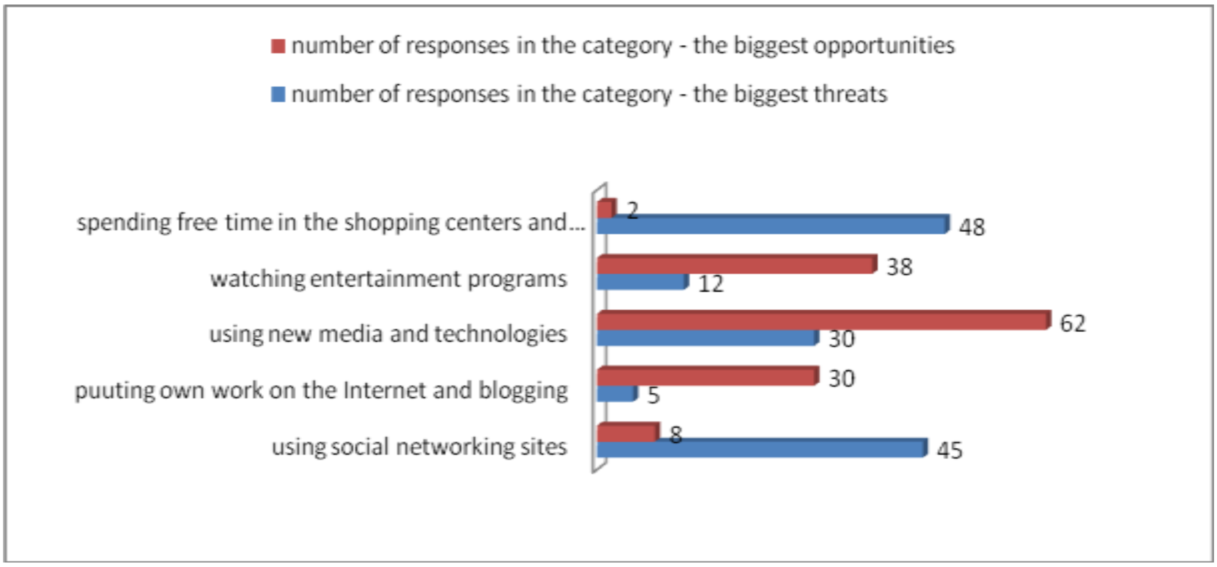
Variables		INTE (O)	INTE 1	INTE 2	KKS O	KKS I	KKS ES	KKS A
Using social networking sites	r	**.224****	**.220****	**.195***	**.392****	.135	**.424****	**.370****
	p	.004	.005	.013	.000	.089	.000	.000
Using new media and technologies	r	**.266****	**.293****	**.176***	**.219****	.089	**.234****	**.222****
	p	.001	.000	.026	.005	.262	.003	.005
Watching programs like talent shows	r	**.212****	**.212****	**.241****	**.248****	.134	**.267****	**.209****
	p	.007	.007	.002	.002	.092	.001	.008
Spending free time in shopping galleries	r	.130	.120	.132	**.235****	.130	**.305****	**.192***
	p	.102	.131	.095	.003	.102	.000	.015
Putting own work on the Internet / blogging	r	.138	.133	**.183***	.141	.038	**.178***	.131
	p	.081	.093	.021	.075	.635	.025	.098

** relevant correlation at the level $p<0.01$ * relevant correlation at the level $p< 0.05$

Source: Own work based on SPSS 23.0

The second part of the research was focused on gathering the opinions of the teachers, who work with students in secondary schools, on the possible results of active participation in the pop culture on the development of the adolescents. As the quantitative and qualitative analysis of the data demonstrated, the teachers in the study perceive the mentioned areas of adolescents' activity, both as opportunities and threats.

Chart 1: Areas of participation in the pop culture evaluated by the teachers (N=140) in the category of biggest opportunities and greatest threats to the development of adolescents



Teachers mostly see benefits in using new media and technologies by the adolescents (62 responses) and also in the students watching entertainment programs like talent shows (38 responses). The substantiation of those positive opinions are, among others, arguments such as ensuring a quick and easy access to knowledge and information through the pop culture products, better communication (in relation to the speed of contact), improvement of social skills of the students and easier adaptation to the social conditions, changing dynamically due to the civilizational progress. The teachers, however, also see threats due to a too active participation in the area of using new technologies in the form of weakened social and cognitive performance. Considering the watching of the entertainment programs, on the one hand, the teachers indicate such aspects of watching programs like *talent show* as entertainment and motivation for the students to pursue their hobbies and work on their achievements, on the other hand, they emphasize that such programs can teach the adolescents to criticize, ridicule and manipulate, as well as that it is worth being controversial and provocative to achieve success. In the category of the greatest threats, the teachers have placed the active use of social networking sites (45 responses) and spending time in shopping centers and malls by the adolescents (48 responses). The teachers support their opinion on the active participation on the social networking sites, with arguments such as the negative consequences of a constant waste of time, lowering of the quality of relationships with other people and neglecting schoolwork, what stands in opposition to the results obtained in the first part. The majority of the 48% of teachers, who evaluated the using of the social networking sites negatively and very negatively, believes also that it is an activity that hinders the social development, often only helping the adolescents in creating an idealized and unreal image of themselves. In relation to the students often spending time in shopping centers and malls, in the group of the 65% of teachers who evaluated that activity negatively or very negatively, the majority emphasizes that it only serves the purpose of promoting consumerism and adopting a demanding attitude.

CONCLUSION

The study showed that the students of secondary school actively participate in the pop culture, especially in the areas connected to using social networking sites and new media and technologies. Apart from a more frequent use of new media by adolescent boys, the gender does not differentiate the frequency of using the products of pop culture by the adolescents. The study has demonstrated that there are positive correlations (from weak to moderate) between active participation in the pop culture and psychosocial performance of the adolescents in the context of presented social competences and emotional intelligence. Those relations are especially visible in the areas of using social networking sites, using new media and technologies, and watching entertainment programs. On the basis of the obtained results, it can be concluded that smart technologies and social media are an important space for social interactions in which young people can test their social competences and shape new ones, especially their assertiveness and the ability to handle situations requiring self-presentation and resilience to increased attention and interest from other people. Hence, it is also a space where they can develop selected aspects of emotional intelligence. On the other hand, the higher the level of social competence and emotional intelligence of adolescents with dyslexia, the more active their participation in the selected areas of the pop culture. Moreover, the activities in all areas of the pop culture mentioned in the study appear to be important elements of training of competences connected to social exposure. Positive aspects of active participation in the pop culture are also noticed by the teaches, who in their objective assessment see greatest opportunities for development of the youths in using new media and technologies and watching programs like talent shows. It is, however, important to remember that, according to the suggestions from the teachers, those activities also have their downsides that can negatively affect the psychosocial performance of the adolescents.

SUGGESTIONS FOR FUTURE RESEARCH

Obtained results can be a contribution to further, more in depth studies focused on searching for determinants of the attractiveness of selected areas of pop culture to the adolescents, and for the directions of indicated relations between adolescents' participation in the pop culture and discussed aspects of their functioning. In relation to the studied group of teachers, it would have been interesting to undertake research on the participation of that study group in the selected areas of pop culture, and on showing the practice of the teachers of including the elements of pop culture into their educational activities. Designated lines of research could contribute to the development of indications for educational work in school.

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Endorsement Of New Ecological Paradigm: A Comparison Of Provincial And Urban Samples

Bahattin Deniz ALTUNOGLU
Kastamonu University, Faculty of Education
bdaltunoglu@kastamonu.edu.tr

ABSTRACT

Despite awareness and concern regarding ecological problems raised, such problems are continued to shape in to crisis, because dominant life style of society is not sustainable. This situation can be explained in scope of people's worldview or paradigm regarding to nature, natural resources and ecological problems. One of the most known theory about worldview or paradigm related environmental issues is the New Ecological Paradigm(NEP) which describes the rising pro-environmental culture. It represents a paradigm shift from the Dominant Social Paradigm(DSP) which is resource exploitative, growth oriented and materialistic with little and utilitarian concern for nature. The present study is aimed to compare provincial and urban sample in scope of endorsement of pro-environmental worldview.

INTRODUCTION

Every person has their own attitudes, values, and beliefs shaped by their past experiences and the culture of the society they live in. People make sense of life through their values, beliefs, and attitudes (Ergün, 2007). The values, beliefs, and attitudes have influence on our evaluations of new situations, events, ideas, and information in relation to ecological problems, which influence our life, just like they are influential on all the other aspects of life (Xiao & Dunlap, 2007). These types of evaluations can be gathered under the concept of worldview.

Dunlap and Van Liere (1978) suggest that there is a tendency towards the environmental worldview in the societies. They labelled this tendency as the emergence of a new paradigm that is different from the current one explaining the worldview on the environment. The emerging new paradigm was situated on the opposite of the worldview titled Dominant Social Paradigm (DSP). DSP prioritizes development, growth, and economy, alienates the human from the nature, and represents the values, attitudes, and beliefs that are widely adopted in the society (Dunlap & Van Liere 1978; Manoli, johnson & Dunlap, 2007; Dunlap, 2008).

Considering from the aspect of ecological problems, it is believed that there is a need for a widely-accepted worldview to be more environment-oriented so that nature can be protected more holistically rather than looking only after human beings' profits (La Trobe,& Acott, 2000). It is necessary to determine the social tendency towards ecological problems in order to make educational policies or policies for raising a social awareness regarding this transformation. Many scales have been developed to reveal the views of the society concerning environmental problems. One of the most frequently used of them is New Environmental Paradigm scale (Howcroft & Milfont, 2010). This scale was developed by Dunlap and Van Liere in 1978 to reveal people's worldview on the relationship between environment and nature. It consists of twelve items. Taking into account the ecological problems and the social change occurring in time, the scope of the scale was extended, and controversial expressions in the wording of some items were changed. The revised scale was renamed as New Ecological Paradigm. It consists of 15 items and five theoretical dimensions, which are (1) the reality of limits to growth, (2) antianthropocentrism, (3) the fragility of nature's balance, (4) rejection of exemptionalism, and (5) the possibility of an eco-crisis (Dunlap et al, 2000).

The New Ecological Paradigm scale measures general views on biosphere and the human influence on biosphere in the environmental literature and is also used to measure the awareness regarding adverse environmental conditions (Stern et al., 1999). The scale results are assessed taking into account such demographic variables as gender, age, educational background, geographical regions, political views, and occupational group as well as psychological structures (Berenguer, Corraliza & Martín, 2005). The present study analyzes the levels of endorsement of nature-based worldview, known as new ecological paradigm, by high school and university students selected from Kastamonu, whose population is around a hundred thousand. The psychometric characteristics of the New Ecological Paradigm scale were analyzed through comparison of provincial and urban samples.

THE STUDY

Samples

The study was conducted with two different samples. One of the samples covered students living in a province while the other covered students living in metropolitans. The provincial sample included 231 students studying in high schools and universities of Kastamonu. Metropolitan sample included 176 high school and university students studying in Ankara and Istanbul. The data were collected during the 2014-15 academic year.

Measurement Tool

The measurement tool was 15-item New Ecological Paradigm, which was revised by Dunlap et al. (2000). The odd-numbered items support NEP while the even-numbered items oppose NEP or support DSP. Therefore, even-numbered items were reversely scored to calculate the total score.

Data Analysis

The data obtained from the measurement tools were described based on means and standard deviations. Cronbach's alpha internal consistency coefficients of the items in the New Ecological Paradigm and the corrected total-item correlations regarding them were separately calculated for provincial and urban samples to make a comparison between them. To explore construct validity, factor analysis was separately performed for both samples to make a comparison. Taking into account the NEP-DSP dualism assumed to exist in the structure of the scale, which was suggested by Aytaç & Öngen (2012) and Atav, Altunoğlu & Sönmez (2015), two-factor structure was tested through the explanatory factor analysis.

FINDINGS

Table 1 shows mean and standard deviation values regarding the test items obtained from the provincial and urban samples.

Table 1: Mean and Standard Deviation of NEP scales Items

	Provincial sample		Urban sample	
Items	M	SD	M	SD
1. We are approaching the limit of the number of people the earth can support	3.48	1.11	3.51	1.21
2. Humans have the right to modify the natural environment to suit their needs	3.69	1.13	4.14	1.06
3. When humans interfere with nature, it often produces disastrous consequences	3.66	1.14	3.86	1.14
4. Human ingenuity will insure that we do NOT make the earth unlivable	3.59	1.21	3.74	1.17
5. Humans are severely abusing the environment	3.82	1.21	3.97	1.21
6. The earth has plenty of natural resources if we just learn how to develop them	2.24	1.15	2.24	1.09
7. Plants and animals have as much right as humans to exist	4.11	1.36	4.31	1.10
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	3.12	1.39	3.34	1.01

Table1: (Continued) Mean and Standard Deviation of NEP scales Items

	Provincial sample		Urban sample	
	M	SD	M	SD
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	3.47	1.24	3.69	1.22
11. The earth is like a spaceship with very limited room and resources	3.05	1.23	3.11	1.11
12. Humans were meant to rule over the rest of nature	3.56	1.21	3.80	1.08
13. The balance of nature is very delicate and easily upset	3.48	1.18	3.55	1.26
14. Humans will eventually learn enough about how nature works to be able to control it	2.75	1.03	3.15	1.14
15. If things continue on their present course, we will soon experience a major ecological catastrophe	3.84	1.27	4.16	1.24

M: Mean SD: Standard deviation
By even numbered items higher score signifies higher NEPS correspondence.

The students from both samples received low scores for the 6th, 8th, 11th, and 14th items compared to the scores obtained for other items.

The mean scores obtained from the items demonstrated differences between the provincial and urban samples. Hence, independent-samples t-test was performed to see whether there was a difference between these two samples (Table 2).

Table 2: Differences between NEPs scale items between provincial and urban samples

Items	Provincial	Urban	t	p
2. Humans have the right to modify the natural environment to suit their needs	3.69	4.14	4.110	.00
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	3.12	3.34	2,025	.04
9. Despite our special abilities, humans are still subject to the laws of nature	3.26	3.70	3.810	.00
12. Humans were meant to rule over the rest of nature	3.56	3.80	2.069	.04
14. Humans will eventually learn enough about how nature works to be able to control it	2.75	3.15	3.681	.00
15. If things continue on their present course, we will soon experience a major ecological catastrophe	3.84	4.16	2.582	.01

By even numbered items higher score signifies higher NEP correspondence
It was seen that there were differences between the provincial and urban samples in six items out of 15 NEP items. In all the items that involved a difference, the urban sample had higher mean score. Four of these items (i.e. the 2nd, 8th, 12th, and 14th items) were in favor of DSP.

Table 3: Item analysis results

	Provincial		Urban	
Items	Corrected Item-Total Correlation	Cronbach's alpha If item deleted	Corrected Item-Total Correlation	Cronbach's alpha If item deleted
1	-0.015	0.551	0.408	0.702
2	0.317	0.485	0.391	0.705
3	0.487	0.449	0.468	0.696
4	0.297	0.488	0.325	0.712
5	0.358	0.474	0.393	0.704
6	-0.377	0.615	-0.252	0.767
7	0.382	0.465	0.434	0.700
8	0.102	0.529	0.400	0.705
9	0.080	0.535	0.428	0.701
10	0.286	0.491	0.328	0.712
11	-0.004	0.553	0.242	0.720
12	0.281	0.492	0.471	0.697
13	0.233	0.503	0.376	0.706
14	0.029	0.540	0.166	0.728
15	0.431	0.454	0.386	0.705
	Cronbach’s Alpha	0.53	Cronbach’s Alpha	0.73

Item analysis results for both samples were comparatively analyzed. The item-total correlation regarding the item six was seen to be negative in the both sample. Corrected item-total correlation coefficients showed that the provincial sample had a low correlation with the scale for six items (i.e. the 1st, 6th, 8th, 9th, 11th and 14th items) whereas in the urban sample two items have a low item total correlation coefficient (i.e. the 6th and 14th items).

Table 4: Factor analysis results of NEP Items-Provincial sample

		Factors				
	Items	1	2	3	4	5
Antianthropocentrism	7	**0,755**	0,1	0,225	-0,107	-0,013
Eco-crisis	15	**0,680**	0,126	0,106	0,160	0,256
Balance	3	**0,644**	0,375	0,13	-0,016	0,045
Eco-crisis	5	**0,585**	0,143	0,065	0,233	0,200
Antianthropocentrism	2	0,107	**0,759**	0,123	-0,071	0,034
Antianthropocentrism	12	0,172	**0,725**	-0,051	0,026	-0,189
Balance	8	0,089	**0,224**	0,09	0,042	-0,609
Rejection of exemptionalism	14	-0,522	**0,386**	0,41	0,181	0,201
Eco-crisis	10	0,137	0,126	**0,753**	-0,088	0,024
Rejection of exemptionalism	4	0,251	-0,052	**0,731**	0,018	-0,110
Limits to Growth	1	-0,142	-0,042	-0,024	**0,762**	0,054
Limits to Growth	11	0,067	-0,07	-0,142	**0,610**	-0,247
Balance	13	0,285	0,117	0,176	**0,396**	-0,049
Rejection of exemptionalism	9	0,192	0,085	0,027	-0,134	**0,741**
Limits to Growth	6	-0,686	0,036	-0,114	0,077	**0,221**

Table 5: Factor analysis results of NEP Items-Urban sample

		Factors				
	Items	1	2	3	4	5
Eco-crisis	5	**0,682**	0,01	0,022	0,218	-0,109
Limits to Growth	1	**0,622**	0,17	0,059	-0,011	0,164
Antianthropocentrism	7	**0,607**	0,102	-0,072	0,385	-0,125
Eco-crisis	15	**0,583**	-0,146	0,356	0,201	-0,146
Balance	3	**0,552**	0,255	0,385	-0,164	0,391
Antianthropocentrism	2	0,217	**0,734**	-0,013	0,122	-0,029
Rejection of exemptionalism	14	-0,265	**0,693**	0,051	0,186	-0,015
Antianthropocentrism	12	0,384	**0,552**	0,098	0,166	0,12
Limits to Growth	11	-0,097	-0,051	**0,867**	0,211	0,06
Balance	13	0,376	0,153	**0,633**	-0,097	-0,067
Eco-crisis	10	0,011	0,19	0,047	**0,713**	0,036
Rejection of exemptionalism	9	0,296	0,031	0,179	**0,642**	0,068
Rejection of exemptionalism	4	0,128	0,325	-0,062	**0,456**	0,105
Balance	8	0,145	0,26	0,221	0,252	**0,682**
Limits to Growth	6	-0,258	-0,273	-0,281	-0,007	**0,672**

To investigate dimensionality of NEP scale, Principal Component Analyses with Varimax rotation was used. The KMO coefficients of provincial and urban samples were determined as 0.765 and 0.798 respectively. For both samples five factors were detected which their Eigen-values higher than one. In the provincial and urban sample, the five factorial structure explained more than 55 % of variance. The distribution of the items in the above-mentioned factors showed that the factor loadings of the urban sample ranged from 0.867 to 0.456 while the factor loadings of the provincial sample ranged from 0.762 to 0.221 (Table 4 and 5). The factor analysis results of the samples were seen to be inconsistent with the theoretical dimensions of the scale

Table 6: Factor analysis according to NEP-DSP dualism (Varimax rotation)

Items	Factors-Provincial		Items	Factors-Urban	
	NEP	DSP		NEP	DSP
7	**0.767**	-0.013	15	**0.713**	-0.015
3	**0.630**	0.182	13	**0.649**	0.026
15	**0.628**	0.003	5	**0.603**	0.155
6	**-0.606**	0.114	3	**0.600**	0.223
5	**0.510**	0.017	1	**0.520**	0.212
4	**0.299**	0.207	7	**0.499**	0.318
13	**0.253**	0.083	6	**-0.425**	-0.025
9	**0.167**	0.038	11	**0.404**	0.030
1	**-0.113**	0.000	2	0.148	**0.639**
14	-0.365	**0.525**	14	-0.211	**0.606**
2	0.164	**0.480**	12	0.343	**0.572**
10	0.230	**0.343**	10	0.073	**0.563**
12	0.191	**0.324**	4	0.078	**0.554**
8	0.093	**0.108**	8	0.173	**0.528**
11	0.015	**-0.069**	9	0.380	**0.423**

Factor analysis was repeated according to two factorial structure which based NEP-DSP dualism of NEP scale. The explained variance by two factorial structure for provincial and urban samples were determined as 30 % and 35 % respectively. When the Table 6 is examined it can be stated that provincial sample's factor loadings of seven items are problematic. In contrast to this, for urban sample only two item's factor loadings are questionable (gray painted loading values in Table 6).

Table 7: Item analysis results of NEP and DSP subscales

	Provincial	Urban		Provincial	Urban
NEP Items	Corrected Item-Total Correlation	Corrected Item-Total Correlation	DSP Items	Corrected Item-Total Correlation	Corrected Item-Total Correlation
1	-0,024	0,411	2	0,255	0,382
3	0,467	0,484	4	0,166	0,333
5	0,415	0,458	6	-0,154	-0,119
7	0,428	0,425	8	0,087	0,364
9	0,105	0,350	10	0,219	0,307
11	0,023	0,258	12	0,229	0,337
13	0,229	0,453	14	0,241	0,314
15	0,526	0,512			
	Cronbach's Alpha:0.53-0.69[1]	Cronbach's Alpha:0.73		Cronbach's Alpha: 0.32-0.42[2]	Cronbach's Alpha: 0.54-0.64[3]
1: calculated without 1., 9. and 11. items			2: calculated without 4., 6. and 8. items 3: calculated without 6. items		

As the Table 7 shows that item total correlation coefficients of three NEP subscales' items in provincial sample are lower than .20, while in the urban samples there is no item that its item total correlation coefficient lower than .20. In accordance to item total correlation results internal consistency coefficient of NEP subscale (0.73) for the urban sample is acceptable.

CONCLUSIONS

An accurate determination of views, attitudes, or approaches regarding the environment requires strong theoretical foundations as well as reliable and valid tools with ensured construct validity. This study is an attempt to comparatively analyze the levels of endorsement of the NEP scale, its theoretical foundations were constructed based on American society, by the Turkish society based on provincial and urban samples. To this end, the data obtained from two samples were comparatively described via mean scores and standard deviation values. Factor analysis and item analysis were performed based on the data. It was observed that half of the respondents from both samples supported the NEP items; however, some DSP items were agreed especially by respondents from the provincial sample. Similar results are also reported by Erdoğan (2009), Denis and Pereria (2014), and Atav, Altunoğlu, and Sönmez (2015). The results of t-test, which was used to compare the samples, showed that the samples differed from each other in six items (i.e. the 2nd, 8th, 9th, 12th, 14th, and 15th items). Four of these six items were in favor of DSP. They were mostly adopted by the respondents in the provincial sample.

Construct validity of NEP scale and the relevant item analyses were explored for three different situations. Dunlap et al. (2000) state that the scale can be used with a single dimension. The analysis based on this assumption showed that the internal consistency coefficient of the urban sample was higher than that of the provincial sample. Consistently with this, the item-total correlation coefficients showed that the items of the NEP scale yielded problems for two items for the urban sample while the number of problematic items for the provincial sample was six. This makes it difficult to adopt a single-dimension construct of the NEP scale for the provincial sample. Furthermore, the exclusion of six items narrows the limits drawn by New Ecological Paradigm scale. In contrast to this, for urban sample by omitting of two item the psychometric parameters of scale are not violated the assumption that scale can be used as unidimensional in accordance with suggestion of Dunlap et al. (2000). Additionally, Yu (2001) noted that a low overall Alpha may point out the existence of latent constructs, but a high overall Alpha is no an evidence for the absence of multiple latent dimensions. To investigate multi dimensionality of the scale, two distinct factor extraction criteria were used. Firstly, with Kaiser criteria (Eigen-value ≥ 1) five factors were extracted for both samples. However theoretically the NEP scale has five factors, but distribution of the items to factors showed that extracted factor structure for the both samples were not compatible with the theoretically determined structure of the NEP-scale (see Tables 4 & 5). This results shows that five factorial structure of the NEP scale not suitable for Turkish society. To exploring of construct validity of the NEP scale the factor analysis was repeated with criteria based on the fixed two factors (NEP-DSP). However, the two factorial solution of the scale for the provincial and urban samples display appropriate distribution pattern, but in the provincial sample, the factor loading of half of the items for both NEP subscale and DSP subscale are inappropriate (see Tables 6). In urban sample, both the factor loadings and distribution pattern of items are meet the assumption that the scale consisted two subscales in accordance with NEP-DSP dualism. This difference between both samples portrayed that participants in urban sample make clear distinction between the acceptance of an ecological worldview and rejection of an anthropocentric worldview, while participants in provincial sample support simultaneously both worldviews relating to environmental conservation and using the nature to satisfy human needs. The results of item analysis and less internal consistency coefficient are supportive evidence that participants from provincial sample cannot distinguish the pro-environmental worldview from the anthropocentric worldview. Bechtel, Verdugo, and de Queriroz Pinheiro (1999) and Lie & Ernst (2015) have revealed similar difference between samples from separate societies and suggested the explanation that less industrialized societies tent to hold the belief that the protecting nature is necessary because it provide what human need.

First implication is about role of pro-environmental worldview in environmental education. Pro-environmental worldview portrays a value orientation which based on interdependence between human and nature rather than utilitarian view. In this scope, the environmental education programs may be re-developed in value orientation manner rather than knowledge delivery.

Second implication is regarding to the NEP scale as a measurement tool by its usage researchers have to be cautiously, since it is not always reliable and valid for al sample type in Turkish society.

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Engaging Interactive Words Pronunciation Recognition System For Language Studies

Noraini SEMAN
aini,liza@tmsk.uitm.edu.my

Nursuriati JAMIL

Norizah ARDI
norizah@salam.uitm.edu.my

Faculty of Computer & Mathematical Sciences
Academy of Language Studies
Digital Image, Audio and Speech Technology (DIAST) Research Group,
Advanced Computing and Communication Communities of Research,
Universiti Teknologi MARA, Shah Alam, Selangor, MALAYSIA

ABSTRACT

The purpose of this research is to develop and design computer- assisted programs for teaching Malay language word pronunciation. To achieve the purpose of the study, a pre and post-test was constructed to measure students' level in Malay words pronunciation. "**Let's Pronounce It Correctly**" is a Malay Language speech recognizer designed and developed to assist foreigners or non-native speakers in learning Malay words pronunciation. Conventional means of learning speech involve one-way interaction requiring immediate feedback from the instructor to verify the pronunciation's correctness. This process delays and complicates the learning process of speech pronunciation. With "**Let's Pronounce It Correctly**", a person is able to learn the correct pronunciation of Malay Language words independently to his own convenience and pace. The system also provides an option for a person to record his pronounced word and test its correctness by displaying the spoken text. Learning is enhanced with audio and video presentation of the word pronunciation to allow a person to repeatedly practice his pronunciation until correctness is achieved. The interactive drill-and-practice method of the system provides an interesting and effective interaction for an individual learning or group practice. "**Let's Pronounce It Correctly**" can also be used as Malay Language teaching tool for foreign students in higher institutions, foreign visitors and conference participants in Malaysia. The speech engine utilized by "**Let's Pronounce It Correctly**" can also be customized for other application domains such as security, translations and teaching and learning of other languages.

INTRODUCTION

Language learning is a field which closely related to speech and communication. Thus, the aspect of pronunciation learning is partly considered as an important aspect in computer based language learning known as 'Computer-Aided Language Learning (CALL)', which also includes 'Computer-Aided Pronunciation Learning (CAPL)'. Both terms are referring to the achievements in the fields of computer aided learning system. Some of the related studies are on speech recognition, speech synthesis and dialogue systems, which permits the ability to produce efficient computer aided system. CAPL can present easier, enjoyable, effective learning tools than the traditional non-computerized learning system.

Automatic speech processing have been allowed be incorporated into pronunciation teaching by developments in technology (Hua, 2006). Advantages of computer assisted pronunciation training (CAPT) software for enhancing English learners' pronunciation have been investigated by a number of researchers (e.g. Neri, Strik and Boves 2002; Butler-Pascoe and Wiburg, 2003; Kim, 2006). Students were provided by the untiring work of the computer with unlimited opportunities to review any part of the materials and get further assistance offered by the system. Computer assisted pronunciation training software helps students in selecting what function to employ and how often they utilize it and also it helps them to study independently. However, deploying CAPT language teachers also benefit from software in their pronunciation classes since it can give students drilling practice, which language instructors' view as monotonous and time-wasting. Finally, computer assisted pronunciation training systems present an interactive learning context in a range of modes: whole class, small group or pair, and teacher to student (Pennington, 1999). This software has some drawbacks, although it has a lot of advantages. Most researchers criticize the CAPT software because it was developed without a foundation in any pedagogical theory (Hua, 2006). Some researchers such as Pennington (1999) indicated that most computer assisted pronunciation training software placed emphasis on the mechanics of articulation which are not contextualized. Seferoğlu (2003) stated that ―one of the main limitations of many of the computer assisted pronunciation software packages is that they are limited to presenting and practicing of segmental aspects (i.e. individual sounds) of the language rather than suprasegmental aspects and connected speech. The development of much of the computer assisted pronunciation training software has also been found to concentrate on the powerful multimedia facilities of computers and to lack content that is linguistically and pedagogically complete (Derwing & Munro, 2005; Neri et al., 2002; Reeser, 2001).

The implementation of speech recognition technology for recognizing the Malay language started since early year of twentieth century. Computer Aided Pronunciation Learning (CAPL) has been introduced, where it received a considerable attention in recent years. Many research efforts have been done for improvement of such systems, especially in the field of non-native second language teaching (Franco, Neumeyer and Bratt, 1999; Hiller et al., 1994; Witt, 1999). The basic stages of speech processing involves 5 main stages, which includes; pre-processing, feature extraction, training, identification and verification. In pre-processing stage, the recording speech input is filtered to get rid of the noise, before next process of feature extraction. Based on the research conducted by Ahmad, Ismail and Samaon (2004) and Noor Jamaliah et al. (2008), Mel Frequency Cepstral Coefficient (MFCC) algorithm has been used for feature extraction process. The survey provides recognition rates and description of test data for the approaches considered between another feature extraction algorithm known as Linear Predictive Cepstral Coefficient (LPCC) and MFCC (Ahmad, Ismail, & Samaon, 2004; N. Jamaliah, I. Zaidi, R., Zulkifli, M.Y., M. Yamani I., Emran, M.T., 2008). From the results obtained from Ahmad et al. (2004), LPCC is the best algorithm for recognizing the Arabic alphabets of Quran, with the percentage of 99.3%, more efficient compared to MFCC. However, MFCC is still the most popular feature set with 98.6% efficient, in which computed on a warped frequency scale based on known human auditory perception.

ACOUSTIC MODELING IN SPEECH RECOGNITION SYSTEM

At the level of signal representation the researcher have developed representation and emphasize of the perceptually speaker independent features and deemphasize speaker independent character. At acoustic phonetic level the speaker variability is modeled by different adoption algorithm that will adopt speakers' independent system the speaker variability is handled by statistical modeling which will operate on large number of data the effect of linguistics context on phoneme at acoustic phonetic level is handled by training separate model for phoneme in different acoustic modeling. The word level variability is modeled by different pronunciation n/w which will handled common pronunciation of words through speech algorithm different statically technique are used to find most probable words sequence depending upon the frequency of accuracy of the words. The most dominate model used Hidden Markov Models (HMMs) which is statically given by the rule of probability mode in which underling phoneme and frame by frame acoustic realization is probability representative as mark or process. The speech segment are identify during the search process rather than identity explicitly alternative approach is to the first find speech segment then classify speech according to segment score recognize words. This approached produced competitive approach in several task in the speech segments and modeled according there means, variance and shape it reduces error rate up to 34 %. Different technologies are appropriate for different task. When vocabulary is mall the word can be considered as single unit search as approached is not appropriate when vocabulary are large in search case words must be modeled by sub word units. Thus, our aim for this study is to develop speech recognizer that can recognized Malay words pronunciation spoken by user known as "**Let's Pronounce It Correctly**" system.

“LET’S PRONOUNCE IT CORRECTLY” SYSTEM ARCHITECTURE

Our system is divided into the three modules as shown in Figure 1, which include Graphical User Interface (GUI), Voice to Text Converter and Code Generator.

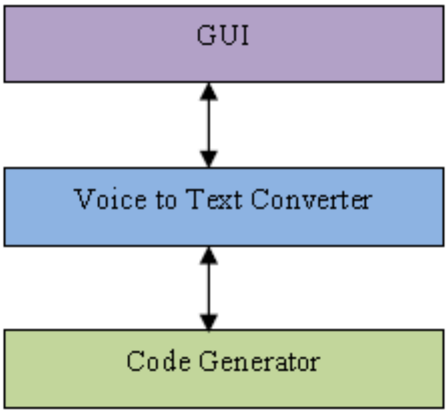


Figure 1: System Architecture

Before getting into the details of the system, let's have a brief overview of the high level working of our system. GUI module provides an interface for users to interact with the system. Voice to text converter is responsible for converting each listened word to text. A user will speak code using microphone and text converter will convert this spoken code to text. For this converted text syntax and semantics codes are applied to this text to generate standardized source code using Matlab software.

The right articulator states are very important in right pronunciation. But it is easy to be influenced by the pronunciation way of the mother language when learning English. For example, Chinese is getting used to pronunciation the /n/ without raise the tongue to the upper teeth and pronounces /æ/ as /e/. Those kinds of improper utterance are not easy to be detected by the learner while repeating the pronunciation. Our system aims to provide an automatic assessment system to instruct the oral Malay language learning. The principle of our pronunciation evaluation algorithm is to calculate the similarity of standard and non-native speakers’ speeches at the phoneme level. The audio and visual speeches are evaluated separately and the results are fused to determine the pronunciation level of learners. In the paper, the similarity is calculated with the Euclidean distance between standard and under-evaluating speeches. Considering the speaking speed varies and the phoneme length is not same among the different utterances of the same phoneme, the alignment is done between under-comparing speeches with dynamic timing warping algorithm (DTW). The block diagram of our system is illustrated in Figure 2. Input videos of same Malay words from native and non-native speakers are segmented into the phonemes and the relative end- point information is generated. The audio and visual sequences are processed separately to extract the corresponding features. After that, the alignment process of standard and test speeches is done on the audio and visual speech series separately as basis for calculating the similarity. The evaluation score is derived from the similarity and the scores from two channels are fused to grade the learner’s pronunciation.

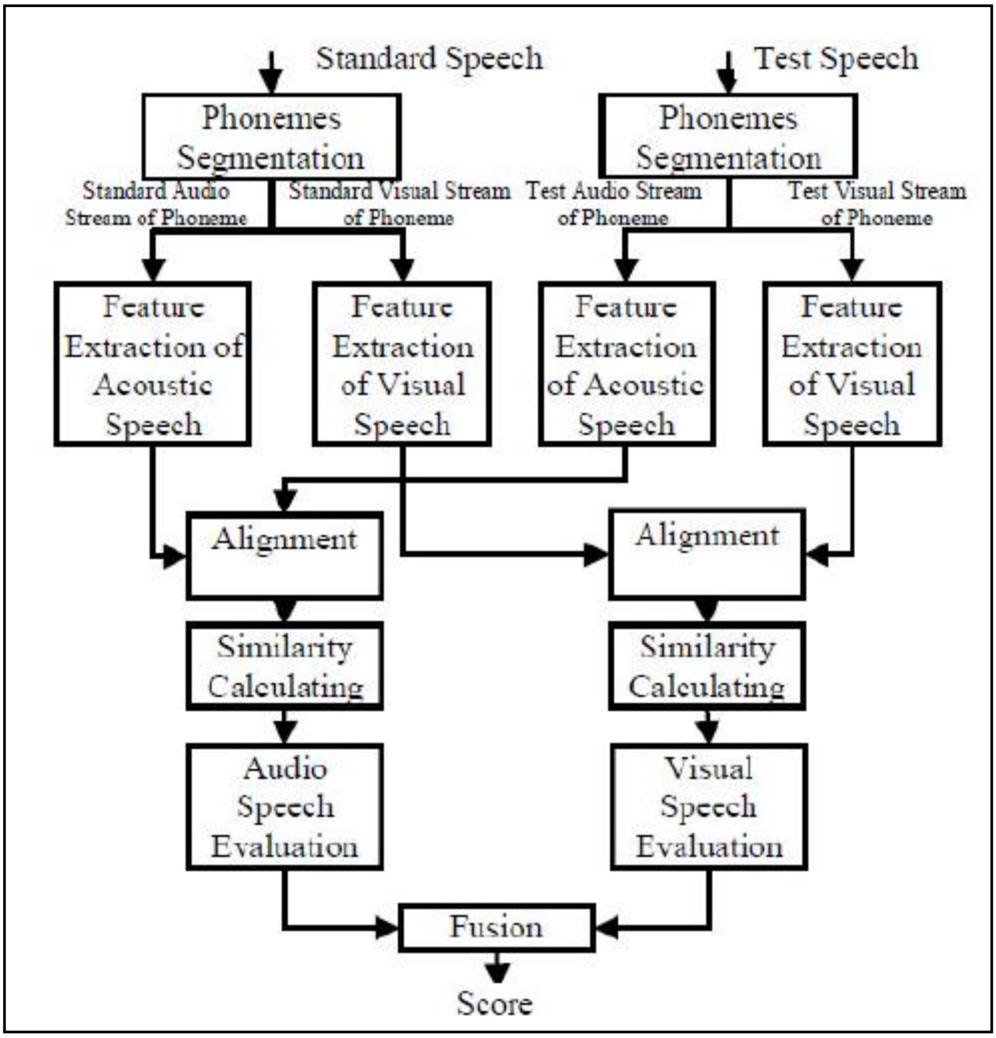


Figure 2: Block Diagram of Bimodal Fusion Pronunciation

GRAPHICAL USER INTERFACE (GUI)

GUI gives the visual appearance of the virtual file system to the end user. GUI color schemes, layout, working and behavior are creating from Matlab GUI toolbox provided. GUI style task pane provides easy access to common operations and gives appealing look. Standard Toolbars, popup menus and shortcut keys make operation of software easy for all type of users. Easy to Use, Easy accessibility to functions and Appealing appearance are the main features of GUI. The front page to the system to start on is represented as in Figure 3 below.

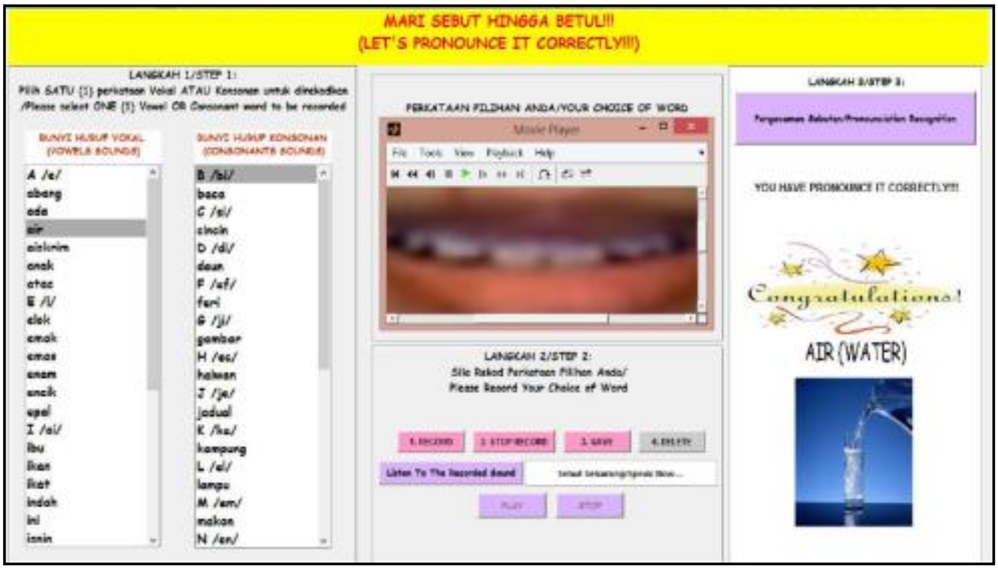
Figure 3: Front Page of System Architecture

VOICE TO TEXT CONVERTER

The core part of our system is voice to text conversion. We used Windows Speech Recognition (WSR), which is built on top of SAPI, for capturing voice and Microsoft Speechlib API for converting this voice to text. SAPI version 5.4 is shipped with windows 7 and supports two distinct types of speech recognition; dictation and command and control. In our research we used dictation type of speech recognition. In this type of speech recognition machine listens to what we say and attempts to translate it into text. The accuracy of dictation ties directly to the CPU's speed and the system's available memory. The more resources, the more contexts that can be considered in a reasonable amount of time the more likely the resulting recognition will be accurate.

SAPI 5.4 supports two types of recognizers inprocess recognizer (SpInprocRecognizer) and shared process recognizer (SpSharedRecognizer). The inprocess recognizer claims resources for the application, so, for example, once an inprocess recognizer claims the system's microphone, no other application can use it. A shared recognizer runs in a separate process from the application and, as a result, it can be shared with other applications. This allows multiple applications to share system resources (like microphone). In our application we are using shared process recognizer because shared recognizer allows an application to play nicely with other speech enabled applications on system. A recognition context is an object that manages the relationship between the recognition engine object (the recognizer) and the application. A single recognizer can be used by many contexts. For example, a speech enabled application with 3 forms will likely have a single engine instance with a separate context of each form. When one form gets the focus its context becomes active and the other two forms contexts are disabled. In this way, only the commands relevant to the one form are recognized by the engine. A single recognizer can be used by many contexts. For example, a speech enabled application with 3 forms will likely have a single engine instance with a separate context of each form. When one form gets the focus its context becomes active and the other two forms contexts are disabled. In this way, only the commands relevant to the one form are recognized by the engine. SAPI is smart enough to create the shared recognizer object for us automatically when the SpSharedRecoContext is created. In our scenario we are using dictation type of speech recognition. For this purpose we created a grammar object and load the grammar with SLO Static value to set the dictation top of grammar as static. To set this grammar object to use dictation type of speech recognition we initialize SpeechRuleState state property of grammar object to SGDSActive.

In recognition event handler the ISpRecoResult interface is used by our application to retrieve information about the SR engine's hypotheses, recognitions, and false recognitions. The most common use of the ISpRecoResult interface is retrieval of text recognized by the Speech Recognizer. The ISpRecoResult interface also supports the retrieval of the original audio that the SR engine recognized. An application can set interest in the SR engine's failed recognitions by calling ISpEventSource::SetInterest with SPEI_FALSE_RECOGNITION. If a false recognition occurs, the application can examine the audio (or even a partial recognition result) to reprocess the recognition or attempt to process the partially recognized text. SAPI does not require that an SR engine send a phrase with the false recognition event. ISpPhrase::GetText retrieves elements from a text phrase. All words recognized is then will be visualized in images and product corrected text as shown in Figure 4 below.



MARI SEBUT HINGGA BETUL!!!
(LET'S PRONOUNCE IT CORRECTLY!!!)

LANGKAH 1/STEP 1:
Pilih SATU (1) perkataan Vokal ATAU Konsonan untuk direkodkan /Please select ONE (1) Vowel OR Consonant word to be recorded

LANGKAH 2/STEP 2:
Sila Rekod Perkataan Pilihan Anda/
Please Record Your Choice of Word

LANGKAH 3/STEP 3:

YOU HAVE PRONOUNCE IT CORRECTLY!!!

Figure 4: User Interface – Visualization of Image and Corrected Word Pronounce (in step 3)

CODE GENERATOR

Code generator is the module that actually generates source code from listened words. As a first step, we lists out 1000 of words to be pronounced by the user. All listed words are taken from Malay Dictionary (Dewan Bahasa dan Pustaka, 2012) accordingly to the alphabetical order and words that frequently used by users. Words selected will be pronounced in syllable structures which consists of vowel and consonants as presented in Table 1.

Table 1: Example of Word and It Structure

Word	Structure
Abang (brother)	V + CVCC
Baca (read)	CV + CV
Cincin (ring)	CVC + CVC
Emas (gold)	V + CVC
Ibu (mum/mother)	V + CV

Then, for each word we developed a separate list structure or grammar of words with similar sound as it pronounced in C#. When a user speaks a word that word will be converted to text and this text will be matched to the elements of list structure. If a match is found converted text is replaced with that word. If no match is found text is written as it is. Now if this text is wrong and user wants to remove that word user will speak “incorrect”. A list structure is also maintained for same utterances of “incorrect”. If spoken word is matched with that same utterance then that word is removed. At the same time if a match is found and that word has special program construct then that program construct is also generated simultaneously.

DTW-BASED SPEECH SEQUENCE ALIGNMENT AND SIMILARITY CALCULATION

Considering speaking speed varies among different utterances, the duration of the same phoneme sequence is not equal, even subjects try to keep the similar way. So it is not feasible to calculate the similarity of phoneme sequences directly. The time alignment must be done before comparison. Dynamic timing warping (DTW) is a dynamic programming technique to realize the alignment based on the local optimization. The procedure of the alignment is described as follows:

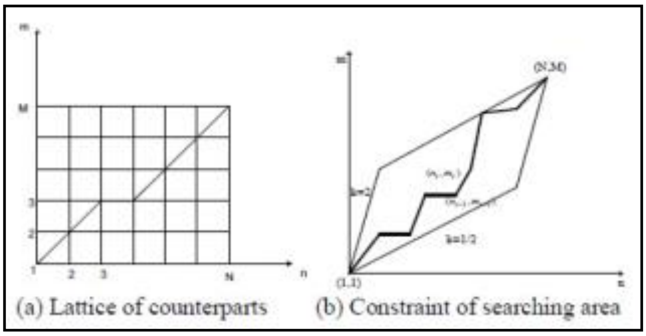
The features of standard and under-test phonemes are written as formula(1) and (2) , where R(m) is feature of mth frame of the phoneme in a standard speech as the referencing template and T(n) is feature of nth frame of the same phoneme in under-test speech. The duration of phoneme is M and N separately.

$$\{R(1), R(2), \cdot\ , R(m), \cdot\ , R(M)\} \tag{1}$$

$$\{T(1), T(2), \cdots, T(n), \cdots, T(N)\} \tag{2}$$

All counterparts (m, n) between frames of the reference and the under-test sequence are combined into a lattice shown in Figure 5(a). The distance of each counterpart, called the frame distortion, is calculated as in formula (3), where *ti , ri* are the feature components of each speech frame and p is the dimension of the feature. The final sequence of counterparts (*nk* , *ml*) is determined with the minimum accumulating frame distortion *D*[*ni* , *mi*] (shown in formula (4) and formula (5)). Searching is only allowed from bottom-left to top-right because of the time unidirectionality. The endpoints are the starting and ending frames of sequences. To avoid the computing cost, the searching area is restricted in the region shown in Figure 5(b) with the slope ranging in 1/2~ 2.

$$d[T(n), R(m)] = \Sigma (ti - ri)2 \tag{3}$$
$$D[ni, mi] = d[T(ni), R(mi)] + D[ni-1, mi-1] \tag{4}$$
$$(nk, ml) = \arg\min(D[ni, mj]) \tag{5}$$



(a) Lattice of counterparts (b) Constraint of searching area

Figure 5: Illustration of DTW algorithm

Using the DTW algorithm, the speech sequence of audio and vision between standard and under-test phonemes are aligned separately into the same length and the each corresponding accumulating sum of the frame distortion, the similarity we want, are obtained meanwhile.

FUTURE DIRECTIONS

There are many challenges in the area at human language technology although there have been significant recent gains in spoken language understanding, current technology is far from human like. Only system in limited domains can be envisioned in the near term and portability at existing tech is rather limited there are many challenges like Robustness – In a robust system performance degrades gracefully rather than catastrophically as conditions become more different from those under which it is trained. Portability – Portability to goal of rapidly designing, developing and deploying system for new application. At present system tend to suffer significant degradation when moved to a new task. Adaption – How can system adapt to changing conditions (new speakers, phone, tasks etc) and improve through use? Such adaption can occur at many levels in systems, sub word models, pronunciation, language models etc. Language Modeling – Current systems use a satisfied language models to help reduce the search space and resolve acoustic ambiguity. As vocabulary size grows and other constraints are relaxed to create more habitation system it will be increasingly imp to set as much constraint as possible from language models. Perhaps incorporating syntactic and semantic constraints that cannot be captured by purely statistical models. Confidence Measures-- Most speech recognition systems assign scores to hypotheses for the purpose the range ordering them. These scores do not provide a good identification of whether a hypothesis is correct or not just that it is better than other hypotheses. Out of vocabulary words: System are designed for use with a particular set of words but system users may not know exactly which words are in the system vocabulary. This leads to a certain percentage of out of vocabulary words in natural conditions. System must have some methods of detecting such out of vocabulary words, or they will end up mapping a word from the vocabulary onto the unknown word causing an error. Spontaneous speech -- Systems that are deployed for real use deal with a variety of spontaneous speech phenomena such as filled pause, hesitation ungrammatical construction so development in this area is require. Prosody-- Prosody reference to acoustic structure that extends over several segments of the word stress, irritation and rhythm convey important information for word recognition and the user’s intentions (e.g. anger). Current system does not capture prosodic structure. Modeling dynamics-- System assume a sequence of frames which are treated as if they were independent, but it is known that perceptual clues for words and phenomena require the integration of features that reflect the movement of articulators which are dynamic in nature and incorporate this information into recognition systems is an unsolved problem. Prosody can be defined as the information that cannot be localized by a specific sound segment ass lexical stress; rythms conveys imp information about speaker line anger speaker's intention current system does not capture this structure.

CONCLUSIONS

Speech recognition performance systems are now being deployed within telephone and cellular network. Within next few years speech recognization will be pervasive in telephone network around the world telephone needs completely different acoustic model it need to be able to interface with telephony system because there is no GUI it needs to manage a spoken dialogue with user.

ACKNOWLEDGEMENTS

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Engineering Education - Status Quo In Austria In Comparison With The Academic Field Of Business Education

Sabrina Romina SORKO
FH JOANNEUM University of Applied Sciences
SabrinaRomina.Sorko@fh-joanneum.at

Wolfram IRSA
wolframirsa@gmail.com

ABSTRACT

Focusing on the engineering field, there is a specific challenge education has to face. The massive technical progress of the last decades including the current trend industry 4.0 has led to a highly complex field which often keeps young people from starting a professional career. To face those challenges educators have to work with interactive and interdisciplinary didactic and educational models. However engineering education is still not established as an independent academic field in Austria. This article deals with the status quo of teaching engineering in Austria and the potentials of being an independent academic research field. Therefore the research field was analyzed to define the framework required when teaching engineering. Those parameters where compared to the autonomous academic field of business education to deduce similarities and differences. The objectives are mainly obtaining a differentiated view of teaching technical content and showing similarities with business education models. This to underline the significance and importance of taking actions towards establishing engineering education as a part of the scientific world.

INTRODUCTION

Technical progress and the consequential economic and social changes are characterizing the 21st century. Thus the importance of Industry increases significantly, which means an amassment of digitalization in all parts of factories (Spath et al., 2013; Kuhlang et al., 2014; Ramsauer, 2013). As a result of this development, a highly complex field has arisen. Fulfilling all occupational requirements, being flexible and able to work under pressure is not sufficient any more. Nowadays these are more or less basic demands. To be successful in the long run employees have to exhibit multidimensional competences that enable them to use all their gathered knowledge for finding creative, holistic and therefore innovative solutions for their daily work tasks (Sonntag, 2009; de Vries, 2006). Apparently this reality often keeps young people from starting a professional career in the technical field (Sachs, 2001; Bloemen/Schlömer, 2012; Oberösterreichische Zukunftsakademie, 2013). The educational system has to face those challenges, prepare young people and show them the opportunities the technical field provides. Nevertheless engineering education is still not established as an independent academic field in Austria. This leads to the question if the required framework for engineering education is appropriate to assemble an autonomous field of research in Austria.

THE STUDY

Therefore, as a first step, the required framework for engineering education will be defined using a literature review. Those results are then compared to the framework of business education, which also deals with vocational training but in the business field. Business education is successfully established as an autonomous field of study in Austria and can be seen as a best practice example.

FINDINGS

Competence orientation: A continuous changing process in Austria started a few years ago due to the aforementioned developments in industry and society. Teaching and learning were refocused and innovative didactic models were implemented. Teaching and learning is more practically oriented now than it ever was. This is due to a change from a lecturer-centered to a skills-centered perspective. Quality of education is not measured by the input given by the teacher, but by the trained abilities employees show in their work place. The so-called outcome is the practical result of education and answers the question of what students are able to do after attending specific educational programs (Slepcevic-Zach/Tafner/Klausner, 2013; Schedler/Proeller, 2013; Slepcevic-Zach/Tafner, 2012). Using this description, it is clear, that there are higher performance requirements than simply expressing knowledge. “Students are able to do” leads to competence-orientation which requires necessity of different skill-levels based on the desired outcome (Weinert, 2002). Current research has defined a wide range of competences starting with simple reproducible knowledge and ending with the ability of analyzing, evaluating and further developing economic situations (Bloom et al., 1956; Weinert 2002). Keeping this in mind, educational settings have to be created in such a way that all of the primarily formulated targets can be reached. The key issue is defining adequate teaching methods for those demands.

The following matrix shows some possible methods linked to different competence levels based on the taxonomy first defined by Bloom as well as the level of student activation (Peterßen, 2009; Dubs, 2009; Helmke, 2010; Bloom et al., 1956; Riebenbauer/Sorko, 2013).

competence level	**level of activation**		
	listening	**experiencing**	**performing**
reproduce	• lecture • presentation (listen) • educational film • speech of an expert • fish bowl (monitoring)	• excursion (speech) • fish bowl (discussing) • ball bearing method • presentation (present) • mind mapping • brainstorming • discussion • learning exhibition	• presentation (showing an experiment) • excursion (workshop) • learning exhibition • 4 step method • cooperative open learning • simulation game • role play • case study
understand			
apply			
analyze			
synthesize			
evaluate			

Table 1: Adequate teaching methods within the competence taxonomy by Bloom.

It is evident that not every method is efficient in delivering high-level (up to analyze, synthesize or evaluate) competence oriented education. There must be a valued balance between theoretical input and active performance to provide a holistic and student-centered learning environment. Those requirements are centralized in the concept of task-based-learning (Jank/Meyer, 1994; Dubs, 2009). Summing up education generally has to follow a hands-on-approach if complex skills such as problem solving or continuous improvement are targeted.

Multidimensional approach of engineering education: Concerning technical subjects there is a strong demand for interdisciplinary skills in engineering which primarily affects economic and social development. One basic scientific concept developed in German speaking countries is the multi-perspective engineering education model established in Germany. It deals with different aspects of learning outcomes which are particularly relevant in the industry (Bienhaus, 2008; Schlagenhauf, 2005; Sachs, 1979). The concept is based on four core objectives which have to be considered when planning engineering classes. Those are the

- action perspective,
- knowledge perspective,
- impact and evaluation perspective as well as the
- pre-professional (vocational) orientation.

The action perspective mainly represents the task-based-learning approach and therefore emphasizes the hands-on approach. Thus there is the need to use teaching methods where students have to perform technical tasks occurring in the industry. Focusing on the content, the knowledge perspective describes the competences of students to identify, understand and combine the various technical fields as well as their integration. Those two angles affect the content dimension of engineering education and are inherently linked to the different technical subjects that are taught.

Once they are prepared with the previously gathered knowledge in class, the impact and evaluation perspective enables the learners to analyze technical situations and prepare effective, targeted solutions. In comparison to the first two views, this perspective mainly focuses on the social-human dimension of technical topics. The students have to be aware that their actions have a direct impact on society. (Sachs, 2001; Bienhaus, 2008; Schlagenhauf, 2005)

Being engaged with those characteristics of learning, pre-professional (vocational) orientation occurs more or less automatically. Students gain a deeper insight into various technical fields of work, their job descriptions and employment skills respectively which are necessary. The practical use of the topics should be continuously pointed out, for which this last corner stone can be seen as general teaching principle. Students have to realize the relevance of the content and get a clear overview of the various possibilities they have after finishing their education. (Dewey, 1997; Sachs, 2001; Bienhaus, 2008)

A concept for task-based learning in engineering programmes can be adopted after consolidating these briefly described models (Jank/Meyer, 1994; Slepcevic-Zach/Tafner/Klausner, 2013).

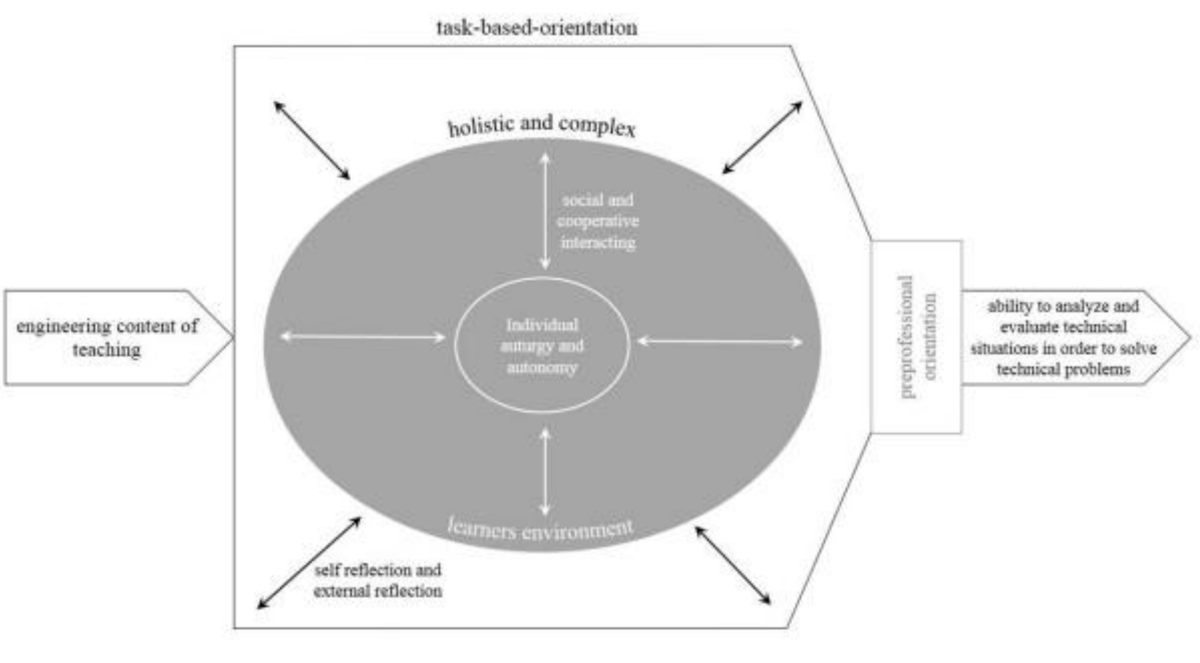

Figure 1: Concept for task-based-engineering education.

The technical content is the initial point of the educational setting and can therefore be seen as a cognitive basis of the task-based engineering lecture. Within this context, the different settings focus on the individual learners, their competences and ability to perform autonomously. The lecture is embedded in the learners' environment and forces active interaction among students during class. Looking at single tasks, the teacher has to combine the experiences of learners with real life practice in the economy, considering their holistic and complex nature. Not only does the didactic design of task-based lectures counter established traditions in tertiary education; the role of the educator also has to change. There must be a change from classical teaching to coaching in order to support individual learners in continuous reflection. If this can be provided, a multidimensional, broad and practically oriented competence-development-process can be offered. This intensive, active examination of engineering topics raises the awareness of technical action and subsequently leads to a clearer cognition of possible fields of work.

Academic education system for engineering education in Austria: Taking all requirements of engineering education into account, it is evident that broad educational training is necessary in order to prepare the lecturers of technical subjects with the didactic skills needed. All the more it is astonishing that in Austria there is more or less no standardized academic training program for engineering education.

Currently, different forms of teaching engineering exist, they differ at higher secondary education level. Teaching subjects with a mainly theoretical focus requires specific technical knowledge at university level as well as, on average, four years of work experience in a particular field; however, individually divergent cases are not uncommon. Educational competences are not compulsory but have to be gathered within the first few years of teaching as part time courses. (Bundesministerium für Bildung und Frauen, Abteilung II/2, 2014)

For applied classes, more practical competences are needed. According to the requirements, lecturers have to verify an appropriate training and have at least six years of relevant work experience. In addition there is an advanced training course at university level that is to be completed. Prospective teachers gain didactic competences as well as deeper knowledge about school laws over three years. Only the second year is organized as a full time program, whereas the other semesters can be attended part time. A higher education entrance qualification has to be provided as a requirement for access, given that the advanced training completes with the degree 'Bachelor of Education'. Although there are quite detailed requirements, individual agreements are often possible. (Bundesministerium für Bildung und Frauen, Abteilung II/2, 2014 online)

In summary, there is some form of pedagogical training for prospective engineering teachers, but it is rather unstructured as a whole. Furthermore, the question is if general teaching competences are adequate in order to face didactic challenges lecturers have to face nowadays.

CONCLUSIONS

Looking at the field of business education as a comparison, the need for a holistic training in technical didactic methods (as opposed to a merely general module) was recognized some time ago. Based on the increasing importance of the economy there was a need to provide society with profound knowledge. As a result general pedagogical concepts were applied to business topics. Those concepts were integrated and business education was and is still developed constantly. Specific classes for business education occur in Austrian schools. Affected by political and social changes it took some decades until business education was approved not only as educational system but also as an academic profession. (Pleiss, 1973; Zabeck, 2009) This leads to the current educational model of bachelor and master in business education, in Austria.

The didactic challenges which are described for teaching engineering are equal to the field of business education due to socio-economic and environmental upheaval. Competence orientation, outcome and task-based-learning are key factors also in the business field because they provide an effective, relevant educational concept for prospective employees.

This brief description of the initial situation of business education in Austria compared to the input given beforehand hypothesizes similarities but also differences to engineering education. Both 'sciences' have to deal with the setting: fast pace, technical progress, high demands on employees. This lead to the outlined didactic development and the intense competence orientation in both fields which are mostly comparable. Although there are many similarities regarding didactic requirements, engineering education is just at the beginning of getting an autonomous field of research. The central point of discussion in Austria is that there is, compared to an entrepreneur, no general engineering profession and therefore it is mostly seen as an impossible endeavor to define general engineering competences. Engineering contains various professions which separately are all highly complex and require individual competence portfolios. So how would it be possible to come up with only one engineering education model? Nevertheless the discussion has to go on in order to provide employees efficiently. There have to be attempts to realize an educational system in the field of engineering to provide engineering lecturer with relevant technical didactic methods. Concepts like general didactic training combined with technical specialization modules should be discussed, enhanced and evaluated

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Entrepreneurship Education And Learning As A Model For Regional And International Cooperation On Youth Employment In The Mena Region

Bassou El MANSOUR
College of Technology
Indiana State University, USA
bassou.elmansour@indstate.edu

Sulieman A. SULIEMAN
USA and MENA
s.sulieman@gmail.com

ABSTRACT

Entrepreneurship Education (EPE) in the Arab States is a joint project between UNESCO Regional Bureau for Education in the Arab States-Beirut, UNESCO-UNEVOC International Centre for TVET-Bonn, and the StratREAL Foundation, United Kingdom, which includes two main components:

Component one: The collection, systematization and dissemination of innovative and successful experiences of EPE from different countries of the region (2009–2010); and
Component two: Providing technical support for the development of strategic plans to facilitate the incorporation of the concept of EPE in the education systems of the Arab region (2010–2012).

As part of the outcomes of Component One, four country case studies of Egypt, Jordan, Oman and Tunisia had been prepared and published on the current situation of entrepreneurship education in these countries. Based on the four case studies, as well as international and regional experiences in this field, a regional synthesis report was prepared by the team of experts to highlight the national and regional contexts and expectations of EPE in the Arab region.
UNESCO and other concerned International Organizations (i.e. ILO, UNIDO, and ETF) will continue this joint effort and partnership in order to provide countries of the region with necessary technical support and mobilization of resources to enhance the adaptation of EPE in the education and training systems. The focus will be on developing national and regional strategies and plans of action for EPE, which include the following priority areas: Policy and Coordination; Curriculum Development; Teacher Education and Training; Equipment, atories and Infrastructure; and Networking and Connectivity. Four countries in the region (Jordan, Lebanon, Morocco, and Tunisia) have been selected for Comonent two of the project. Moreover, a fifth country (Oman) is expected to join the group at the end of 2011.

The outcomes of the project will reflect on new teaching and learning strategies, mainly at secondary and and TVET programs to enhance youth cabalilities, in self emplyment and initiation of small and medium enterprises (SMEs). Entrepnuership Education strategies will facilitate more partnership on the generation of knoweldge and skills on business and industry in the education system.

‘The spirit of entrepreneurship is one of the principal factors in whether communities can successfully overcome the difficulties that global changes have generated.’[1]

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[1] UNESCO/ILO, Towards an Entrepreneurial Culture for the Twenty-first Century, 2006

I. INTRODUCTION

All over the world, young people face highly uncertain futures when slow growth in the economy is coupled with very fast growth in the youth population. With burgeoning youth populations, demographic pressure alone means that the relative size of many markets across the Middle East and North Africa is shrinking. In essence, economies have no hope of growing fast enough to absorb the numbers of young people entering the labor market. The impact of the 'youth bulge' is significant. Unemployment, informality and inactivity are threatening the labor market prospects of youth across the Arab region, and limit the region's potential to stimulate economic growth. Lack of opportunities and recurring frustration can put youth at risk, increasing feelings of social exclusion and reducing social cohesion.

In the context of economic environments where there are no guarantees for life-long, stable and salaried employment, for financial security or for professional development, self-employment and entrepreneurship become particularly viable options. From the point of view of the individual, entrepreneurship can foster financial independence and give a person more control over his or her work situation. For the community, entrepreneurship is a tool that can stimulate local economic development, contribute to the diversification and promotion of local industry and promotion, and strengthen the local input to national economic processes.

Consequently, entrepreneurship education is considered as a useful strategy for diminishing youth unemployment and precariousness in the Arab region, since it provides the youth with knowledge and competencies that empower them to face socio-economic challenges and changes throughout their lives.

II. ENTREPRENEURSHIP EDUCATION AND LEARNING

Entrepreneurship education is about creating an entrepreneurial mindset/culture that fosters innovation, problem-solving and active citizenship and where individuals have the self-confidence and belief in their ability to succeed in whatever they choose. The objective of entrepreneurship education is to assist young people become innovators and active participants in the labor market. Entrepreneurship education is made up of all kinds of experiences that give students the ability and vision to access and transform opportunities of different kinds. It is about increasing individuals' ability to anticipate and respond to societal changes and encourages individuals to develop and take initiative, responsibility and risks. Not every person who undertakes entrepreneurship education will become an entrepreneur and be self-employed, but the skills acquired, especially when linked with practical skills in demand, will surely make a contribution to personal empowerment and increase individual capacities for employability and citizenship. Indeed, the European Commission calls entrepreneurship a "new basic skill"[2].

III. REGIONAL AND INTERNATIONAL COOPERATION ON EPE

Many programs on Entrepreneurship Education and Learning are implemented in the Arab States at the non-formal level by NGOs, local communities and associations, aid agencies, or by the private sector. The joint project *"Entrepreneurship Education in the Arab States"* between UNESCO and the StratREAL Foundation, UK complements these existing initiatives and programs. Through UNESCO's programs in the Arab region, interested countries are supported in the development of educational policies that aim to include the concept of "entrepreneurship" in their national development plans, as well as in their formal education systems.

In order to trigger change in public policy, it is important to raise issues and start debates in a coordinated and systematic way, through the education and training systems. In the area of entrepreneurship education, it is important to highlight examples of good practice that already exist, but whose outcomes are not widely known. *Component one* of the project (2009-2010) identifies such examples and assesses the status of entrepreneurship education in the educational systems of *Egypt, Jordan, Oman and Tunisia*. Based on the four case studies, a regional synthesis report has been arranged to guide future work and actions in other countries of the region. The outcomes of component one is an important input for countries that aim to develop strategic plans for the incorporation of entrepreneurship education into their educational systems.

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[2] European Commission, Presidency Conclusions of the Lisbon European Council, 2000

In *Component two* of the project (2010-2012), UNESCO is providing technical and financial support to four countries/institutions that sent proposals to integrate EPE in the education system during the next 2-3 years. The identified institutions are mainly Research and Development (R&D) Centers, within the Ministry of Education or departments/authorities responsible of Technical and Vocational Education and Training (TVET). The countries include *Jordan, Lebanon, Morocco, and Tunisia*. A Fifth country *(Oman)* is expected to join the group at the end of 2011.

The budget of the project is US $ 275,000 covering four years (2009-2012). The UNESCO-UNEVOC International Centre for TVET-Bonn is the lead Unit in the project, with technical support from UNESCO Regional Bureau for Education in the Arab States-Beirut and the TVET Section at UNESCO HQ-Paris.

IV. CHALLENGES IN YOUTH EMPLOYMENT IN THE ARAB REGION

The problem of unemployment in the Arab region is first and foremost the problem of youth unemployment. Unemployment amongst Arab youth is the highest in the world. According to ILO statistics for 2007, the rates stand for 21%, while it is 12% for the world. It is more among female than male (29% vs. 19%), while the world percentages are 12% female and 11% male. Youth unemployment represents 50% on average of all unemployed, it is higher amongst female. What makes the situation more intriguing is the high rate of unemployment amongst educated youth who have completed secondary and/or tertiary education.

In order to better understand and analyze the underlying factors explaining youth unemployment, the ILO applied its " School to Work Transition Survey" to three countries including Egypt, Jordan, and Syria amongst countries in the region. The survey aims to capture the experience of young men and women from five target groups: in -school-youth, job seekers, young employees, young self-employed, and own account workers (youth who are neither in school nor in the labor market). The results of these surveys show, that the lowest percentage of youth had successfully transited from school to work. These include those who are working either in a job with a permanent contact or that they are satified with and do not wish to change. These results are indicative of the major obstacles faced by Arab youth. The young generation of today is the most educated the region have ever seen. However, finding decent work is particularly hard. The sheer size of youth in the working age population and their aspirations present a particular challenge to policy makers and some of the national policies and regional initiatives are examined in greater depth by the thematic paper on youth employment (ILO Issue Paper, Arab Forum on Development and Employment, Doha, Qatar, 15-16 November 2008).

According to recent report issued by ETF on Education and Business in Syria, youth unemployment is high, standing at 23.1% in 2008. The education system compounds the situation by failing to provide the skills and competences demanded by the labor market (Huifeld and Kabbani, 2006). Syria has a young population with 60% below the age of 25 (around 12 million). Educational attainment levels are low and have little relevance to work, especially at the basic level. The qualifications acquired in school only match the requirements of employers to a limited extent, and personal networks are far more important in finding a job than qualifications (ETF/CBS, 2010). The Government thus faces a two-pronged challenge of increasing levels of qualification in the labor force and the population in general and fostering dialogue between education and the world of work for improved school to work transition. (ETF, Education and Business Report: Syria, 2011)

V. EPE PROGRAM FOCUS AREAS

UNESCO/ILO publication "Towards and entrepreneural culture for the twenty-first century"-2006 identified the precise focus for entreprenururship education programs in the different school settings and environment. Some programs adopt a sectoral focus (i.e. agricultural entreprenurship, new technologies, e-commerce, enviromental sustainability, developing innovative social framewors). Some programs also specifically target different population groups, such as minority groups, young girls and women, or have a gepgraphic focus (i.e. rural vs. urban areas).

A broader model has recently evolved around the concept of *life skills*, which encompasses the psycho-social aspects of dealing with issues related to vulnerability and poverty, as well as education for citizenship, community welfare and health. But most interventions try to integrate the natural learning processes and assests of youth living in different circumstances and help them to become self reliant by developing their own simulation projects, sharpining their academic skills, forming positive attitudes about themselves and their communities, as well as the skills required in the workplace.

Young people benefit from teachers' and mentor's knoweldge, resources and community connections. They are based on the adoption of appropriate local technologies and are often built around and respectful of existing community social structures and resources. Training providers may include govermental and non-govermental organizations (NGOs), community leaders, small and medium enterprises (SMEs). The fields of entrepneurship education can cover the following areas:

- Economic and ecological literacy;
- Entrepreneurship skills (knoweldge, starting a business, and running a business);
- Social entrepreneurship skills; and
- Employability skills.

For curriculum content, teaching and learning strategies, entrepreneurship knowledge and skills (cometencies) are usually influnced by personal and external factors illustrated in Figure 1.

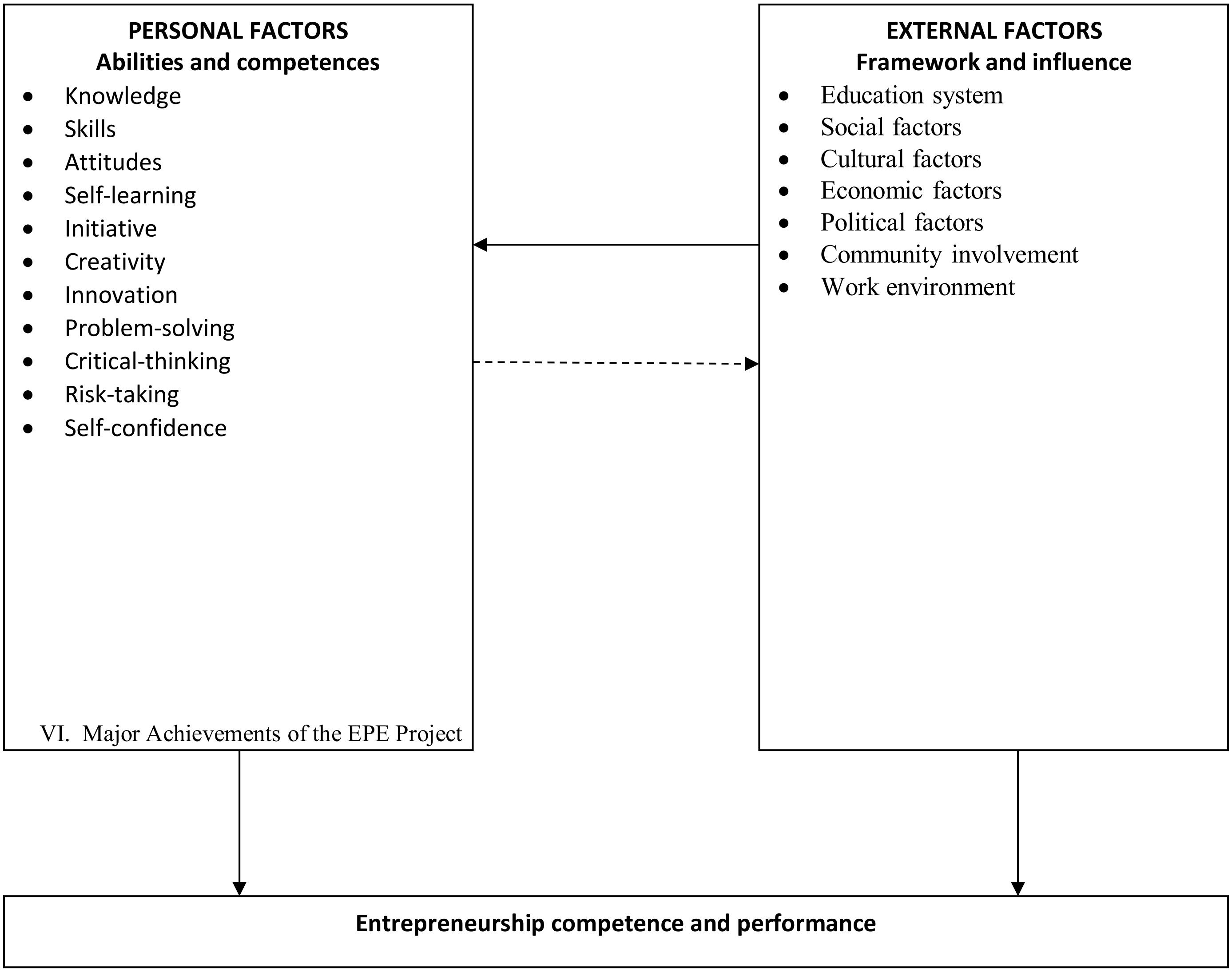

FIGURE 1: The personal and external factors that influence entrepreneurship competence and performance.

Four case studies of Egypt, Jordan, Oman, and Tunisia had been prepared and publishes, as part of Component one (2009-2010).

The *case study of Egypt* measures to anchoring entrepreneurship education (EPE) in its national education system, including past and present difficulties. After decades of policies that favored a centrally-planned economy, which impacted negatively on the entrepreneurial spirit of the population, Egypt has been liberalizing its economy and has been adapting it to the constantly changing developments in society, technology and the labor market over the past 30 years. From the beginning, establishing and developing small and medium enterprises (SMEs) played a major role in this reform process in 2004, the Egyptian government passed a new law on small enterprise promotion, which contains a strong EPE component. Since then, many diverse EPE training centres and programs have been established. As a next step, these programs, being national or donor-supported, they should be better coordinated to increase effectiveness.Entrepreneurship education at all education levels would raise awareness among young pupils and students on entrepreneurship and would lead to increased creation of enterprises once they have reached the age of adults.

The *case study of Jordan* focuses on the extent to which several aspects of EPE are conducted in the different areas of the Jordanian educational system. Such EPE characteristics can start in basic education, and then continue in secondary education programs (academic or vocational education). Moreover, higher education and technical education in community colleges were surveyed for teaching and learning experiences related to EPE. The reform plan for the educational sector (2003) emphasized that entrepreneurial life skills and mindsets such as innovation, initiative, problem solving, and critical thinking are major goals of education in Jordan. Other possibilities to enhance EPE in Jordan are the projects financed by the Educational Innovation Fund to improve efficiency, innovation, sustainability and competition in education (i.e. the knowledge-economy project). In addition to the government initiatives, there are several NGOs or non-profit organizations programs and initiatives with international and donor organizations that focus on EPE. Awards and incentives such as the Queen Rania Al-Abdullah Award for Excellence aim to enhance the culture of innovation and entrepreneurship through spreading awareness about distinguished performance concepts.

The *case study of Oman* analyses how entrepreneurship education (EPE) is integrated within the Omani educational system. Between 2003 and 2006, a major review of the education system in Oman was undertaken carried out. Various approaches were outlined to prepare students for the labor market, including through teaching entrepreneurial skills such as decision making, problem-oriented thinking and discipline. Several pilot projects and private-sector programs have been implemented to promote entrepreneurship and to provide entrepreneurship education. They include business simulation classes at Nizwa College of Technology and the SANAD program, which promotes the launch of youth business ventures through the provision of loans and expertise to recent graduates.

The *case study of Tunisia* addresses the challenges that the country education system faces due to recent demographic and economic developments, as well as the ways in which entrepreneurship education can be an important factor in overcoming these challenges. Currently, 62% of the Tunisian population is of working age, and this number is increasing. The number of enrolled students is also rising in all levels of education (basic, secondary, and higher education). Statistics indicate that 80,000 new jobs need to be created each year to meet this rising demand for jobs. The case study also presents several other entrepreneurial education projects that aim to promote self employment and training, such as the Tunisian Bank of Solidarity's loan scheme for SMEs or entrepreneurship education and business administration programs such as INJAZ Al-Arab or ILO's Know About Business (KAB) program.

The regional synthesis report adopted a broad concept of EPE that includes economic, social and cultural dimensions, with special emphasis on both the higher mental skills of the individual and the preparation for the world of work. The scope of EPE comprises all aspects and dimensions of the education system, including the relevant inputs, processes and practices, and the possible educational disciplines (courses) in formal and non-formal education.

EPE (in general), can be influenced by two groups of factors within the education system: personal and external factors. Personal factors include professional competences, communication skills, and higher mental skills. External factors include social, cultural, economic and political conditions that prevail in society, with direct effects on EPE or the education system.

More information on the case studies and the regional synthesis report (in Arabic and English) can be found at the following link: http://www.unesco.org/ulis/cgi-bin/ulis.pl?catno=191732&set=4E311967_1_273&gp=1&lin=1&ll=1

Component two of the Entrepreneurship Education in the Arab States project (2010-2012) is focusing on the following priority areas:

- Policy and coordination;
- Curriculum Development;
- Teacher Education and Training;
- Equipment, atories and Infrastructure; and
- Networking and Connectivity.

Such priority areas will be formulated into national strategies and frameworks for entrepreneurship education covering short and mid terms planning (3-5 years). Four countries (Jordan, Lebanon, Morocco, and Tunisia) are currently receiving financial and technical support, while a fifth country (Oman) will join the group by the end of 2011. The work plan for 2012 interventions is under consideration by the UNESCO-UNEVOC International Centre for TVET-Bonn and UNESCO Regional Bureau-Beirut.

UNESCO, ILO, and ETF have agreed to formulate a joint working group for EPE in Lebanon, in order to coordinate with national authorites on the implementation of joint activities: policy advice, curriculum revision and development, and capacity development/training of teachers.

VI. THE ROLE OF NGOS AND THE PRIVATE SECTOR

The four case studies of the Arab countries highlighted technical and financial cooperation between schools, NGOs, and the private sector. An example of such cooperation at the international, regional, and national levels is the INJAZ Al-Arab model of cooperation in several Arab countries, supported by local and international business and industry.

Within the framework of Global Debvelopment Alliance, Junior Achievment International (JAI) has partnered with Exxon Mobil Corporation, Citigroup, MEPE, USAID, INJJAZ Jordan (part of INZAJ Al-Arab), and other private companies throughout the Middle East and Noth Africa to develop seven self-sustaning Junior Achievment Organizations (NGOs) in the Middle East.

Through US$ 1,000,000 grant, more than 100,000 secondary school students and youth in Bahrain, Egypt, Lebanon, Oman, Qatar, Tunisia, and UAE completed at least one of twenty Junior Achievment programs (adopted to local communities) to gain a fundimital understanding of business, economics, and entrepreneurship.

In Jordan, INJAZ is a national initiative launched in 2003 with funding from Save the Children/USA. 62% of Jordan’s population bellow 25 years of age, and 25% between age 14-24, it was felt that a program framework on entrepneuership will promote economic opportunities for jordanian youth. The INJAZ programs focus on personal and business economics, entrepreneurship, leadership and community service courses that serve to foster creative thinking and critial problem solving among the learners. The EPE learning and training opportunities are offered through volunteers from business, industry, and community through several public and private schools, as well as Vocational Training Corporation (VTC) Centres in many cities of Jordan.

For more information: http://www.injaz.org.jo

VII. CONCLUSION

The concept of entrepreneurship education in the Arab education systems is fairly new. It includes classroom-based learning more explicitly connected to the real life applications, as well as competiences to develop knoweldge and skills in the initiation and management of small and medium enterprises (SMEs).

International experiences on entrepreneurship education objectives and applications have been shared with policy-makers and professional in the Arab countries, through UNESCO, ILO, ETF, and WEF publications and resource materials. The regional Entrepreneurship Education (EPE) project between UNESCO and the StratREAL Foundation explored how can government authorities, NGOs, and the private sector can work together for the enhancment of such programs and initiatives.

During the coming 2-3 yreas, a set of national strategies/frameworks on EPE will be developed in the Arab countries, with technical and financial support from concerned UN/International Organizations, such as UNESCO, ILO, and ETF.

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European Higher Education Area With The Eyes Of Students Of Ural Federal University

Olga BOGATYREVA
Department of International Relations, Ural Federal University, Russia
olgabogat.100@gmail.com

Natalia LESKİNA
Department of International Relations, Ural Federal University, Russia
nathalieleskina@gmail.com

ABSTRACT

European Higher Education Area represents the highest level of regional integration in higher education. In the Process of EHEA development, external dimension strategy has emerged, which underlines the importance of its implementation on all levels with a special focus on students. This paper analyses the perception of EHEA by Russian students. The research is based on analysis of international and national documents, as well as a student survey. The article examines the main forms of youth engagement on European Higher Education and its implementation in the Ural region of Russia. The authors discuss the challenges, analyse their origins and make recommendations for the enhancement of cooperation between Russian and European universities.

Keywords:
Higher education, Bologna Process, European Higher Education, student mobility, Russian Federation

INTRODUCTION

The harmonisation and convergence are one of the main trends in higher education in the modern world. And in many respects their dissemination is linked with the European Higher Education Area, which is the highest level of regional integration in higher education. One of its main goals is to increase the attractiveness and competitiveness of European higher education. To this end, a system understandable for the European countries and outside Europe should be created. The process of harmonisation of higher education is at the core of the Bologna process. Its key areas are: the creation of a three-tier system (Bachelor-Master-Doctorate), included in the qualification framework of the European Higher Education Area; a system of credits (ECTS); mutual recognition of degrees and study periods in other universities; development of academic mobility; cooperation in quality assurance; social dimension of higher education; lifelong learning and fair access, as well as the internationalisation and promotion of the European dimension of higher education. The strategy for reforms implementation stresses the importance of active participation of all stakeholders, especially students, because they are the main consumers of educational services. Therefore, they must have the possibility to influence the reform process and take active part in the educational process - a principle known as student-centered education.
Driven by the aim to break away from isolation in education and to be included in the European and international educational space, in 2003 Russia joined the Bologna Process. Since that time, significant changes occurred in Russian higher education, resulting from the reforms in all major areas of the Bologna process. They included the introduction of a two-tier system instead of specialist degree, reform of the quality assurance system, the introduction of the credit system, the creation of favorable conditions for the internationalisation of universities and many others (Artamonova, 2015).

Implementation of these reforms generated a lot of discussion of their advantages and disadvantages. In 2006-2007 students surveys "Bologna with Student Eyes" were carried out (Larionova, 2007), but after that similar polls were not conducted. 13 years after Russia's accession to the Bologna process, we decided to ask students of International Relations Department of Ural Federal University, what they know about the Bologna process and how they perceive European higher education. The Department was one of the first to move to a two-tier bachelor-master system and is one of the leaders in the internationalisation at the University, as already in the 1990s it began to actively participate in the student exchange programs. Its first international partner became Florence University, with which the universities worked on European project TEMPUS (Mikhailenko, 2010).

METHODOLOGY

This research is descriptive, combining both qualitative data analysis and a quantitative survey. The authors analyse strategic Bologna documents and research made by Russian scientists on the implementation of Bologna process in Russia.

A student survey was undertaken in order to identify students' perceptions of the features of European higher education system and main Bologna process action lines. Survey results are presented in table and diagram form and interpreted. The target group of the survey was made up of students enrolled in Bachelor's programme at Ural Federal University in Ekaterinburg, Russia.

THE STUDY

Research group

The survey of Bachelor's students in International Relations was carried out at Ural Federal University in Ekaterinburg, Russia during the 2014/2015 academic year. The group included 76 students in their second year.

Data analysis

Answers to the first question showed that, despite the extensive international links of the department, students have little understanding of the Bologna Process as well as the standards and values of European education. First of all, we asked the respondents what they knew about the Bologna process and its content. In 46 questionnaires (60.5% of all respondents), the corresponding columns were left blank. Answers of 16 students (21%) have in common the idea that the Bologna Process is a system to create European Higher Education Area. Respondents mentioned that it is "process of unification of European education systems'; "convergence of European education systems to create a new and better system of education"; "unification of educational space" and "harmonization of European education systems". Six respondents (7.8%) associated Bologna process with the spread of European education systems in non-European countries and, in particular, in Russia. Five respondents narrowed down the Bologna process to the levels of education - bachelor, master and PhD. By and large, these data witness low awareness of students about the Bologna process. There were even curious assumptions of the Bologna process as one of the major trials.

Then, respondents were asked to give a definition of the European Higher Education Area. Only 24 students were able to do it. 68.4% of the respondents (52 students) left blank the corresponding columns. The answers can be summed up as follows: "this is the space of all the countries participating in the Bologna Process"; "the system of higher education in the EU"; "a common space of European Universities"; "higher education institutions in the EU"; "network of universities, meeting Bologna Process standards"; "single European educational space of all countries involved in the Bologna process since 2010"; "area, including European countries, with a special form of higher education in line with EU standards"; "space where Bologna system functions".

The next question asked students to rate the attractiveness of higher education in foreign countries on a 5-point scale. 54 respondents (71%) assessed the EU countries' higher education as the most attractive, US universities being in the second place. Despite the fact that EU countries are the most attractive study destination [Figure 1], 63.3% of respondents could not name the features of the European education [Table 1]. Only 28 students (36.8%) were able to comment on them. It should be noted that aggregated groups are presented in the table. The group titled "individual learning paths" is comprised of the following answers: "students are free to choose and combine modules"; "free choice of subjects"; "students make their personal schedule"; "it is possible to vary the training period"; "it is possible to choose the language of instruction." It should be mentioned that almost all respondents indicated freedom of choice.

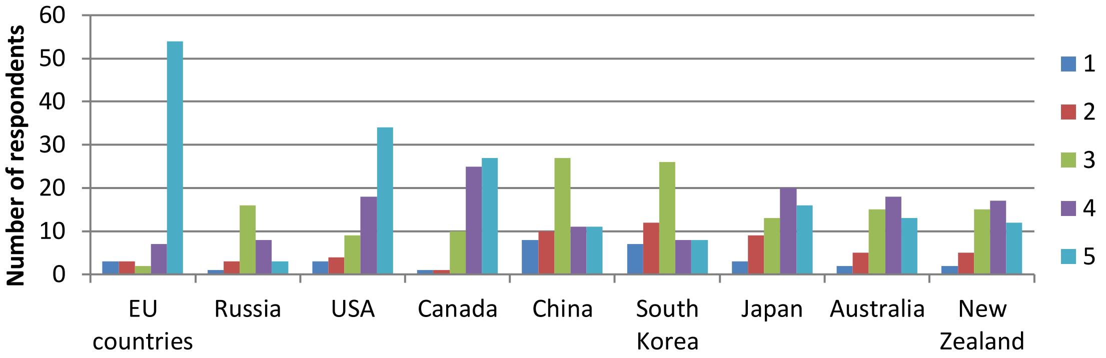

Figure 1. Attractiveness of higher education

21 respondents indicated the high quality of education, which was associated mainly with high demands on students, a complex system of performance evaluation, and a high degree of computerization. One respondent noted "freedom of thought" as a characteristic of European education. In addition, respondents commented on the wide international connections of European universities and high mobility rates among EU countries. Six students highlighted accessibility of European education which is often free, and three of their peers focused on high qualification of university teachers.

Table 1: Students' answers to the question "Features of European education"

	Generalized groups of answers	Number of respondents (n)
Features of European education in comparison with other countries	Individual learning paths, chosen by students themselves	19
	Practice-oriented learning	10
	Mobility and international links	3
	Quality of education	22
	Qualification of teachers	3
	Accessible and free education	6
Columns were left blank		48

The students were asked to comment on the European higher education values. In this case, the answer was not given by 61 students or 80.2% of respondents. The others indicated the freedom of research and choice, creativity, stability, accessibility, equality, fairness, integrity, openness, diligence, non-discrimination, humanization, internationalisation. This question was open, and students could name several values.

Despite the fact that vast majority of the respondents were able to name the European standards and values of higher education, 66 students (87% of all respondents) agreed that the Russian higher education must be integrated with the European Higher Education Area [Figure 2]. Respondents stressed that "certainly", and "definitely" they wished this goal would be achieved, and "it would be a great opportunity for Russian students to become part of European education". Meanwhile, in four (5.2%) questionnaires a concern was expressed that Russian education would be absorbed by the European one and, therefore, the integration should be moderate and partial and to be conducted as an experiment for the beginning. A negative answer was given by six students (7.8%), emphasizing that "Bachelors, Masters, ratings and scores for performance, borrowed from Europe, are not effective in Russia".

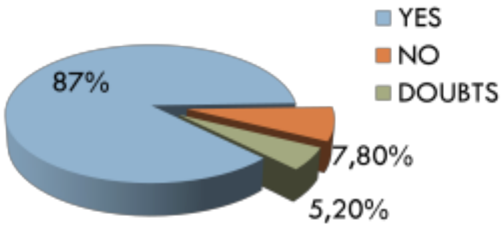

Figure 2. Do you want Russian higher education to continue integration with EHEA?

The hierarchy of the most common responses to the question about the advantages of studying in European universities is presented in Table 2. The largest number of respondents mentioned the high quality of education and unique programmes. The second advantage of European universities, in the opinion of Russian students, is guaranteed employment and good conditions for career progress. They noted that the "European Diploma" gives "more competitive advantages in employment", "the opportunity to find decent work in different countries and in Russia", "the ability to get a job abroad". One respondent pointed to "large bright future" with European diploma". 18 respondents indicated extremely "high value" of European diploma, 17 respondents expressed the view that the advantage of European universities was wide opportunities for the language learning and intercultural communication.

Table 2. Students' answers to the question "What are the strengths of European higher education?"

	Generalized groups of answers	Number of respondents (n)
What are the strengths of European higher education?	Definite advantages upon employment (guaranteed employment)	18
	Language practice	17
	Quality of education, unique programmes	21
	High international value of diploma	18
	Flexible learning paths	7
	High scientific potential	6
	Broad international connections	2
Columns were left blank		15

It was very important to find out the level of awareness of students about the educational programmes of the EU, such as Tempus, Erasmus + and Jean Monnet. The Department of International Relations has participated in many of these projects, and the teachers of the Department are grant-holders of these programmes. Nobody has assessed their knowledge as excellent, twelve students (15,7 %) have never heard about them, approximate equal number of respondents assessed their knowledge from 2 to 4 points.

It is important to mention that for 61.8% of the respondents the main source of information on the European system of education and student mobility programmes is the internet - sites of Russian and foreign universities, special sites for training abroad, social networks. The rest of them receive necessary information from friends, relatives, teachers and foreign guests of the University, as well as from the media.

Table 3. Students' awareness of EU educational programmes (on a 5-point scale)

Scale	Answer	Number of respondents	%
5	Excellent knowledge about all programmes	0	–
4	General information	22	28,9
3	Odd bits of information	23	30,2
2	Familiar words	20	26,3
1	I know nothing and never heard	11	14,4

Then, the respondents were asked to choose among the forms of students' participation in EU programmes available at the university that they were aware of. Currently UrFU provides students with the possibility to take part in a wide range of cooperation programmes. The Department of International Relations alone has cooperation agreements with universities in Italy, Czech Republic and Spain. The Department participates in TEMPUS programme, it has two Jean Monnet professors within the Erasmus+.

The diagram [Figure 3] reflects the distribution of students' answers to the question about their awareness of the following forms of international activities. It should be noted that 40 students did not answer this question. The respondents could choose several forms of their possible participation. 127 options of the educational projects were selected in total. This number was taken as 100%. The most common and popular form was training in foreign universities from 1 to 6 months - 28%; scholarships to study abroad were chosen by 26 respondents (21%); participation in summer schools abroad proved popular among 17% of the respondents; 16% of surveyed students preferred to attend lectures of invited foreign professors without leaving the country; double or joint degrees interested 9% of respondents. However, it should be mentioned that the Department of international relations does not use the latter form of cooperation with foreign universities. The remaining 12% of the respondents chose lectures and seminars provided by UrFU teachers participating in Tempus and Erasmus+ projects.

Further, it was important to find out the students' awareness of cooperation programmes between UrFU and foreign universities. Compared with the previous question, respondents demonstrated higher level of awareness. Only three out of 76 respondents, did not give any answer, nine students responded negatively, six students responded that they know quite a bit, and the remaining 58 their peers (76.3%) indicated that they were aware of the programmes. Respondents named agreements with the University of Florence, Turin (Italy), Brno (Czech Republic), Cordoba (Spain), Erasmus+ programme and Tempus, grants and internships in Europe and Asia (China, Korea) as the specific areas of cooperation.

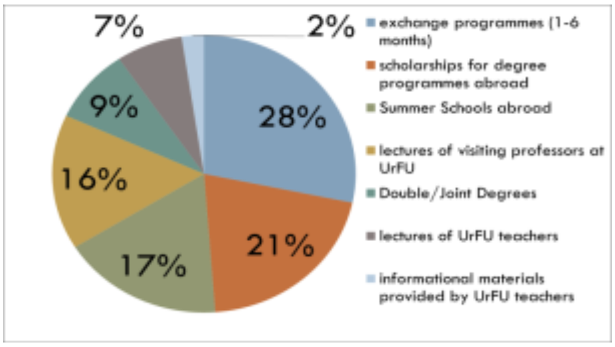

Figure 3. Information about available forms of participation

It should be highlighted that the Ural Federal University pays special attention to student mobility - the possibility to spend one or two semesters in a foreign country as a student or a trainee without interrupting studies at the university. The aim of the UrFU programmes is the internationalisation of higher education and cultural integration of young people from different countries. UrFU partners are universities of Austria, Germany, Hungary, India, Italy, Japan, Republic of Korea, Mexico, Romania, Taiwan, Thailand, Finland, France, and the Czech Republic (Exchange programmes, 2016). Student exchanges with Czech, Bulgarian, and Croatian universities are supported by Erasmus+. Moreover, UrFU allocates its own grants to students on a competitive basis for exchange studies. Thus, students in international relations have the opportunity to receive a grant to study at the University of Cordoba (Spain), University of Masaryk (Brno, Czech Republic), Sichuan University (Chengdu, China), Kazakh Economic University (Almaty, Kazakhstan), Kiev International University

(Ukraine, TEMPUS), Stockholm University (Sweden), University of Florence, University of "Tuscia", University of Turin, University of Bergamo (Italy). (UrFU Grants for mobility of bachelors and masters, 2016). Bachelors of the International Relations Department, as a rule, go abroad to practice foreign languages at their own expenses. In their third year students study together with foreign students and take exams, which are recognized by UrFU according to Bologna standards. The task of the University and the Department is to minimize the students' expenses by searching for the best partners. According to the inter-university agreements students have the opportunity to take courses and pass the exams for free in partner universities.

Taking into account these opportunities for student mobility at Ural Federal University, potential participants of these programmes were asked to comment on their forms. It turned out that 46 of the respondents do not know anything about them, and relevant fields in their questionnaires remained empty. Exchange programmes and internships were chosen by 37 students (48.6%), various summer schools - by 7 respondents. Participation in the programmes Erasmus+, Volural, Buddy-programme, Best, ESN was suggested by one person each.

As grants for training in foreign universities usually are provided on a competitive basis and the possibilities of free training are limited, students were asked to assess the probability that they or their family would finance their studies on 5-point scale [Figure 4]. All students answered this question.

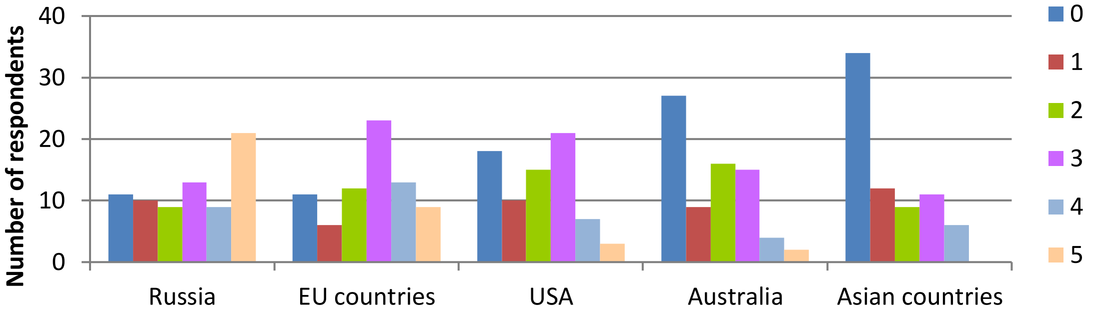

Figure 4. Probability of self-financing students' studies

The diagram [Figure 4] shows the low probability of studying abroad for the students. The students would pay most likely for studying in Russian universities - 30 students gave it 4 and 5 points. The universities of Europe are in the second place - 22 respondents scored it for 4 and 5 marks. US universities are in the third place, while universities in Australia and Asia are the less attractive.

In order to find out the possible obstacles to studying abroad, even in case Ural Federal University has agreements with foreign partners, respondents were asked to name the possible causes of their refusal to study in foreign universities. The presented results [Table 6] show that for 55 respondents (72.3%) the main reason for refusal might be the lack of finance, which, in our opinion, is largely due to the current socio-economic situation. The absence of the necessary operational information was indicated by 12 students, and 11 people, paradoxically, being students of the International Relations Department, referred to the limited knowledge of a foreign language. For 18 persons (23.7%) there are no obstacles to studying abroad.

Table 6. Students' answers to the question "Possible obstacles to studying abroad"

Answer*	Number of respondents (n)
Poor knowledge of a foreign language	11
Lack of finance	55
Lack of information	12
Household difficulties	5
Political views of the respondent	1
Non-compliance with western values and way of living	1
There are no obstacles	18
Columns were left blank	2

* *Multiple-choice was possible*

The final question was about the impact of world politics and national foreign policies on the international cooperation in higher education and whether it can influence the students' choice of study destination [Table 7]. Due to the significance of the issue the maximum number of respondents provided an answer - 93.3%. As shown in Table 7, the vast majority of respondents (77.5%) agreed that foreign policy and current state of international relations affect the cooperation in higher education among states. As the question was open, students could explain in detail how the policy may affect their decision. 15.7% of respondents said that as "political problems harmed the economy", "funding for educational programmes was reducing" and "studying abroad became expensive". In addition, "the political hostility" limits the possibilities of transnational cooperation among universities. Respondents of this group indicated that financial and political problems could be an obstacle to their studies in foreign universities. The largest group of respondents (40.7%) also agreed that the policy affects the scientific and educational connections of states, "the influence of propaganda" and "financial problems" could restrict cooperation of universities, as well as "difficulties to obtain a visa", etc. However, it cannot affect their decision on where to study. In their view, "science and education should be out of politics" and the most important in modern international relations is to prevent "a new iron curtain". 14.5% of respondents believe that "education is a separate niche in international relations", therefore, national foreign policy course does not affect the cooperation in higher education.

Table 7. Students' answers to the question "Do national foreign policies and current state of world politics influence cooperation of states in higher education and your decision to study or not abroad?"

	Answers	Number of respondents	%
	It exerts strong influence	16	21,1
	It effects my decision	12	15,7
	It has influence, but not on my decision to study abroad or not	31	40,7
	No, no influence	11	14,5
	I find difficulties in answering	1	1,3
No answer		5	6,7

CONCLUSIONS

The study showed that, despite the ongoing reforms for the implementation of the Bologna principles in Russian system of higher education, students have vague notion about the content of this process, as well as the standards and values of European higher education. Students of the Department of International Relations, one of the most active participants in student mobility programmes at Ural Federal University, have a very superficial understanding of the European Higher Education Area. However, the survey showed their positive attitudes towards education in European universities, which they ranked highly. Quality of education, unique programmes, opportunities for career advancement in European universities are attractive to survey participants. At the same time students consider rightly that the international scientific and educational cooperation must develop continuously regardless the ideology and politics. The vast majority of respondents believe in the necessity of integration of Russian higher education with the European Higher Education Area, which along with the active involvement of students in the process of internationalisation and harmonisation of higher education is an essential factor for the successful implementation of reforms in Russia. We believe that the Russian universities and faculties must take the necessary steps in this direction.

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Evaluation Of Pre-Service Teachers' Attitudes Against Chemistry Laboratory According To Some Demographic Variables

Fatma Gülay KIRBAŞLAR
İstanbul University, Hasan Ali Yücel Faculty of Education, Department of Science Education, Istanbul, Turkey
gulaykirbaslar@gmail.com

Alpin VEYISOĞLU
Istanbul University, Institute of Education, Istanbul, Turkey
atalaralpin@gmail.com

Zeliha ÖZSOY-GÜNEŞ
İstanbul University, Hasan Ali Yücel Faculty of Education, Department of Science Education, Istanbul, Turkey
ozsoyz@istanbul.edu.tr

ABSTRACT

Reaching the desired level of education in Science classes, can be provided by qualified teachers trained in this field. For effective science teaching, teachers' knowledge, skills and attitude against the application laboratories must be at the desired level. The purpose of this study is to research attitude of pre-service teachers' studying at The Department of Science Education towards chemistry laboratories and to study their attitude towards chemistry laboratories in terms of some demographic variables. "Attitude towards Chemistry Laboratory Scale" developed by Seyhan (2008) has been used in this study. The scale consists of three factors: 1.The ideal lab environment (ILE), 2.Interest in and Against Chemistry Lab (IACL), 3.Benefits of the Laboratory Environment (BLE). The sampling of the survey is made up of Science pre-service teachers in their graduation year. According to the results of the research, the attitude of pre-service teachers towards chemistry labs are at a high level. Significant statistical difference has been determined to the advantage of female students according to the total score of "Science teachers' chemistry lab attitude scale" and factor scores for gender variable. Significant statistical difference has been determined according to the "type of graduated high school" variable. However, according to the grade variable, no statistically significant difference has been determined in frequency of laboratory use between graduated high school and university.

Keywords: Chemistry lab, Attitude, Lab environment, Science education.

INTRODUCTION

Science education laboratory studies are regarded as important mediums to improve attitude, stimulate pleasure and motivate students to learn science, especially chemistry (Freedman, 1997). Learning about certain everyday cases the cause of which is not clear to students by experience in the laboratory, improves students' positive attitudes to the lesson (Gilbert, Bulte & Pilot, 2011). Oskay, Erdem & Yılmaz (2009) concluded as a result of their study on general chemistry students' attitude toward chemistry that, students who attend classes and laboratory simultaneously have higher success rates in chemistry. In the same research, they studied on students who took laboratory lessons or who didn't according to gender variable, and tried to find out if there was a relation between students' attitude toward chemistry and their success in the lesson. When students' attitude toward chemistry was assessed, students who take the class and the laboratory simultaneously were found to have higher attitude levels.

Reaching the desired level of education in science, can be provided by qualified teachers trained in this field. So the assessment of science teacher candidates' attitudes toward science is very important (Hancer, Uludağ & Yılmaz, 2007). In other words, one of the most important variables in effective practice of laboratory studies is, teachers' perception of the laboratory. In a study by Osborne and Collins (2003), the factors that affect student's attitudes toward science were indicated as; gender, personal characteristics, program change, imperceptions of students and teachers. The presence of teacher among these factors is striking. Teachers' approach to chemistry is regarded not only as a method but as an attitude model. Both teachers' and students' attitude and motives are very important at all educational levels. A teacher's attitude is at the centre of his/her success in communication with students (Tanish, 1984).

& Timur 2014). According to Kurt (2002), in order for a science teacher to prepare the learning environment with effective stimulus, the teacher must have the desired levels of knowledge, skill and attitude (Ergin, Şahin-Pekmez & Öngel-Erdal, 2005). Similarly, Soylu (2004) expressed that teacher's attitude toward science is very important in development of positive student attitude toward science. Science experiments developed by science educationists aim at individual participation with cognitive and affective domains, understanding of scientific concepts, improving interest and motivation as developing practical and analyst skills (Lee, Lai, Yu & Lin, 2012; Boaventura, Faria, Chagas & Galvao, 2013; Timur, Yılmaz

Having laboratory classes regularly is related to teachers' positive attitude. A teacher who has a positive attitude can be more effective in making students' learning easier by realizing laboratory practices, at least the ones that require minimal basic equipment (Ekici, 2002). The scale developed by Uzal, Erdem, Onen & Gurdal (2010) with an aim to define teachers' perception of science experiments with basic equipment, deals with the applicability of the experiment thanks to the simplicity of the equipment, the relation of the experiment with daily life and interest and attitude changes of the learners.

OBJECTIVE OF THE RESEARCH

The aim of this study to find out whether there is a significant difference or not in attitudes of pre-service teachers who study at Science Teaching Department toward chemistry laboratories according variables such as "gender", "grade", "graduated high school type", "the frequency of laboratory practice in high school", "the frequency of laboratory practice in university".

METHOD OF THE RESEARCH

In this study, quantitative research method has been used. Research model is relational screening.

Sample of the Research: The sample of the study was 363 pre-service science teachers from 1st through 4th grades who have taken the General Chemistry and General Chemistry Laboratory courses at the Faculty of Education, Department of Primary Education, Science Education Program. 282 of students (77.7%) are female and 81 of them (22.3%) are male.

DATA COLLECTION INSTRUMENTS

For research a two fold form has been created. In the first part personal data like the gender, department and graduated high school and "the frequency of laboratory practice in high school", "the frequency of laboratory practice in university" data have been collected. "Attitude towards Chemistry Laboratory Scale" developed by Seyhan (2008) has been used in second part of this study.

Attitude towards Chemistry Laboratory (ATCL) Scale

In the study; "Attitude towards Chemistry Laboratory (ATCL) Scale", developed by Seyhan (2008) to determine students' attitude towards chemistry laboratory was used as the data collection tool. Crα reliability for the whole of the scale was found 0.87. The scale consists of 3 factors; was prepared as 5 Likert type, in total 18 items. The scale consists of three factors: 1. The ideal lab environment (ILE), 2. Interest in and Against Chemistry Lab (IACL), 3. Benefits of the Laboratory Environment (BLE). ILE is concerned with circumstances that must be present in the laboratory, IACL is concerned with the attractiveness or unattractiveness of laboratories, BLE (is concerned with student attitudes toward the benefits of laboratory practices. The response range of the scale is from "definitely disagree" (1), "disagree" (2), "uncertain" (3), "agree" (4) to "completely agree" (5). The minimum and the maximum score that can be taken from the scale are between 18-90.

EVALUATION OF THE DATA

Quantitative data was analyzed by using SPSS 16.0 program at the .05 significance level. ANOVA, independent sample t-test and post-hoc test methods were used to evaluate the scores derived from the scales in terms of the socio-demographic variables of the participants.

FINDINGS

Attitudes of science teachers toward chemistry laboratories were studied and Attitude toward Chemistry Laboratory (ATCL) factor score and total scale score were derived. Attitude toward Chemistry Laboratory (ATCL) average total scores were calculated and conclusions were made through arithmetic average scores. The average score that can be achieved in Attitude Toward Chemistry Laboratory (ATCL) is between 18 and 90.As shown in Table 1, the total scale score achieved as a result of this study is calculated as 69,0331.

Table 1. Attitude towards Chemistry Laboratory of Pre-service Science Teachers

Factors	**X**	**SD**	**SE$_X$**
The ideal lab environment	31,6116	4,20807	0,22087
Interest in and Against Chemistry Lab	22,1791	4,76502	0,25010
Benefits of the Laboratory Environment	15,2424	2,49345	0,13087
ATCL Scale Total Score	69,0331	9,81509	0,51516

Independent group t-test was applied in order to determine whether participant pre-service teachers' scores from Attitude Toward Chemistry Laboratory (ATCL) scale vary significantly according to gender variable or not. As in table 2, as a result of independent group T-test applied to define whether the scores taken from Attitude towards Chemistry Laboratory scale and factors differentiate according to the gender variable; for the scale total score and factor scores the difference between the arithmetic average of the groups have been found statistically significant (p<,05). According to this; female students' ATCL scale and factors score average is significantly higher than the Male students.

Table 2. The results of Independent group T-test of the scores taken from ATCL scale and factors of pre-service science teachers according to the gender variable.

Score	**Group**	**N**	**X**	**SD**	**SEx**	**t-test**		
						t	**df**	**P**
The ideal lab environment	Female	282	32,2801	3,85635	0,22964	5,907	361	,000
	Male	81	29,2840	4,56408	0,50712			
Interest in and Against Chemistry Lab	Female	282	23,0106	4,48206	0,26690	6,554	361	,000
	Male	81	19,2840	4,61041	0,51227			
Benefits of the Laboratory Environment	Female	282	15,5071	2,38954	0,14230	3,845	361	,000
	Male	81	14,3210	2,64020	0,29336			
ATCL Scale Total Score	Female	282	70,7979	8,96841	0,53406	6,777	361	,000
	Male	81	62,8889	10,20784	1,13420			

As a result of one-way analysis of variance (ANOVA) which is done in order to determine whether the scores taken from the ATCL scale and factors of preservice science teachers show a significant difference according to the grade variable; the scale and factors scores the difference between the arithmetic average of the group has been found to be insignificant statistically (p>,05).

Table 3. The results of one-way analysis of variance (ANOVA) applied to define whether the scores taken differentiate according to the graduated high school variable of students.

	N, X and SD Values				**ANOVA Results**					
Scales	**Group**	**N**	**X**	**SD**	**Var. K.**	**SS**	**df**	**MS**	**F**	**p**
ILE	Public High School	146	30,7466	4,06127	Between	306,195	2	153,1	9,029	,000
	Anatolian High School	160	32,6438	3,82206	Within	6104,036	360	16,956		
	Teacher High School	57	30,9298	4,98161	Total	6410,231	362			
	Total	363	31,6116	4,20807						
IACL	Public High School	146	21,4178	4,86898	Between	358,09	2	179,05	8,199	,000
	Anatolian High School	160	23,2875	4,24173	Within	7861,271	360	21,837		
	Teacher High School	57	21,0175	5,28303	Total	8219,361	362			
	Total	363	22,1791	4,76502						
BLE	Public High School	146	14,8973	2,5481	Between	63,556	2	31,778	5,231	,006
	Anatolian High School	160	15,7125	2,32673	Within	2187,111	360	6,075		
	Teacher High School	57	14,807	2,6216	Total	2250,667	362			
	Total	363	15,2424	2,49345						
ATCL Scale Total Score	Public High School	146	67,0616	9,65489	Between	1953,903	2	976,95	10,684	,000
	Anatolian High School	160	71,6438	8,60696	Within	32919,7	360	91,444		
	Teacher High School	57	66,7544	11,6685	Total	34873,6	362			
	Total	363	69,0331	9,81509						

Results of ANOVA that was applied in order to determine whether participant pre-service teachers' scores from Attitude toward Chemistry Laboratory (ATCL) vary significantly according to "high school type of graduation" variable are shown in Table 3. According to this, a significant difference was found between pre-service science teachers' Attitude toward Chemistry Laboratory (ATCLS) scores, averages according to its factors and "high school type of graduation" variable. (p<,05). One of post-hoc analyses techniques LSD test, was chosen because group variations were found to be homogenous (L=1,862, L=1,575, L=2,490, L=0,664, p>,05) according to the results of Levene's test applied after ANOVA in order to determine in which sub-groups ATCLS score and ILO, IACL, BLE factor scores vary according to "high school type of graduation" variable.

When ATCLS scores of pre-service teachers analysed, the scores of Anatolian High School graduates were found to be significantly at a higher level than public high school and teacher high school graduate pre-service teachers. However no significant difference was found between public high school and teacher high school graduate pre-service teacher' ATCLS scores. (Table 4). The same results were derived for factors of the scale.

Table 4. LSD Test Results Applied To Determine In Which Sub-groups ATCLS Scores of Pre-service Science Teachers Vary According To "High School Type Of Graduation" Variable.

(i) Graduated High School Type	(j) Graduated High School Type	Difference of Average (i-j)	SE_x	p
Public High School	Anatolian High School (*)	-4,58211	1,09446	,000
	Teacher High School	0,30726	1,49352	,837
Anatolian High School	Public High School (*)	4,58211	1,09446	,000
	Teacher High School (*)	4,88936	1,47506	,001
Teacher High School	Public High School	-0,30726	1,49352	,837
	Anatolian High School (*)	-4,88936	1,47506	,001

No statistically significant difference was found among the groups according to ANOVA results applied to define whether pre-service teachers' scores from (ATCL) scale vary significantly according to "frequency of laboratory use in high school" or not. (p>,05).

No statistically significant difference was found among the groups according to ANOVA results applied to define whether pre-service teachers' scores from (ATCL) scale vary significantly according to "frequency of laboratory use in university" or not. (p>,05).

RESULTS

The average score that can be achieved in Attitude Toward Chemistry Laboratory (ATCL) is between 18 and 90. In this study, the total scale score achieved as a result of this study is calculated as 69,0331. According to the result of the research, the attitude of pre-service teachers towards chemistry labs are at a high level. This result corresponds with results of the study conducted by Can (2012), Oskay et. al. (2009), Kırbaşlar, Özsoy-Güneş, Avcı & Deringöl (2008), Yenice, Balım & Aydın (2008), Nuhoğlu, Kocabaş & Bozdoğan (2004), Shibley & Zimmaro (2002), Özkan, Tekkaya & Çakıroğlu (2002), Temel, Oral & Avanoğlu (2000).

A significant variation to the advantage of female students was found as a result of pre-service science teachers' attitude toward chemistry laboratory scale total score and factor scores according to "gender" variable. Correspondingly, Sarısa, Kaya & Unaldı-Coral (2014), Cheung (2009), Dhindsa & Chung (1999), Oskay et. al. (2009), Salta & Tzougraki (2004), Steinkamp & Maehr (1984), Shannon, Sleet & Stern (1982), have concluded as a result of their studies on students' attitudes toward chemistry classes according to gender variable, that female students have more positive attitude toward chemistry class compared to male students. Weinburgh & Englehard (1994) stated in their studies that gender is a significant factor in effecting attitudes. Salta & Tzougraki (2004) explained the cause of this situation as male students' being more interested in technologic, action packed and schematic activities and associate with them, while female students' being more interested in daily life incidents, and being more intrigued to ask questions such as "why?", "how?". In a study conducted by Kırbaslar, Ozsoy-Gunes & Deringol (2008) female candidate teachers were found to have higher interest rates in chemistry laboratories in comparison with male candidate teachers, all the same, it was indicated that female candidate teachers were more successful at "equation specification" and "nomination" than male candidate teachers. Schibeci & Riley (1986) studied characteristic features of a group of students, their perceptions of and attitudes toward science, along with the effects of these on their success in science, to find out that there were major differences between verbal, quantitative and visual skill levels of male and female students.

There are some studies on science teaching that have positive findings to the advantage of male students as well. In studies by Menis, (1983, Trns: Hoffstein & Mamlok-Naaman, 2011), Barnes, Mcinereney & Marsh (2005); Wolf & Fraser (2008). Çavaş & Kesercioğlu (2005); about Rose Project (appropriateness of science teaching) it was found out that male students liked science classes more than female students did. According to Rose project results, all over the world, male students liked science more compared to female students and more male students want to be scientists than female students do. Meanwhile, in a study by Can (2012), Demircioğlu & Norman (1999), Özdemir & Azar (2004), Taşlıdere & Eryılmaz (2012), Taşlıdere & Korur (2012), Türk (2010), Uzal et al., (2010), Yıldız, Akpınar, Aydoğdu & Ergin (2006), Yenice et al., (2008) gender was established as a variable that didn't affect attitude toward science and science laboratory. Yalvac & Sungur (2000) indicated that there was no significant relation between candidate science teachers' attitudes toward laboratory studies and gender. Demircioglu & Norman (1999) studied student attitudes toward chemistry and observed no difference between female and male students.

It was established that there was no significant difference in factor points and total score of candidate science teachers in attitude toward chemistry laboratory scale according to "grade" variable. However Nuhoglu et. al. (2004) concluded as a result of their studies on science teacher candidates physics, chemistry and biology laboratory attitudes according to grade variable, the higher the grade is, the higher the level of interest in candidate teachers' in the laboratory is.

Statistically significant difference was found between pre-service teachers' and total score of attitude chemistry laboratory scale and factor points of pre-service science teachers according to "high school type graduation" variable. Anatolian High School graduates were found to have significantly higher scores of attitude toward chemistry laboratory than other pre-service teachers, while no statistically significant difference was found between chemistry laboratory attitude score averages of public high school graduate pre-service teachers and teacher high school graduate candidates. Hancer et. al. (2007) expressed that in their study on definition of candidate science teachers attitudes toward chemistry and the relation between the attitudes and success, Anatolian High School graduate candidates ranked the first, Teacher High School graduate candidates the second, Super High School graduates the third, common high school graduates the forth and multi- program high school graduate candidates the fifth in terms of success. However, Yaman & Karamustafaoglu (2006) concluded that candidate science teachers' attitudes toward chemistry show no meaning difference according to type of high school that the candidates graduated from. Similarly, Acisli & Kolomuc (2012) found no significant difference in their studies between the type of high school candidate teachers graduated from and the attitudes toward laboratory practices.

In this study, no statistically significant difference was found between the total score of pre-service science teachers in attitude toward chemistry laboratory scale and factor points according to "frequency of laboratory use in high school." This result corresponds with results of the study conducted by Can (2012).

In this study, when findings on frequency of high school laboratory use are analysed, it is observed that pre-service teachers never marked "always" option. So it is concluded that the students used the laboratory "often", "sometimes" or "never". However, it is a very significant finding that half of the pre-service teachers participated in the survey expressed that they never used the laboratory in high school, while one in three of the candidates said they used it "sometimes", leaving only a very small number of participants who used the chemistry laboratory "often" at high school. These findings coincide with the results Can (2012) derived in his study. The researcher in his study aimed at finding whether pre-service science teachers approached to laboratory practices effectively or ineffectively during their high school studies, and the differences among their thoughts about laboratory practices, indicated that almost half of the pre-service teachers didn't take the laboratory, one in third took partially, and only a very small group used the laboratory practices effectively. Also, statistically significant difference was found between their thoughts toward the laboratory, this difference was to the advantage of students who took the laboratory practices effectively, and to the advantage of students who took the laboratory practices partially compared to students who didn't take laboratory practice during high school. Dalgety & Coll (2005) express that students who didn't participate in adequate laboratory practice, have negative attitude toward laboratory. Ozdilek & Calis (2010) indicate a positive relation between frequency of laboratory application of candidate teachers at primary, secondary and high school and their attitudes toward chemistry laboratories and their interest in laboratory practices.

No statistically significant difference was found between pre-service science teachers' chemistry laboratory total scores and factor points according to "frequency of laboratory use in undergraduate education" variable. When the findings about the frequency of laboratory use of pre-service teachers during undergraduate education, it is observed that the pre-service teacher didn't mark "never" option. So it is concluded that during undergraduate education the students used the laboratory "always", "often" and "sometimes". It is also observed that half of the pre-service teachers who participated in the survey used the laboratory "always", and one in three of the participants used "often" while a small group used "sometimes."

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Evaluation Of Teaching And Learning Situations In Biology Currciculum According To Teacher Opinions

Assoc. Prof. Dr. İjlal OCAK
Afyon Kocatepe University, Faculty of Education, Turkey
iocak@aku.edu.tr

Lecturer Serkan BOYRAZ
Afyon Kocatepe University, Faculty of Education, Turkey
serkan.boyraz@gmail.com

ABSTRACT

The curricula in Turkey has been continuously renewed since 2005 in order to comply with the developments in teaching and learning situations and technology. This change is a result of dynamic structure of curriculum development process. As known, curriculum development is not a process that starts and stops but always goes on, so more research on the stakeholders of the education such as students, teachers, parents etc. is needed in order to put forward the quality, effectiveness, problems and strengths of renewed curricula. Biology curriculum of secondary schools has been changed in 2013-2014 starting at 9th grade. The evaluation of teaching and learning situations by teachers who are the only practitioners of the new biology curriculum which aims not only to teach basic concepts and information but also make students understand the nature of scientific information and have 21st century skills such as technology literacy. Many questions such as if teachers use methods and techniques proposed by the curriculum, whether teaching and learning situations are student-centered as prescribed in the curriculum and applied in that way, if effective teaching is reached await to be answered. This study which employs survey method aims to evaluate the teaching and learning situations in biology curriculum according to teacher opinions. Data will be collected by teaching and learning situations evaluation scale which is developed by the researchers and findings such as frequencies, per cent, mean and some other statistical functions will be given in tables. In addition, it will be investigated if there is any statistically significant difference among teacher opinions in terms of some variables such as years of experience, graduation, in service training, etc.

Keywords: biology curriculum, curriculum evaluation, teaching and learning situations, teacher opinions

INTRODUCTION

In the last century, there has been a shift from behaviorism to cognitivism in education just like in psychology and final dominant approach in education is constructivism. It has changed the education in many ways. For example, the teacher supposed to act not like the "leading role" but the "supporting" one. As a natural result of this change in the teacher's role, students are expected to act as the "leading role." Believing that new information is acquired by connecting it to the previous knowledge, constructivism requires designing the teaching-learning process accordingly (Applefield, Huber, & Mahnaz, 2000). The curricula in Turkey have been continuously changing in order to follow this current and common approach and keep up-to-date. Especially Science, Technology, Engineering and Mathematics (STEM) education requires much faster updating due to continuous and big improvements in these fields, so curricula reforms in STEM happen faster than the social sciences. The biology curricula for the high schools (9th-12th grades) was changed in order to update it appropriate to the constructivism and keep pace with the incredible pace of information age. Basic skills that are aimed to be given to students in biology course is explained as (MEB, 2013): understanding and applying the scientific information; scientific process skills, the relations among the science-technology and society, attitude towards the science, attitudes and morals, understanding the nature of scientific information, 21st century skills. The teaching and learning process that will lead through the gaining of the given skills by the students is explained as a process: that is social, individual centered and includes active participation of them; in which previous knowledge plays an important role in learning and diversified education, research and questioning are the basics. Although everything about teaching and learning process looks perfect on the paper, in other words in theory, it is important to learn the real reflections and results of them in the classroom. When studies on biology curricula in Turkey are examined, it is seen that Gerçek and Soran (2005) state teachers should develop curricula appropriate to the region. Altunoğlu and Atav (2005) report that teachers think experiments were not applicable and more experiments for every subject had to be integrated into previous biology curricula. Besides, teachers think the curricula limited use of different teaching methods because of intensity and time. In their study investigating high school physics, chemistry and biology curricula in terms of scientific literacy, Erdoğan and Köseoğlu (2012) state that biology curriculum is insufficient in developing the understanding of the nature of science which is an important element in the development of scientific literacy. İrez and Yavuz (2009) explain that biology teachers find biology curricula insufficient in terms of assessment and evaluation because of inadequate content and context, limited weekly time, inappropriate distribution of the topics towards the years, unsuitable class seating and crowded classes. There are other studies in the literature on the evaluation of biology curricula in many different aspects such as evaluation of genetics subjects in biology curricula and determining students' interest in genetics by Uzun and Sağlam (2003); environment education in secondary education and teacher opinions on environment education by Uzun & Sağlam (2007); teaching methods used by biology teachers and opinions on the effect of these methods on student success by Temelli & Kurt (2011); evaluation of secondary school biology curriculum in terms of wild life components by Arıkan & Turan (2015); the comparison of Turkey and South Korea biology curricula by Güneş & Aksan (2015). In international literature, there are studies such as Primary literature as a basis for a high-school biology curriculum by Yarden, Brill & Falk (2001); Investigating teacher learning supports in high school biology curricular programs to inform the design of educative curriculum materials by Beyer, Delgado, Davis & Krajcik (2009); Problem-based learning in the biology curriculum by Kendler & Grove (2004); Biomind—a new biology curriculum that enables authentic inquiry learning by Zion, et al. (2004).

Problem:
What is the biology teachers' evaluation of teaching and learning situations in the current Biology course curricula for the high schools (9th-12th classes)? Is there a statistically significant difference in their evaluation in terms of some demographic variables?
Sub-problems

1. What is the distribution of teacher views on teaching and learning situations in 2013 Biology curricula?
2. Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their experience?
3. Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their level of academic degree?
4. Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their participating in an in-service training on the new curricula?

Aim of the Study
The aim of the study is to evaluate the teaching and learning situations in Biology curricula for the high schools (9th-12th grades) through the teacher views. The results might indicate weaknesses and strengths of the new curricula.

METHOD

As the aim is to evaluate the Biology curricula by the teachers' views, survey method that is generally used to measure or evaluate the general characteristics of a topic, universe or program (Cohen, Manion, & Morrison, 2007) is employed in this study. The statistics used in this study include: frequencies and percentages to represent teacher views; normal distribution tests to check the normality; t-test to compare two groups on a variable; ANOVA test to compare three or more groups on a variable. The normal distribution of the data is analyzed independently for each group (Can, 2014), through the normality test and when the groups in all comparisons include less than 50 participants Shapiro-Wilks, and when it is above 50 Kolmogorov-Smirnov test is taken into account. According to normality test results, data is normally distributed and parametric tests were used.

The validity and reliability of the data collection tool is done by Ocak, Ocak & Boyraz (2016) and was presented in "INTE 2016 International Conference on New Horizons in Education." Statistical findings about the validity and reliability of the scale in the development study and this study can be seen in Table-1. There are 34 items in the scale under one dimension.

Table-1 Descriptive Information about Data Collection Tool

	Scale Development Study	**Current Study**
Sample	High school teachers	Biology teachers
Number of Sample	357	99
KMO	,971	,834
Barlett	,000	,000
Cronbach alpha	,976	,948

The Universe and Sample

The study was carried out in Afyonkarahisar. All Biology teachers in the city were given the scale after getting required formal permissions from Provincial National Education Directorate. 99 scales were collected back and all were appropriate for the data analysis.

Table-2 Demographic Information about the Sample

Type of High School	**N**	**%**	**Experience (year)**	**N**	**%**
Basic Sciences	2	2.0	1-4	19	19.2
Anatolian	39	39.4	5-9	24	24.2
Science	10	10.1	10-14	14	14.1
Vocational and Technical	33	33.3	15 and above	42	42.4
Anatolian Health Vocational	2	2.0	**Total**	99	100.0
Religious	9	9.1	**Level of Academic Degree**		
Multi-program	2	2.0	Graduate	67	67.7
Others	2	2.0	Post-graduate	32	32.3
Total	99	100.0	**Total**	99	100.0
Level of Curriculum Focus			**Training on Curriculum**		
Rarely	7	7.1	Yes	57	57.6
Sometimes	15	15.2	No	42	42.4
Often	38	38.4	**Total**	99	100.0
Always	39	39.4			
Total	99	100.0			

FINDINGS

Sub-problem 1: How appropriate are the teaching and learning situations in high school Biology curricula to the teaching and learning situations scale?

Table-3 Findings about Teachers' Evaluations

		DA	**A**	**SA**		**DsA**	**Result**	
1- Sample activities are student-centered.	**f**	0	3	34	44	18	3,78	Agree
	%	0	3,0	34,3	44,4	18,2		
2- Activities are consistent with the content.	**f**	1	4	23	59	12	3,78	Agree
	%	1,0	4,0	23,2	59,6	12,1		
3- Activities are applicable.	**f**	1	13	37	41	7	3,40	Slightly Agree
	%	1,0	13,1	37,4	41,4	7,1		
4- Teaching and learning experiences are consistent with the objectives.	**f**	0	10	22	63	4	3,62	Agree
	%	0	10,1	22,2	63,4	4,0		
5- Teaching and learning approaches are appropriate to the field of study.	**f**	0	4	28	56	11	3,75	Agree
	%	0	4,0	28,3	56,4	11,1		
6- Resulting activities such as discussion, trip, observation, experiment, summarizing, production in the end of learning experiences are directive for the teacher.	**f**	7	9	38	35	10	3,32	Slightly Agree
	%	7,1	9,1	38,4	35,4	10,1		

The participant teachers agree that the activities offered in the curricula are student-centered (X=3,78); consistent with the content (X=3,78) and objectives (X=3,62); teaching and learning approaches are appropriate to the field of study (3,75). Teachers slightly agree that activities are applicable (X=3,40) and final activities are directive (X=3,32).

Table-4 Findings about Teachers' Evaluations

		DA	A	SA		DsA	Result	
7- Activities support learning by doing and experiencing.	f	5	12	42	28	12	3,30	Slightly Agree
	%	5,1	12,1	42,4	28,3	12,1		
8- Activities are organized by keeping student interests, needs and demands in mind.	f	7	11	40	34	7	3,23	Slightly Agree
	%	7,1	11,1	40,4	34,3	7,1		
9- Teaching and learning process develops critical thinking ability.	f	4	9	32	45	9	3,46	Agree
	%	4,0	9,1	32,3	45,5	9,1		
10- Teaching and learning process develops creative thinking ability.	f	5	11	41	34	8	3,29	Slightly Agree
	%	5,1	11,1	41,4	34,3	8,1		
11- Teaching and learning process develops research, questioning and deciding abilities.	f	2	13	38	39	7	3,36	Slightly Agree
	%	2,0	13,1	38,4	39,4	7,1		
12- Teaching and learning process develops problem solving ability.	f	4	10	47	30	8	3,28	Slightly Agree
	%	4,0	11,0	47,5	30,3	8,1		

Teachers agree that the teaching and learning process develops critical thinking ability (X=3,46). On the other hand, they slightly agree that activities support learning by doing and experiencing (3,30) and are organized according to students' interests, needs and demands (X=3,23). They slightly agree that teaching and learning process in the Biology curricula develops research, questioning and deciding abilities (X=3,36) and problem solving ability (X=3,28).

Table-5 Findings about Teachers' Evaluations

		DA	A	SA		DsA	Result	
13- Teaching and learning process develops communication ability.	f	4	10	40	36	9	3,36	Slightly Agree
	%	4,0	10,1	40,4	36,4	9,1		
14- Teaching and learning process develops correct, effective and good use of Turkish ability.	f	11	10	34	35	9	3,21	Slightly Agree
	%	11,1	10,1	40,4	36,4	9,1		
15- Teaching and learning process develops entrepreneurship ability.	f	7	16	34	34	8	3,20	Slightly Agree
	%	7,1	16,2	34,3	34,3	8,1		
16- Teaching and learning process develops information technology using ability.	f	5	12	30	43	9	3,39	Slightly Agree
	%	5,1	12,1	30,3	43,4	9,1		
17- Teaching and learning process supports 5E instructional model.	f	0	13	40	32	14	3,47	Agree
	%	0	13,1	40,4	32,3	14,1		
18- Teaching and learning process directs towards discussion methods like debate, panel, open forum etc.	f	6	21	44	22	6	3,01	Slightly Agree
	%	6,1	21,2	44,4	22,2	6,1		

Participant teachers agree that teaching and learning process supports 5E instructional model (3,47). They slightly agree that teaching and learning process develops communication ability (X=3,36); correct, effective and good use of Turkish ability (X=3,21); entrepreneurship ability (X=3,20); information technology using ability (X=3,39) and directs towards discussion methods like debate, panel, open forum etc. (X=3,01).

Table-6 Findings about Teachers' Evaluations

		DA	A	SA		DsA	Result	
19- Teaching and learning activities direct towards group work.	f	2	9	44	39	5	3,36	Slightly Agree
	%	2,0	9,1	44,4	39,4	5,1		
20- Methods and techniques are consistent with objectives.	f	1	5	40	45	8	3,55	Agree
	%	1,0	5,1	40,4	45,5	8,1		
21- Methods and techniques are consistent with content.	f	1	6	31	56	5	3,59	Agree
	%	1,0	6,1	31,3	26,6	5,1		
22- Activities can be done both in and out of the school.	f	6	15	39	35	4	3,16	Slightly Agree
	%	6,1	15,2	39,4	35,4	4,0		
23- The teacher is a guide who leads the students and improves him/herself in the process.	f	4	10	34	44	7	3,40	Slightly Agree
	%	4,0	10,1	34,3	44,4	7,1		
24- Curriculum offers materials to be used in the activities.	f	5	10	36	43	5	3,33	Slightly Agree
	%	5,1	10,1	36,4	43,4	5,1		

The participant teachers agree that the methods and techniques are consistent with objectives (X=3,55), content (X=3,59). They slightly agree that teaching and learning activities direct towards group work (X=3,36); activities can be done both in and out of the school (X=3,16); the teacher is a guide who leads the students and improves him/herself in the process (X=3,40) and curriculum offers materials to be used in the activities (X=3,33).

Table-7 Findings about Teachers' Evaluations

		DA	A	SA		DsA	Result	
25- The materials used in teaching and learning process can easily be reached in all regions.	**f**	14	15	40	26	4	2,91	Slightly Agree
	%	14,1	15,2	40,4	26,3	4,0		
26- Sample activities are appropriate to students' level.	**f**	9	20	32	29	9	3,09	Slightly Agree
	%	9,1	20,2	32,3	29,3	9,1		
27- A learning experience is in interaction with the others.	**f**	1	14	35	41	8	3,41	Agree
	%	1,0	14,1	35,4	41,4	8,1		
28- Activities can be done both in and out of the school.	**f**	7	19	35	36	2	3,07	Slightly Agree
	%	7,1	19,2	35,4	36,4	2,0		
29- Learning experiences support the upper class attainments.	**f**	3	14	36	37	9	3,35	Slightly Agree
	%	3,0	14,1	36,4	37,4	9,1		
30- There are examples of how to use EBA in the teaching and learning process.	**f**	10	19	14	39	17	3,34	Slightly Agree
	%	10,1	19,2	14,1	39,4	17,2		

While the teachers agree that a learning experience is in interaction with the others (3,41) they slightly agree that the materials used in teaching and learning process can easily be reached in all regions (X=2,91); sample activities are appropriate to students' level (X=3,09); Activities can be done both in and out of the school (X=3,07); learning experiences support the upper class attainments (X=3,35); there are examples of how to use EBA in the teaching and learning process (X=3,34).

Table-8 Findings about Teachers' Evaluations

		DA	A	SA		DsA	Result	
31- The teaching and learning process directs teachers to use digital materials.	F	3	10	28	36	22	3,65	Agree
	%	3,0	10,1	28,3	36,4	22,2		
32- The teaching and learning process directs students to use digital materials.	F	4	12	31	34	18	3,51	Agree
	%	4,0	12,1	31,3	34,3	18,2		
33- A classroom seating plan is provided appropriate to the activities in the curriculum.	F	16	33	24	17	9	2,70	Slightly Agree
	%	16,2	33,3	24,2	17,2	9,1		
34- There are explanations about the classroom management in the curriculum.	F	9	28	28	28	6	2,94	Slightly Agree
	%	9,1	28,3	28,3	28,3	6,0		

The two questions on digital materials use by both teachers and students as a result of curriculum requirements are agreed by the participant teachers (X=3,65-3,51). However, teachers slightly agree that the curriculum provides a classroom seating plan appropriate to the activities (X=2,70) and explanations about the classroom management (X=2,94).

Sub-problem 2: Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their experience?

Table-9 One-way ANOVA Results on the Evaluation in terms of Years of Experience

Experience (Year)	**N**	**Sum of Squares Within Groups**	**Sum of Squares Between Groups**	**df**	**F**	**p**
1-4	19	196,897	37702,739	3	,165	,943
5-9	24					
10-14	14					
15 and above	42					

As seen in Table-9, the teachers are divided into four groups depending on their years of experience. The number of teachers with an experience of 15 or more years is 42 and this is the most crowded group. Following it comes 5-9 years of experienced teachers with a number of 24. There are 19 teachers with 1-4 years of experience and 14 with 10-14 years. The ANOVA test results indicate no statistically significant difference among them in their evaluation on teaching and learning situations in the Biology curricula in terms of their experience (p=,934; p>,05).

Sub-problem 3: Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their level of academic degree?

Table-10 T-test Results on the Evaluation in terms of Level of Academic Degree

Graduation	N	X	SS	df	t	p
Undergraduate	67	113,28	18,77	97	-,235	,815
Graduate	32	114,28	21,71			

The teachers are divided into two groups in terms of their level of academic degree: 67 undergraduates and 32 graduates. According to t-test results, there is not a statistically significant difference between the two in their evaluation on teaching and learning situations in the Biology curricula (p=,815; p>,05).

Sub-problem 4: Is there a statistically significant difference in teacher views on teaching and learning situations in terms of their participating in an in-service training on the new curricula?

Table-11 T-test Results on the Evaluation in terms of In-service Training

In-service Training	N	X	SS	df	t	p
Yes	57	115,84	21,59	97	1,323	,189
No	42	110,57	16,46			

One of the variables according to which teachers' evaluations are compared is either participating an in-service training on the new curricula or not and while 57 teachers got such a training the rest 42 did not. However, according to t-test results, there is not a statistically significant difference between the two groups (p=,189; p>,05).

RESULTS AND DISCUSSION

The Biology teachers in Afyon were given a scale consisting of 34 items to evaluate the teaching and learning situations in the new 2013 curricula. According to means, teachers slightly agree with 21 items while they agree with 13 items. This means the teachers think that the teaching and learning situations in the renewed high school Biology curricula is not as effective as it was meant to be and the renewed curricula needs to be revised for example in terms of classroom management, reachability of materials in all the regions etc. In a similar study by Çakmak and Gürbüz (2014), the evaluations of teachers on teaching and learning situations in Biology curriculum is similar and the answers are “agree”, “partially agree” and “don’t agree”. The highest means in teachers’ evaluations are about the items related to activities’ being student centered and consistent with the content and teaching and learning situations’ being appropriate to the field of study. These points seem to be formed in the curriculum better than other parts and they are the positive sides of the curriculum. On the other hand, İrez & Yavuz (2009) state that the majority of the participant teachers do not adopt the new biology curricula and find it insufficient in terms of assessment and evaluation in their study named biology teachers’ opinions on evaluation approaches in the new curricula and their implementations. They add that teachers lack information on constructivist theory which takes students in the center of education and its application. The items with lowest means are about the reachability of the materials in all the regions, classroom seating plan and management. It can be concluded that teachers look for more support in the classroom management and materials development in the curricula. One of the important elements of constructivism is that the teaching and learning situations are organized by keeping student interests, needs and demands in mind. Participant teachers “slightly” agree that the renewed Biology curricula for the high schools fulfill this need. Similarly, Çevik and Atıcı (2015) state that biology teachers think the teaching and learning situations in the curricula don’t help them to be aware of students’ interests, needs and demands. Nearly half of the teachers participating in this study and evaluating the renewed curricula have been working as a teacher 15 or more years so they are very experienced. However, there is not a statistically significant difference in terms of the year of experience in teachers’ evaluations on the curricula. It is interesting to find out that nearly one third of the teachers have a graduate degree but again there is not a significant difference between teachers with undergraduate or graduate degree. Curriculum reforms are generally followed by in-service trainings to the teachers and this is thought to be an important factor in curriculum evaluation. More than half of the participants got an in-service training on renewed Biology curricula but there is not a statistically significant difference between the two groups getting a training or not. Altunoğlu & Atav (2005) find no statistically significant difference among participant teachers in terms of gender, experience, the school they graduated, type of high school they work and where they live in terms of these variables.

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Evaluation Of The New Math Curriculum Implemented In High Schools By Views Of Teachers And Students In Secondary Education

Mustafa ÇEVİK
Karamanoglu Mehmetbey University, Faculty of Education, Department of Primary Education,
Karaman 70100,Turkey
mustafacevik@kmu.edu.tr

Cihat ABİDOĞLU
Karamanoglu Mehmetbey University, Faculty of Education, Department of Primary Education
Karaman 70100,Turkey
cabdioglu@kmu.edu.tr

ABSTRACT

This study aimed to examine the new math curriculum, which have been implemented since 2013 in our country, in accordance with views of teachers in secondary schools and students studying in these institutions. The survey model was employed, which uses quantitative data instruments, in this research in order to identify directly opinions of teachers and students for the new high school math curriculum. The study population consisted of high schools associated the Ministry of Education. The easily accessible sampling method from purposive sampling methods was adopted in the study. The sample consisted of 64 math teachers from 20 high schools and 2000 students studying in these schools in the center of Karaman city. The data obtained in this study were analyzed using appropriate parametric or non-parametric statistical analysis techniques. At the end of the study, teachers indicated that the curriculum should be associated with the everyday life with regard to educational attainment, content, teaching-learning and assessment processes and there is the lack of observing and creative activities. Students stated that the content of the curriculum is partially appropriate for their levels and there is the need to provide concrete examples and more activities.

INTRODUCTION

Education is an essential part of human life and a vital factor to establish a reliable bridge between past and future. Human beings can improve the community where they live with economic, social, cultural and scientific respects by the educational level they have. The education system has a dynamic structure and should be developed with the requirements of the age. The curriculum is one of the most important components of the education system. It is inevitable to carry on evaluation and development studies on the curriculum in the developing and changing world. In this context, math curriculums were affected by developments in all school levels from primary to higher education together with developments in science, technology and education and changes were anticipated in the curriculum (Baykul, 2012).

The curriculum is the life mechanism that covers all events about a course instruction planned to acquire individuals at school or outside the school (Demirel, 2009). The curriculum is rather important since teachers take as their main source of the guidance in education. Therefore it should be meaningful for teachers when forming these programs. Otherwise, there is a risk of discouraging teachers into the program. It is beneficial to receive opinions of teachers when implementing the curriculum change due to this risk (Merter and Şan, 2012). Today information resources continually increase and rapid change and development take place in technology. These and similar developments are likely to affect education. Different approach methods in math teaching are emerging, which make necessary and compulsory to update math curriculums. Countries revise and update their math curriculums time to time considering designated general objectives (Baki, 2008). The goal of these updates is undoubtedly to make education more qualified.

The first math curriculum in Turkey was prepared in 1924 and revised in 1934. The course hours of the programs of 1935 and 1939 are identical with the programs of 1924 and 1934 years, but main objectives and some suggestions were placed in these new curriculums. Given the fundamental goals of the math education curriculum, it can be seen that these objectives are calculation, mathematical knowledge for other disciplines, reasoning, systematic memory exercises and focusing on math for people who are willing to specialize after high school. When the curriculum in 1956 was examined, some small changes such as only using "Astronomy" instead of the "Cosmography" term is seen. Any clues about teaching techniques, assessment and targets were not given in this program. The program issued in 1970 was the revised version of the curriculum in 1956 and divided into two braches as in tenth and eleventh grade. The modern (new) math curriculum was taken place in all secondary schools in 1976 and this has led to a debate about the opinions of math for different generations. The program issued in 1987 was worked through. Eleventh grade was divided into three branches as math, natural science and literature. Weekly course hours vary according to the branch. Although the program was in detail, the main objectives were given to teachers in the form of listed recommendations (Argün et al., 2010). The new secondary education math curriculum issued in 2005 were prepared based on national and international research done in math education, math programs of developed countries, experiences in math education in our country. The vision of the program was "Every student learns math" (MEB, 2005). The latest updated version of the secondary education math curriculum was in 2013 and currently being implemented.

Curriculum evaluation is the data collection on the effectiveness of the curriculums with various observation and measurement tools, interpretation of obtained data comparing with criteria that are pointers of the effectiveness of the program and decision-making process about the effectiveness of the program (Erden, 1998). Program evaluation is the final and supplementary circle of the curriculum development process. Due to curriculums require the quality control, determining whether the educational activities serve its purposes, or lead to undesirable results and waste of energy during activities is possible with continuous assessment. Assessment is an indispensable process allowing the program and education to be restorative (Ertürk, 1998).

Teachers who are practitioners of the curriculum have a very active role in the program development, evaluation and implementation process. Knuth (2002) highlighted that views and beliefs of teachers play an important role while reforming the curriculum of the courses such as math. According to Handal and Herrington (2003), the curriculum developed taking the opinions and beliefs of teachers into account are more successful. As the teachers are the practitioners of the program, their opinions are of great importance to implement the program smoothly and effectively and to perform objectives of the program. The study of Koca (199) also confirms this by indicating that teachers' needs and opinions should be taken while developing the program. When examining the literature many studies for evaluation can be seen. Taşçı (2004), Bolat-Soycan (2006), Batdal (2006), Halat (2007), Akça (2007), Aksu (2008), Bal (2008), Yıldırım (2009), Duru and Korkmaz (2010), Çelen (2011), Budak and Okur (2012), Bal and Dinç-Artut (2013), Özdal and Karataş (2015), some of which aimed to evaluate programs at primary education level, can be given from these studies. Following studies about the curriculum implemented in high schools draw the attention.

İnan (2006) investigated whether there is a significant difference between opinions of teachers about the ninth grade math curriculum issued in 2005 in terms of seniority, educational level, and type of schools they work. The study was carried out with 95 math teachers in the survey model in the province of Istanbul. In the study, no significant difference was observed between opinions of teachers for the ninth grade math curriculum issued in 2005 by school types and seniorities of teachers, but there were significant differences in some sub-dimensions by education levels and this difference is in favor of teachers who received master's degrees. Yurday (2006) carried out a study to investigate the effect of teachers' beliefs on perceptions of the new math curriculum. The study was conducted with four math teachers in a high school in the province of Trabzon. According to the research results, teachers have traditional beliefs about the nature of math and teaching and learning math and they perceive foresights in the new curriculum different with the influence of these beliefs. According to research results related to assessment and evaluation, teachers perceive assessment and evaluation proposed by the new curriculum in the form of evaluating given assignments and projects as scores, unlike to former. Bulut (2006) investigated whether math teachers of competences differ by seniority, school types, and educational level for traditional and alternative assessment placed in assessment dimension of the ninth grade math course curriculum in 2005. The study was conducted with 2668 math teachers in secondary schools in 21 districts within the European side of the province of İstanbul. According to research results, while competencies of teachers for the traditional assessment remain unchanged by school types, significant differences were observed in competencies for alternative assessment by school types.

When examining the related literature, a great number of studies related to curriculums can be seen apart from the above studies. It can be seen that many of these studies are related to updated programs in 2005 or 2008 (Cansız-Aktaş 2008; Kutluca and Aydın 2010; Konur and Atlıhan 2012; Merter and Şan 2012; Cansız-Aktaş and Baki 2012; Batdı 2014). Limited studies are available for the updated program in 2013.

Çiftçi and Tatar (2015) conducted a study to determine opinions of secondary education math teachers for the math curriculum. The study was carried out with 9 teachers working in different cities. Research results indicated that teachers are positive for the new program that decreases the intensity of the subjects and regulate the gains but they criticized removal of some subjects and adoption of readiness levels of students. Dikbayır and Bümen (2016) studied commitment to the curriculum in ninth grade math course with three teachers from three different types of high schools in terms of compliance and participant reactions. The study concluded that features of students, curriculums, teachers and institutions along with the centralized education system are determinative in commitment of teachers to the curriculum in which teacher-centered education is carried out.

The new math curriculum put into practice with 2013-2014 education term has been implemented gradually in our country. The curriculum will complete the final phase by applying into the twelfth grade in the 2016-2017-education term. As the program is new, studies on this topic in the literature are limited with the two studies above and there is a gap here in this case. In addition, it can be seen that the program has not been evaluated in terms of its overall framework and scope in the aforementioned studies. This study aimed to contribute filling this niche in the literature.

In the study, it was aimed to evaluate gains, teaching and learning, the content and assessment items of the new secondary education math curriculum in detail in accordance with opinions of math teachers in high schools and students taking this course. The study is original in terms of discussing all aspects of the curriculum in-depth. Besides, no studies in which the program was evaluated based on views of students who are direct payers of the program were come across in the literature. This study differs from other studies in this respect.

Purpose of the Study

It was aimed to evaluate views of math teachers and students for the new secondary education math curriculum issued since 2013. The following questions were asked in this regard:

1. What are the views of math teachers in high schools for the new secondary education math course curriculum?
2. What are the views of high school students for the new secondary education math course curriculum?
3. Is there a significant difference between views of high school math teachers for the new secondary education math course curriculum and different variables?
4. Is there a significant difference between views of high school students for the new secondary education math course curriculum and different variables?

METHODOLOGY

The study was structured in the survey model based on the quantitative research design. Survey models are research approaches aiming to describe past or current situations as they are. Events, individuals or objects subject to the research are tried to be described in their own terms and as they are (Karasar, 2005). The study population consisted of high schools associated by the Ministry of Education.

Study Group

The easily accessible sampling method from purposive sampling methods was adopted in forming the study group of this research. The sample consisted of 64 math teachers from 20 high schools and 2000 students studying in these schools in the center of Karaman city.
Demographic information of math teachers participating in the study is given Table 1.

Table 1. Demographic features of math teachers participating in the study.

Independent Variables	Groups	f (frequency)	% (percentage)
Gender	Female	30	46.9
	Male	34	53.1
Terms of Office	1-5	15	23.4
	6-10	10	15.6
	11-15	8	12.5
	15-20	18	28.1
	21 and over	13	20.3
Classes	9th Grade	17	26.6
	10th Grade	32	50
	11th Grade	10	15.6
	12th Grade	5	7.8
Receiving In-Service Training	Yes	14	21.9
	No	50	78.1
Graduated Faculty	Science	35	54.7
	Education	29	45.3
Total		**64**	**100**

It is seen in the Table 1 that 30 (46.9%) participants are female and 34 (53.1%) participants are male. When participants' terms of office were examined, it is observed that participants fall intensely in the range of 15-20 years (28.1%). While 17 (26.6%) participants teach in 9th grade, 32 (50%) participants teach in 10th grade, 10 of them (15.6%) teach in 11th grade and 5 (7.8%) participants teach in 12th grade. While 14 (21.9%) participants received in-service training, 50 (78.1%) participants did not. 35 (54.7%) participants graduated from Science Faculty and 29 (45.3%) participants graduated from Education Faculty.

Demographic information of students participating in the study is given Table 2.

Table 2. Demographic Features of Students Participating in the Study

Independent Variables	Groups	f (frequency)	% (percentage)
Gender	Female	988	49.4
	Male	1012	50.6
School Type	Science	179	9,0
	Anatolian.	973	48,7
	Social Science	128	6,4
	Vocational	720	36,0
Grades	9th Grade	555	27,8
	10th Grade	630	31,5
	11th Grade	539	27,0
	12th Grade	276	13,8
Enthusiasm for Math	Yes	1217	60.9
	No	783	39.2
Total		**2000**	**100**

It is seen in Table 2 that 988 (49.4%) students are female and 1012 (50.6%) students are male. While 179 (9%) students study in Science high school, 973 (48.7%) students study in Anatolian high school, 128 (6.4%) students study in Social Science high school and 630 (31.5%) students study in Vocational high school. While 555 (27.8%) students in 9th grade, 630 (31.5%) students in 10th grade, 539 (27%) students in 11th grade and 276 (13.8%) students in 12th grade. While 1217 (60.9%) students indicated enthusiasm for math, 783 (39.2%) did not.

Development and Implementation of the Data Collection Instrument

Development of Teacher Surveys

The survey entitled " Views of High School Math Teachers for the New Math Curriculum", which is one of the quantitative data collection tools of the research, consists of 5 sections. The survey questions were developed by the researchers and finalized with the opinions of 2 expert academics in the measurement field and 2 math teachers. Validity and Reliability of the study was conducted with the pilot study. The draft scale was applied to 50 participants in the pilot study and "exploratory factor analysis" was applied for the structure validity in accordance with the obtained data.

Table 3. KMO and Barlett's Test Results of Survey Items

Kaiser-Mayer-Olkin (KMO) Measure of Sampling Adequacy		.63
Bartlett's Test	Chi-Square	1148,967
	Sd	120
	Sig.	.000

p<0.01

Minimum .60 KMO value is sufficient to perform the factor analysis on data (Pallant, 2007). Items' loading values are considered to be at least .30 in determining items of the scale in the explanatory factor analysis (Büyüköztürk, 2009). Besides 25 degrees "varimax" axis rotation was made in the construct validity. The reliability of the scale was examined by the internal consistency coefficient. According to analysis results, items that ensured the construct validity were included in the final scale. The scale consists of 5 sections. The first section includes personal information. The second section includes questions about the program gains and the Cronbach alpha reliability coefficient was calculated as .84. Gains section formed of 2 sub-dimensions and while 1,2,6,13,15,16th questions are measuring "relevancy of gains to the program objectives", 3,5,7,11,12,14th questions measure "relevancy of gains to students' levels". Item factor sub-score was limited to .50 and 4,8,9, and 10th questions were removed in this case. The third section includes questions for the program content and the Cronbach alpha reliability coefficient was calculated as .77. The content section formed of 2 sub-dimensions and while 1,2,3,9,11,15,16,17,18,19th questions are measuring "relevancy of the content to students' levels", 5,6,8,12,13,20,21,23rd questions measure "relevancy of the content to the program objectives". Item factor sub-score was limited to .50 and 10, 14,22 and 24th questions were removed in this case. The fourth section includes questions for the teaching and learning processes and the Cronbach alpha reliability coefficient was calculated as .82. The teaching-learning section formed of a single dimension. This 14-item section was limited with Item factor sub-score of .50 and 4, 5,6,7, and 12th questions were removed. The fifth section includes questions for the assessment process of the program and the Cronbach alpha reliability coefficient was calculated as .78. The evaluation section formed of a single dimension. This 11-item section was limited with Item factor sub-score of .50 and 6,8, and 9th questions were removed for this reason. The Cronbach alpha internal consistency coefficient of the scale was above .70, which suggests that the scale is reliable (Field, 2005).

Table 4. Factor Distributions and Loadings with Varimax Rotation of Items in the Teacher Scale

Section	Qs	Load. Val.	Section	Qs	Load Val.	Section	Qs	Load. Val.	Section	Qs	Load. Val.
Gains	Q1	80	Content	Q1	.46	Teaching-Learning	Q1	.58	Evaluation	Q1	.71
	Q2	.74		Q2	.71		Q2	.77		Q2	.63
	Q3	.77		Q3	.61.		Q3	.50		Q3	.60
	Q5	.58		Q5	.54		Q8	.71		Q4	.68
	Q6	.63		Q6	.56		Q9	.77		Q5	.60
	Q7	.78		Q8	.66		Q10	.68		Q7	.61
	Q12	.50		Q9	.61		Q11	.55		Q10	.71
	Q13	.73		Q11	.54		Q13	.66		Q11	.63
	Q14	.65		Q12	.50		Q14	.70			
	Q15	.72		Q13	.58						
	Q11	.50		Q15	.62						
	Q16	.67		Q16	.78						
				Q17	.80						
				Q18	.56						
				Q19	.58						

Factor loading distribution of items ranged from .50 to .80. It was suggested that the factor loading value needs to be above .30 and the difference between two high loading values needs to be at least .10 (Çokluk et al., 2010).

Development of Students' Surveys

Another quantitative data instrument of the research is the survey entitled "Opinions of High School Students for the New Math Curriculum". The survey developed by the researchers consists of 2 sections. The survey was finalized with the opinions of 2 expert academics in the measurement field and 2 math teachers. Reliability and Validity of the scale was conducted with the pilot study. The draft scale was applied to 250 participants and "explanatory factor analysis" was applied for the construct validity in accordance with obtained data. First, KMO and Bartlett's Test values were examined in order to perform the factor analysis.

Table 5. KMO and Barlett's Test Results of Survey Items

Kaiser-Mayer-Olkin (KMO) Measure of Sampling Adequacy		.84
Bartlett's Test	Chi-Square	2358.692
	Sd	28
	Sig.	.000

p<0.01

KMO value of the survey is .82 and the value of Barlett's test is .00, which means that factor analyses of survey items can be performed (Büyüköztürk, 2009). The second section of the survey includes opinions of students for the new math curriculum. The Cronbach alpha reliability coefficient of this section was calculated as .70. Items below .40 were removed from the survey and reduced to 8 questions in the factor analysis done for the validity.

Table 6. Factor Distributions and Loadings with Varimax Rotations of Items in the Student Survey

Questions	Load. Values	Questions	Load. Values
Q1	.65	Q8	.46
Q3	.65	Q10	.40
Q4	.49	Q12	.63
Q6	.41	Q13	.63

As seen in Table 6, factor loading distributions of items ranged from .40 to .80.

Data Analysis

Data obtained in this study were analysed with SPSS 16.0 packet programme. First the normality test was performed to determine whether the date is normally distributed. When examining differences in the scores of scales between groups, it is necessary to determine whether scale scores are normally distributed in each group separately. While results of Kolmogorov-Smirnov test (a) were considered in the variables with sample greater than 50, results of Shapiro-Wilk test were considered in the variables with sample smaller than 50. In this regard, Kalmogorov-Smirnov (a) test results were considered (Büyüköztürk, 2009).

Table 7. Normality Test Results for Dimension and Sub-Dimensions of Opinions of Teachers and Students for the New Math Curriculum Scale

	Kolmogorov-Smirnov Statistics	**sd**	**p**
Teacher Survey			
Relevancy of Gains to Program Objectives Sub Dimension	.266	64	.00
Relevancy of Gains to Levels of Students Sub Dimension	.169	64	.00
Relevancy of the Content to Program Objectives Sub Dimension	.142	64	.00
Relevancy of the Content to Levels of Students Sub Dimensions	.109	64	.04
Teaching and Learning Dimension	.077	64	.20*
Assessment Dimension	.124	64	.01
Student Survey			
Evaluation of the Curriculum	.088	2000	.00

*p>.05, sd: Number of Participants, p: Significance value

When Table 7 was examined, it is seen that normality test results of two sub dimension scores of gain section of the teacher scale were not normally distributed by groups (p<.05). In the case of P<.05, it is indicated that the related variable did not come from the normal distribution (Can, 2016). Similarly, dimension and sub dimensions of the content and evaluation sections were not normally distributed (p<.05). Teaching-learning dimension of the scale is normally distributed (p>.05). To apply a parametric test to a variable, the variable examined for normality should be normally distributed in each group. Analyses were performed with the Mann Witney U test from non-parametric tests for gains, the content and assessment dimensions and sub-dimensions of the scale. T-test and one way ANOVA from parametric tests were performed for the teaching-learning dimension. It is also seen that normality test results of the program evaluation dimension scores were not normally distributed in the student survey ($p<.05$). In determining mean, the range of 1.00 - 1.64 indicates, "disagree", 1.65 – 2.29 indicates "not sure" and 2.30 – 3.00 indicates, "agree". The significance level was taken as .01.

FINDINGS

In this section, the findings obtained for the purposes of the study and their interpretations were given. In this context; while opinions of teachers for the new math curriculum were being evaluated, whether dimension and sub-dimensions of four components of the curriculum differ in terms of variables such as gender, classes, graduated school of teachers were examined.

In addition, views of the students were evaluated and whether these views differ in terms of variables such as gender, school type and enthusiasm for math.

Table 8. Descriptive Data for Dimensions of the Views of Teachers and Students for the Math Curriculum Survey

	N	$\bar{X}$	ss
Teacher Survey			
Relevancy of Gains to Program Objectives Sub-Dimension	64	**2.43**	3.71
Relevancy of Gains to Students' Level Sub-Dimension	64	**1.17**	2.68
Relevancy of the Content to Program Objectives Sub-Dimension	64	1.67	5.58
Relevancy of the Content to Students' Level Sub-Dimension	64	2.01	4.17
Teaching Learning Dimension	64	1.90	5.41
Assessment Dimension	64	1.97	4.57
Student Survey			
Relevancy of the Curriculum to Program Objectives	1871	1.96	3.19

As seen in Table 8, it was emerged from the opinions of teachers that gains were relevant to program objectives, but gains were not relevant to students' level. In addition, teachers were not sure about the content of the program, teaching-learning and assessment dimensions. Students participated in the study were also not sure about the evaluation of the curriculum.

Opinions of Teachers participated in the Study for the New Math Curriculum

Table 9. Items that Have Highest Means in the Gain Dimension of the Math Curriculum

Items for Gains	**Agree**		**Not Sure**		**Disagree**		**Mean**
	(f)	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**	**($\bar{X}$)**
1.Targeted gains are clear and understandable.	48	75	6	9.4	10	15.6	2.59
13.Gains are consistent.	45	70.3	8	12.5	11	17.2	2.53
14. Gains are in accordance with students' level.	26	40.6	4	6.3	34	53.1	1.87
16. Gains were formed in accordance with the general objectives of the program.	40	62.5	9	14.1	15	23.4	2.39

As seen in Table 9, 48 (75%) of 64 math teachers indicated that gains are clear and understandable, 44 (68.8%) math teachers indicated that gains are in accordance with students' level, 45 (70.3%) math teachers indicated that gains are coherent and 40 (62.5%) teachers indicated that gains are relevant for the general objectives of the program for gains.

Table 10. Items that Have Highest Means in the Content Dimension of the Math Curriculum

Items for the Content	**Agree**		**Not Sure**		**Disagree**		**Mean**
	(f)	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**	**($\bar{X}$)**
2.Concrete examples are given in the curriculum.	26	40.6	9	14.1	29	45.3	1.95
5.Gains in the curriculum are consistent with the content.	44	68.8	7	10.9	13	20.3	2.48
8. The program content is understandable by teachers and students.	31	48.4	9	14.1	24	37.5	1.89
18. The content enables students to develop alternative solution methods for the problems.	34	53.1	8	12.5	22	34.4	1.81

As seen in Table 10, 29 (45.3%) teachers of 64 math teachers participated in the study indicated that concrete examples were not given in the program content, 44 (68.8%) teachers indicated that the content is consistent with gains, 31 (48.4%) teachers indicated that the program content is understandable by teachers and students and 34 (53.1%) teachers indicated that the program content allows students to develop alternative solutions for the problems for the content.

Table 11. Items that Have Highest Means Teaching – Learning Dimension of the New Math Curriculum

Items for Teaching – Learning	**Agree**		**Not Sure**		**Disagree**		**Mean**
	(f)	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**	**($\bar{X}$)**
1. The program aimed students to participate actively in the courses.	27	42.2	7	10.9	30	46.9	1.95
2. Teaching – Learning activities in the Program are clear and understandable.	33	51.6	7	10.9	24	37.5	2.14
9. Teaching – Learning process in the program is leading for teachers in teaching the course.	32	50	5	7.8	27	42.2	2.07
10. Teaching – Learning process in the program is consistent with targeted gains.	31	48.4	14	21.9	19	29.7	2.18

As seen in Table 11, 30 (46.9%) teachers of 64 math teachers indicated that the program did not aim students to participate actively in the class, 33 (51.6%) teachers indicated that teaching – learning activities in the program is clear and understandable, 32 (50%) teachers indicated that teaching – learning process in the program is leading for teachers for teaching the class and 31 (48.4%) teachers indicated that teaching – learning process in the program is consistent with the targeted gains for the teaching – learning dimension.

Table 12. Items that Have Highest Means in the Evaluation Dimension of the New Math Curriculum

Items for Assessment	**Agree**		**Not Sure**		**Disagree**		**Mean**
	(f)	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**	$(\bar{X})$
1. The Assessment is guiding teachers on how to follow a path after the assessment and evaluation process.	32	50	11	17.2	21	32.8	2.17
5. A Variety of assessment and evaluation techniques are available in the program.	33	51.6	9	14.1	22	34.4	2.17
7. Teachers are capable of preparing different assessment techniques.	35	54.2	11	17.2	18	28.1	2.26
10. The Proposed assessment processes are understandable and clearly expressed.	35	54.2	11	17.2	18	28.1	2.26

As seen in Table 12, 32 (50%) teachers of 64 math teachers participated in the study indicated that the assessment is guiding teachers on how to follow a path after the assessment and evaluation process, 33 (51.6%) teachers indicated that various assessment and evaluation techniques are available in the program, 35 (54.2%) teachers indicated that teachers are capable of preparing different assessment and evaluation techniques and 35 (54.2%) teachers indicated that the proposed assessment and evaluation techniques are clear and understandable for the assessment dimension of the curriculum.

Opinions of Students Participated in the Study for the New Math Curriculum
Items that have highest means in the student survey are given in Table 13.

Table 13. Items that Have Highest Means in the Dimension of the Relevancy of the New Math Curriculum to Program

Items	**Agrees**		**Not Sure**		**Disagree**		**Mean**
	(f)	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**	$(\bar{X})$
12. Assessment techniques applied by our teacher are appropriate to assess students.	482	24.1	836	41.8	671	33.6	2.09
6.Topics we learned are detached from everyday life.	629	31.5	789	39.5	573	28.7	1.97
8.We are just listening to when teachers explaining the topics.	528	26.4	639	32	820	41	2.14
13. I am having difficulty in learning math, as there are not enough activities.	515	25.8	855	42.8	579	29	2.03

As seen in Table 13, 629 (31.5%) students of 2000 students participated in the study indicated that topics in the program are detached from the everyday life, 789 (39.5%) students are not sure. 820 (41%) students indicated that they are not listening to their teachers. While 826 (41.8%) indicated that they are not sure about the relevancy of assessment and evaluation techniques of the program teachers applied to assess themselves, 671 (33.6%) stated they are appropriate. In addition, 855 (42.8%) students indicated that they are not sure if they have difficulties in learning math, as there are not enough activities in the math class, 579 (29%) stated they do.

Opinions of Teachers for Components of the Curriculum by Different Variables
Analysis results that indicate significance of opinions of participants for gains dimension of the math curriculum by gender dimension were given in Table 14.

Table 14. Mann Witney U – Test for Gain Sub-dimension of the Survey by Graduation Type of Teachers participated in the Study

	Graduation	N	Rank Mean	Sum of Rank	Z	U	p
Relevancy of the Program to its Objectives	Education	35	29.74	1041	-1.32	411	.18
	Science	29	35.83	1039			
	Total	64					
Relevancy to Students' Level	Education	35	36.73	1285.5	-2.02	359	.04
	Science	29	27.40	794.5			
	Total	64					

As seen in Table 14, a significant correlation was observed between relevancy of gains to students' levels and graduate of education faculty (p<0.05). This relation is in favor of graduate of education faculty.
Analysis results that demonstrate significance of opinions of participants for the content dimension of the new math curriculum with the term of office factor were given in Table 15.

Table 15. Kruskal Wallis H Test for Sub-dimension of the Survey by Term of Office of Teachers participated in the Study

	Term of Service	N	Rank Mean	sd	X^2	p
Relevancy of the Content to Students' Levels	1-5	15	31,20	4	8.40	.07
	6-10	10	35,60			
	11-15	8	33,94			
	15-20	18	23,78			
	21 and over	13	42,81			
	Total	64				
Relevancy of the Content to Program Objectives	1-5	15	41,00	4	6.93	.13
	6-10	10	35,60			
	11-15	8	27,75			
	15-20	18	25,00			
	21 and over	13	33,62			
	Total	64				

As seen in Table 16, no significant correlation was observed between term of service of teachers participated in the study and the content section of the survey (p>0.05). Analysis results that demonstrate significance of opinions of participants for the teaching and learning dimension of the new math curriculum were given in Table 16.

Table 16. One Way ANOVA Results for the Teaching and Learning Dimension of the Curriculum by Classes Teachers Teach

	Variance Source	Sum of Squares	sd	Mean of Squares	f	p
Teaching – Learning Dimension	Intergroup	88.83	3	59.05	1.009	.395
	Groups within	1760.91	60	58.86		
	Total	1840.75	63			

As seen in Table 16, no significant difference was observed between scores of opinions of teachers for teaching - and learning by classes they teach (F(3,60)=1,009; p>.05). Analysis results that demonstrate significance of opinions of participants for gains dimension of the new math curriculum by graduation factor were given in Table 17.

Table 17. Mann Witney U – Test for Evaluation Dimension of the Curriculum by Gender of Teachers participated in the Study

	Gender	**N**	**Rank Mean**	**Sum of Rank**	**Z**	**U**	**p**
Relevancy of Program to Program Objectives	Female	30	33.73	1012	-.50	473	.61
	Male	34	31.41	1068			
	Total	64					

As seen in Table 17, no significant correlation was observed between genders of teachers participated in the study and total scores of evaluation dimension of the program (p>0.05).

Opinions of Students for the Curriculum Components by Different Variables

Analysis results that demonstrate significance of opinions of participants for the new math curriculum by the gender factor were given in Table 18.

Table 18. Mann Witney U – Test for Relevancy of Program to Program Objectives by Genders of Students participated in the Study

	Gender	**N**	**Rank Mean**	**Sum of Rank**	**Z**	**U**	**p**
Relevancy of the Program to its Objectives	Female	988	1015.65	1003465	-1.16	484956	.24
	Male	1012	985.71	997534			
	Total	2000					

As seen in Table 18, no statistical significant correlation was observed between genders of students participated in the study and relevancy of the program to its objectives (p>0.05).

Analysis results that demonstrate significance of relevancy of math curriculum to its objectives and participants' enthusiasms for math were given in Table 19.

Table 19. Mann Witney U – Test for Opinions of Students for Relevancy of Program Objectives by Students' Enthusiasms for Math

	Enthusiasm for Math	**N**	**Rank Mean**	**Sum of Rank**	**Z**	**U**	**p**
Relevancy of Program to its Objectives	Yes	1217	842.87	1025778	-15.28	284625	.00*
	No	783	1245.49	975221			
	Total	2000					

p<0.05

As seen in Table 19, a statistical significant correlation was observed between students' enthusiasms for math and their opinions for relevancy of the program to its objectives (p<0.05). This relation is in favour of students who do not have enthusiasms for math.

Analysis results that demonstrate significance of relevancy of the program to its objectives by school types of participants were given in Table 20.

Table 20. Kruskal Wallis H Test for Relevancy of Program to its Objectives by School Types of Students

	School Types	N	Rank Mean	Sd	X^2	p
Relevancy of Program to its Objectives	Science High School	179	1174,03	3	49.07	.00*
	Anatolian High School	973	1036,46			
	Social Science High School	128	1093,86			
	Vocational High School	720	892,16			
	Total	2000				

*p<0.05

As seen in Table 20, a statistical significant correlation was observed between school types of students participated in the study and total scores of students' opinions for relevancy of program to its objectives. Mann Witney U test was performed to find out the direction of this relation. According to this, there was significance in favour of Science high school between students of Science high school and Anatolian high school (Science High School Mean = 640.87> Anatolian High School Mean= 564.66), in favour of Science high school between students of Science high school and Vocational high school (Science High School Mean = 554.72> Vocational High School Mean= 423.97), in favour of Anatolian high school between students of Anatolian high school and Vocational high school (Anatolian High School Mean = 898.48> Vocational High School Mean= 777.43), in favour of Social Science high school between students of Social Sciene high school and Vocational high school (Social Science High School Mean = 496.14> Vocational High School Mean= 411.76).

CONCLUSION

The new secondary education math curriculum issued in 2013-2014 education period will be fully implemented in 2016-2017 education period at all class levels. Therefore studies on the new secondary education math curriculum are limited in the literature. The emerging picture that aimed to evaluate gains, teaching – learning, content and assessment components of the new math curriculum being implemented in high schools in line with the views of teachers and students as follows:

Math teachers in high schools stated about the new secondary education math curriculum that gains are clear, understandable and coherent, but they are not appropriate for the students' levels. This finding is in line with the study results of Çiftçi and Tatar (2015), which determined views of secondary education math teachers for the math curriculum. Çiftçi and Tatar (2015) reported that teachers benefited the planning of gains, but they criticized removal of some topics and the adoption of readiness levels of students. Teachers participated in the study expressed that the content of the program in consistent with the gains and the content is understandable but concrete examples were not provided. Teachers stated for the teaching – learning process of the program that teaching –learning process is guiding teachers in teaching the course, but students remain passive in activities in the program. Dikbayır and Bümen (2016) reached the conclusion that math teachers make changes in the program according to the students' levels and students have difficulties in establishing links between math and everyday life. This finding is in line with views of teachers for the content and the teaching and learning process of the program. In addition, teachers participated in the study highlighted that assessment and evaluation techniques were included in the program and these techniques are clear and understandable. Erturk (1998) stated that the evaluation process of a program is an indispensable process allowing the program and education to be restorative.

Students studying in high schools participated in the study expressed that topics in the new math curriculum were detached from the everyday life, assessment and evaluation techniques in the program and applied by teachers were not appropriate for themselves and not enough activities were included in the program. This emerging finding is in line with studies of Çiftçi et al. (2013), Merter and Şan (2012) and Bal (2008).

Considering the significance between opinions of teachers in the study and different variables, a significant difference was observed between views of them for relevancy of gains to students' levels by school types teachers graduated and it was determined that this significance is in favor of education faculty graduates. Besides, no significant difference was observed between views of teachers for the program content by terms of office. This finding is in parallel with the studies of Merter and Şan (2012), Karagülle (1998), Yapıcı and Leblebiciler (2007), Acat and Demir (2007) and Aydın (2005). No significant difference was also observed between views of teachers teaching – learning process by classes in which teachers teach. Similarly, no significant difference was found between views of teachers for the evaluation process by gender factor. No significant correlation was found between genders of students participated in the study and relevancy of the program to its objectives. However, a significant difference was identified between students' enthusiasms for math and relevancy of the program to its objectives. This significance is in favor of students who dislike math. A significant difference was determined school types of students participated in the study and views of them for relevancy of the program to its objectives. This significance is in favor of Science and Anatolian high schools. This finding indicates that students studying in Science and Anatolian high schools are more sensitive towards the curriculum.

In the study, opinions of teachers and students were received for the new secondary education math curriculum and it is considered that the findings emerged would contribute to the literature. This is because; it is less likely to encounter studies for the program in the literature due to the implementation of the program in all classes was just completed. In this context, the study is original in the field. It is considered that the obtained results are important to shed light on new programs planned to be implemented in the future.

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Evolving Interest In Using An Informal Learning Space For Formal Teaching

Alan L. STEELE
Director of the Discovery Centre for Undergraduate Research and Student Engagement
Office of the Provost and Vice President (Academic)
Carleton University Canada

Cheryl SCHRAMM
Interim Director of the Discovery Centre for Undergraduate Research and Student Engagement
Office of the Provost and Vice President (Academic)
Carleton University, Canada

Peter RICKETTS
Provost and Vice President (Academic)
Carleton University, Canada

ABSTRACT

An informal learning space in the Carleton University's MacOdrum Library was envisioned out of the academic plan, and then designed and implemented. The space, the Discovery Centre, consists of a large single open space, with three rooms off from this space: a gaming lab, a multimedia lab and a learning lab. The Centre contains furniture that is moveable and has integrated technology, so that the combination facilitates both group and independent study. Although designed for informal learning and study, some instructors have recognized the potential of the space and have conducted formal teaching there. The uses have included office hours, project meetings, poster sessions, project demonstrations and class teaching. Open comments were sought from instructors on why and how they are using the Centre for teaching. Key factors such as the flexible and reconfigurable furniture, the state-of-the-art technology, and the ease of having students conduct group work were identified in interviews as important. Although similar to active learning classrooms, the Centre is fundamentally different in that it is open study space and students who are not in the course and are studying close-by or walking past can observe the class whilst it is in progress.

Keywords: informal learning space, formal learning, high impact practices, active learning, innovative teaching

INTRODUCTION

The rise of electronic information encouraged the start of the creation of the information commons in university libraries in the early 1990s (Beagle, et al., 2006, Forrest, & Halbert, 2009). These spaces in libraries allowed the access of digital information through CD-ROMs and the Internet, as well as providing tools for processing information, for example word processors, spreadsheets and printing facilities. Furthermore, the growth in the availability of spatial data, the digitization of maps, and the development of user-friendly geographic information systems (GIS), resulted in library map collections being converted into spatial data centres. Over the next decade there was a move in some centres towards providing learning support services in addition to the access to digital information and analytical technology. These spaces were often called learning commons (Accardi, et al., 2010), indicating the broader range of involvement than just data and information processing. Now a student could find in a university library not only books and journals in printed form, but also access to electronically sourced information and data, as well as computing facilities to help with processing and displaying the information and support services in areas such as writing services and other study skills.

Over time and as technology became more readily accessible, especially through wireless routes, students started to bring their own computing technology to university, first with laptop computers and then with mobile devices such as smartphones and tablets. The easier and wider access to electronic information allowed opportunities to once again revisit the space within the university libraries, as books and journals could be digitized and replaced by electronic databases, thus reducing the need for shelves and stacks and freeing up that space for other uses. The learning commons model could now be broadened to provide more space for both individual and group work activity. Learning between a number of individuals could be encouraged through furniture that helped groups of students to work together, while still accommodating individuals who wanted to work on their own. Space no longer needed to focus on providing banks of desktop computers as many students had their own portable devices or libraries offered laptop loans. Instead more flexible study space could be provided. This type of flexible learning space can be termed as informal learning space. *Informal* in this case is used to indicate that it is not planned to be used for scheduled teaching. As Jamieson, 2013 states "'Informal' learning … can be viewed as a student-driven course or programme-based study which occurs outside the classroom (or in class-rooms out-of-class hours) with no direct teacher involvement." Eraut, 2000 gives a "broad definition of formal learning" as being learning involving one of the following:

- "a prescribed learning framework
- an organised learning event or package
- the presence of a designated teacher or trainer
- the award of a qualification or credit
- the external specification of outcomes" (Eraut, 2000, p114)

Therefore we can view formal learning as where there is a scheduled meeting and interaction of an instructor and a student, for example a scheduled class, laboratory or seminar. Conversely, anywhere that students can study outside of class time and without an instructor can be viewed as an informal learning space.

At Carleton University in Ottawa, Canada, the first move towards a digital information centre was the establishment of the Maps, Data, and Government Information Centre (MADGIC) in the MacOdrum Library (Carleton University, 2016b) in 1996. MADGIC resulted from the amalgamation of the Map Library, the Government Documents Department, and the Data Centre; and it was the first move towards combining public service and technical service activities. In 2005 a Learning Commons was created which brought together electronic library resources, student learning support services, and computer and technical assistance in order to support students in the learning process. The Learning Commons is still in operation today, although greatly expanded from its original size. Then in 2011, a partnership between the Office of the Provost and Vice-President (Academic) and the Library resulted in the creation of an entirely new kind of learning space in the library to support student engagement and success. This new space was inspired by the Carleton Academic Plan, which placed an emphasis upon student-centred learning through critical and creative inquiry.

CARLETON ACADEMIC PLAN

In June, 2010 the Academic Senate of Carleton University approved the University's first academic plan. the Carleton Academic Plan (CAP) was developed through the Office of the Provost and Vice-President (Academic) and involved extensive consultation across the university. The CAP was founded upon some key academic values that are embedded within the culture of the institution, namely that research and teaching comprise integrated endeavours that together inspire faculty and students to great achievements; that academic programs must be intellectually stimulating and challenging, promoting rigorous academic standards and seeking continuous improvement; that, as Canada's Capital University, Carleton is rooted in and shaped by its regional community and is committed to enhancing and influencing the intellectual, economic, social, and cultural capacity and development of the National Capital Region; and that through its global perspective and initiatives, Carleton is also committed to serving communities throughout Ontario, Canada and the world.

One of the central goals of the CAP was to improve the student academic learning experience through a focus on critical and creative inquiry. While inquiry-based learning is a given at the graduate level, it is less prevalent at the undergraduate level, especially in the early years of an undergraduate student's experience. Pedagogical practices that promote critical and creative inquiry take on many forms, but for the purpose of the CAP, the institutional approach was centred around the promotion of four pillars: undergraduate research, international learning experiences, experiential learning (including workplace and community service learning), and immersive learning. These are all well recognized high-impact practices (Kuh, et al., 2008) that take students out of the traditional teaching environment and stretch their intellectual capabilities in different and creative ways. Through the use of high impact teaching practices, students become actively involved in their learning, hence the notion of delving deeper into the learning experience than is the case with some more traditional forms of teaching. The result can be greater student engagement and satisfaction, and consequently better retention rates and increased student success. Deep-level approaches have been shown to produce positive results in student learning:

"In contrast to surface-level learning, deep-level processing emphasizes both acquiring information and understanding the underlying meaning of the information. Deep approaches to learning are important because students who use these approaches tend to earn higher grades, and retain, integrate and transfer information at higher rates." (NSSE, 2007, p.13)

The aim of the critical and creative inquiry initiative was to create the support for building into the undergraduate experience a culture of active learning within a modern, innovative learning environment that would reflect the needs and realities of the twenty-first century. The concept of providing a physical space was to link the four pillars of the critical and creative inquiry initiative to another high-impact practice through the promotion of learning communities. While learning communities are typically related to linked courses in which groups of students study together (Brownell, & Swaner, 2010, 13-14), the creation of a space to encourage group and team work was seen as a way to encourage the development of informal learning communities, with the goal of increasing student engagement and success.

In 2011, a government infrastructure program provided funding for a significant expansion and renovation of the MacOdrum Library, and with it the opportunity to use a substantial part of the expansion to create a physical space for the promotion of the critical and creative inquiry initiative. The idea was to go beyond the typical learning commons and create a flexible space that could be used by students to engage in a variety of new and innovative learning experiences. The space would become the flagship of the critical and creative inquiry initiative, providing a physical centre to promote undergraduate engagement in the four pillars and new opportunities for student engagement in deep-level learning experiences. This space would become the social and academic hub for the new library and indeed for the entire campus. Within this space, students would engage in collaborative learning, using state-of-the-art technology, to discover their potential as critical and creative learners. Through this idea, the reality of the Discovery Centre was born.

THE DISCOVERY CENTRE

The Discovery Centre (Carleton University, 2016a) is located in the new fourth floor extension of the MacOdrum Library at Carleton University and operates through a partnership between the Library and the Office of the Provost and Vice President (Academic). The aim of the Discovery Centre was to provide a space where students could work and study in a stimulating environment. That work could be conducted alone or in groups, and if it was the latter the space would allow for talking and interaction between members of the group. Thus, it was not to be designated as quiet space and it was also agreed with the University Librarian that cellphones could be used within the Centre, as up to then if a patron wanted to make a phone call the would have had to move to the Library stairwells so as not to disturb other users. The reason for allowing the use of cellphones was that if group work was to be permitted and encouraged, then cellphones could be a legitimate way for a group member to be included in the group work even if they were not physically present. Furthermore, as smartphones are increasingly used by students as replacements for regular computers, it is necessary for them to be able to use those devices to access apps, social media, and other sources of information and communication during their work.

The Discovery Centre comprises approximately 650 m^2 of open space with three rooms directly connected to the main space. Each of these rooms has a particular role. The Gaming Lab has two gaming stations each with the current popular gaming consoles (PlayStation 4®, Xbox One® and Wii U™), as well as a gaming computer and related game controllers, including virtual reality headsets. Also in the room are three 3D printers and a 3D scanner to provide the ability of students to create real objects whether linked to gaming or other project. The glass walls of the Gaming Lab provide good views of the printers in operation and the technology seems to complement the gaming station and their operation. The Multimedia Lab is the larger of the three rooms and it contains movable furniture and a 5.5 m x 1.5 m computer screen together with a 7.1 surround sound system. This room can be used for presentations, movie showings, large screen gaming, data or image examination and a variety of other possibilities where a large screen and sound system could be used. The third room is a classroom designed to be an active learning style classroom, called the Learning Lab. Four tables are placed towards the corners of a square room, with each table seating up to 6 students and equipped with a display screen that allows computers or mobile devices to connect to it. Students can work at each table and easily display their work to others. The central area of the room is clear so that an instructor can easily move between the tables. The instructor has access to a computer that can display onto two large screens located on opposite walls in the room. Each display shows the same output, but by using the two walls all students could easily see what the instructor is showing without needing to turn around in their seat. Through its design, this classroom has no obvious front or back as teaching can be done from anywhere within the room, and active (*i.e.* participatory) learning can be undertaken throughout the entire room at all times.

Figure 1: The main space in the Discovery Centre

The main open space includes a range of furniture, Figure 1, many of which are on castors allowing users to easily move and arrange the furniture to match the way they want to work. Some fixed furniture is used, including sofa-like seating around a display. Like those in the Learning Lab, this display allows a number of students to connect their devices to the display and switch focus between them at a press of a button, see Figure 2. A height adjustable table is included to accommodate wheelchair users, various seat heights or standing deskwork. That table also includes a large display for the showing of information from a connected computer. Finally, two treadmill desks are included and placed together near a window with views overlooking the historic Rideau Canal (a UNESCO World Heritage site) and the Government of Canada's Experimental Farm. Users can work whilst walking, proving an alternative way of working and linking to Carleton's award winning Healthy Workplace program. In addition to wall outlets, electrical outlets in the floor are distributed throughout the main open space in order to support flexible use of the furniture and laptops, as well as other mobile devices that need charging from time to time.

As part of the flexible nature of the space, mobile white boards are provided in the Centre. These are meant to facilitate group work and can be used as a scratch pad for preliminary work (dry marker pens and erasers were provided on loan), but students also use them as temporary screens to define discrete space for increased privacy. These white boards have proven to be popular, especially close to examination time and more were purchased in order to meet student demand.

Figure 2: Furniture and technology for group work.

The Discovery Centre commenced operation in October 2013 and was officially opened in November 2013 by the Premier of Ontario, the Honourable Kathleen Wynne, as part of the grand opening of the expanded and refurbished MacOdrum Library. The space was an immediate success from day one as it had good natural and artificial light and, with the innovative furniture and technology, it provided a welcoming and flexible space that was very different from any other space on campus, and rapidly became popular with students. Access times work around the opening times of the Library and the number of users and sound level in the room could vary with the time of day. Mornings have proven to be quieter times and early to mid-afternoon tend to be the most populated. Often early evening time has a tendency to noisier, partly as groups would meet and have a period of relaxation. The overall noise in the open space has not been a major problem and if individuals became too loud, the Centre staff could request them to be quieter in order to respect the other users. Groups actively discuss but the overall sound in the space has not been problematic. At the planning stage there had been consideration to the use of a sound masking system, but it was found to be unnecessary as long as sound levels could be regulated to a reasonable level. Indeed, it has been investigated and determined that a certain level of noise may help creativity (Mehta, et al., 2012).

During the design stage of the learning space attention was paid to accessibility for all within the Centre. Booth arrangements of sofas were avoided in order to allow easy access for wheelchair users (booth arrangements can force a wheelchair user to participate from the side only). Sofas were selected that did not have arms thus allowing wheelchair users to easily move from their chair to the sofa. As already mentioned, the height adjustable table also facilitates accessibility for wheelchair users. The flexibility and variety of furniture helped with all users. There was also a supportive comment made by a user who had an attention deficit disorder who found the treadmill desks helpful to aid studying.

Concerns about material that could be displayed on the screens in the Gaming Lab (which had a glass wall) and the main open space were soon allayed. Signage asked users to be respectful of other users in what they displayed on the screens. There have been few if any misuses of the large displays, and one form of popular video game played is a first-person shooter game which potentially could upset a small number of patrons.

USES OF THE DISCOVERY CENTRE FOR FORMAL LEARNING

As previously mentioned, the space was immediately popular with students from the day of opening, and it has become a hub of student activity and use within the Library. The Discovery Centre promotes and facilitates high-impact learning activities involving the four pillars. For example, Carleton University's undergraduate research program is run through the Centre, providing institutional funding to support undergraduate research. The Centre is used for presentations, both in the form of oral and poster presentations, by students about their research, and an annual research conference is held. A similar program supports student international mobility, and the space has been used for students to present on their international learning experiences. The main open space is also used for students engaged in various kinds of group or teamwork projects, including community engagement projects by which students are working with community groups outside of the university. Recently, a Provost's Scholars award has been established to recognize outstanding students who demonstrate high achievements in leaning activities covered by the four pillars.

Yet, although the main open area was set up as an informal learning space for students, as defined in the introduction, the popularity of the space did start to grow with some professors. The flexibility, openness, furniture and technology in the space did offer possibilities for student-instructor interaction that do not exist in traditional classroom configurations. Some professors started using the space to meet with students and this interaction varied from holding office hours to instructing a class.

Office hours for a course are the scheduled times when a faculty member is available for an individual or group of students so they can ask questions. Typically this is for one hour each week per course and usually at the instructor's office. A number of professors have decided to use the Discovery Centre for the location of their office hours for a course. Booking one of the booths with a screen in the main open space provides a less intimidating and more informal setting than their office. The larger display screen allows the student and instructor to easily see any point that requires illustration with the use of a computer. One professor mentioned that an advantage of using the Centre for office hours is that the openness of the space allows waiting students to hear the discussion points of the course material; answers are heard by more than one and perhaps help the waiting student as well as the person who is raising the question. Of course, private or personal issues that need to be raised with the instructor can be dealt with at a more private location, like the instructor's office.

In a similar way to the office hours, another professor would meet with a group of students undertaking a capstone group project. With five or more students in a group this proved to be too many to fit into the faculty member's office. Using the Centre space allowed screens and whiteboards to be used in the regular meetings. The meeting environment now was moved to a student focused space, as opposed to a professor's office, and this potentially provided more open dialogue and engagement with and between the students.

With the large space and the displays it is possible to have a number of students demonstrating projects. One engineering course used the space for an end of term project display. This made use of the displays in both the Multimedia and the Learning Labs. Each display could show presentation material including computer code and projects could be displayed on the tables or on the floor, if too large.

The gaming technology is also used for formal teaching with classes booking the gaming laboratory, and occasionally the multimedia room, to allow a student to play games that are being used in society and study how the games are played and how the player interacts with the game. The flexible furniture is useful here and students can work in groups as well as individually.

Other uses of the space included having performances in a graduate class (although the focus of the Centre is undergraduate students, graduate student use is not discouraged) and having a videoconference with an overseas academic. For the videoconference the Learning Lab was used and the instructor's screen displayed the guest academic from overseas and a wide-angle video camera pointed at the students allowed the guest academic to see the class of students. Using common videoconference software to bring an expert in a certain topic from another country was straightforward to do and provided a new learning experience for the students.

Perhaps the most interesting formal use of the Centre was using the open space for a regular class. Although the original intention was not to have the Centre in the regular classroom pool, accommodation for some classes is possible at times when there is not a high demand for using the space (for example in the summer). It is this specific use of the space that we shall now focus upon as it demonstrates the innovative opportunities that the Centre is creating.

While a number of different classes have used the Gaming, Multimedia and Learning Labs as was intended, the use of the main open space was an unexpected development. The use of this space was an interesting decision as only parts of the space could be reserved for the classes, so this meant that students who were not in the course were in the same room and often sitting close by the class and instructor. None of the instructors objected to this and, as will be seen, one instructor thought it had a positive effect on their class learning and participation as he believed his students felt they were on show and consequently 'raised their game'.

Two classes that used the Gaming Lab were a fourth year film studies seminar course on 'video games and difference' and a third year digital history course on 'video games and simulations for historians'. The advantage of using the Gaming Lab is the practicality of students being able to play games while the class is in progress. The setting is less formal than a regular classroom or a computer laboratory, for example sofas can be used in front of the gaming stations and the furniture can be arranged to allow for group observation of the gaming and discussion. A comment from the film studies professor on the space was:

"…in this open and dynamic space where people are coming in and out…It is a kind of casual and flexible space, which sets a different tone for them"

The history professor made the following comment about the environment being a more 'authentic' setting:

"By going up to the Discovery Centre in the Gaming Lab they are not just performing for each other in doing these talk aloud protocols, where they actually discuss why they are doing what they are doing and what they are thinking. They are also being observed by other students in the class and also the people who are walking around outside. So it becomes less of putting on a performance for me but it situates it in a broader context and in many ways it is a lot more authentic to how they would normally engage with video games anyways. So if we are trying to understand how to write good history in a video game then we have to not be trying to replicate the writing of an essay in a history class."

The Learning Lab was used by instructors for classes with registered students as well as for training sessions with staff, information sessions for students, and for meetings. Sometimes the Learning Lab was used in conjunction with the main open space. More private group meetings or interviews could be conducted in the Learning Lab and then students could work in the open space in groups or individually. The use and movement of students between the spaces was captured by an Industrial Design instructor who used the space with a class and wrote:

"During the first class, I briefed the students on their activity in the Learning Lab. The activities moved between individual and group work and were timed in short intervals. As individuals, students had to review the preliminary background or site research they had done on Healthy Workplace and their specific topic and brainstorm on developing a research question, listing assumptions they have about the topic and questions to help challenge or probe their assumptions. This activity was short (about 20 minutes) and then students met in their groups at tables in the Learning Lab and Media Booths and were asked to do a round table to share their thoughts (about 30 minutes). After a break, they were then asked to formulate as a group, a research question and the ten best questions they would ask a staff member a[t] Carleton to help challenge their assumptions about the topic, and answer their research question. This activity then contributed to the content of the assignment due the following week. What we noticed about the process is that the timing, movement of activities and quick but achievable deadlines, animated the space and students, and allowed them to build team relationships while working effectively towards their upcoming group deliverables."

Within the main space another instructor from Law and Legal Studies used the flexibility of the space to give lectures, conduct group work and illustrate social justice ideas with a class on 'Social Theory and Human Rights'. Using whiteboards and a large piece of woven material for an exercise to illustrate John Rawls' concept of 'the veil of ignorance' (Rawls, 1997), the professor explained that "this was a way of teaching I would not have thought of using before, because the space is pliable. That has allowed me to be much more dynamic and flexible in the way that I think about teaching. It is like the space has opened up a whole new … a whole new era of teaching and so many possibilities that just weren't there before. So I think there is absolutely no parallel to be honest, because it is a space that is both enabled and enables thought, ideas, progressive teaching, teaching that is focused around a very different type of student learning, and I think that type of student learning is really important in the academy." Allowing students to move around, interact and participate made the professor a strong supporter and user of the space. Classes in the course would move around the large open space. One of the rooms would be used as an interview room for sub groups of students who would interview different social justice advocates or activists. This flexibility or 'pliability' as the instructor called it made the space a preferred location for her class than a conventional classroom. She explained why this was the case:

"It gives me the freedom to think creatively about pedagogy, about what I hope students will learn and what I can do with students in the classroom. So the space itself is so versatile that instead of limiting me and thinking about what I can do with students sitting at desks bolted to the floor, I can think about what students can do when they move around and when they can use technology and it has complete liberated the way I think about teaching and the way I think about learning."

Another user of the main space was a history professor who used a large table within the space for seminars with his graduate students. His observations of using this space reflected on the nature of the students being on display. "… When we do it [the seminar] upstairs in the Discovery Centre at the huddle table, with that great big screen across the back, people are walking by as we are talking it raises their game tremendously. Because they are not just talking for me, they are not just performing for me, but they are actually on display in ways that mimic or parallel the ways that a lot of digital humanities work gets done, through social media, through open peer review, …". This notion of students being on display to other students outside of their discipline is interesting and one that would be very rare in a traditional classroom where almost always students in the room are studying the same course.

CONCLUSION

A progressive and flexible learning space, the Discovery Centre, was designed for informal learning. This space formed as a partnership between the Library and the Provost's office. The intention was to create a space that could complement the ideas and initiatives that were at the core of the Carleton Academic Plan, and to promote student engagement and success. The space has proven to be popular for informal learning with the mix of technology, space for group work and flexible furniture. However, it also attracted interest from some instructors who started to use the space with their students. Office hours, poster sessions, group project meetings with supervisors and performances were some of the uses made of the space. Perhaps the most interesting use was the request by some faculty to use the space for scheduled class sessions, even while other students who were not in the course were using the space. Now the space had a mix of formal and informal learning going on at the same time. Professors who used the space were interviewed for their views and opinions on using the space for teaching and learning.

The formal learning made use of the technology, mostly large displays for student group work, as well as WiFi and video conferencing technology. The flexible furniture and the space for students to move around were also key factors behind the interest in using the space. One professor thought that the flexibility offered allowed her to be creative about the way she taught. Instructors using the learning space as a classroom made comments about their preference to move away from spaces where desks were fixed to the floor and where they were expected to be at the front of the classroom. The presence of other students from outside the class was noted to be a potential distraction but one professor, who used the space for a seminar, felt that students in his seminar knew they were on display as other students were around them and consequently they tried to improve their involvement in the seminar. He felt that being in the open like this mirrored the openness of the discipline of digital humanities that the course was about.

The space has acted like an incubator for new ideas and fresh approaches of instructors to how learning occurs in their courses. Professors actively and enthusiastically explored the potential of the space. Although not originally intended for regular formal learning, the space has shown that there is a potential for spaces that are open and dynamic with a mixture of students undertaking formal and informal learning. Though similar in some ways to active learning classrooms (ALC), this space has in one way removed the walls of the ALC idea as now the room contains students not only from the instructor's class but any student or library user from any discipline. In terms of breaking down the traditional barriers of traditional pedagogies, the removal of the classroom walls is one of the most dramatic innovations brought about by the creation of the Discovery Centre. It will be interesting to see how these innovations develop, and whether the centre will prove to be as much of a space for discovery for professors as it is with students.

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Three video recorded interviews (edited for brevity) can be found on the Carleton University YouTube channel at:

Dr Melanie Adrian - https://youtu.be/EB3ypVKWw_U
Dr Aubrey Anable - https://youtu.be/1sOiGiGF9RU
Dr Shawn Graham - https://youtu.be/MwLo2ezUTXg

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Examination Of The Anxiety Levels Of Visually Impaired Elite Futsal Players

Barış KARAOĞLU
Erciyes University, School of Physical Education and Sport, Kayseri,Turkey
justified13@hotmail.com

Yahya POLAT
Erciyes University, School of Physical Education and Sport, Kayseri, Turkey
ypolat@erciyes.edu.tr

ABSTRACT

The aim of this study is to determine state and trait anxiety levels of elite futsal players who are visually impaired. The study is consisted of 30 elite futsal players; 16 of them are from Turkish Blind 1 Futsal Team and 14 of them are from Turkish Blind 2/3 Futsal Team whose average age differ respectively 25, 63±5, 39 and 26±3, 44.

In the research, a socio-demographic data form and State-Trait Anxiety Inventory (STAI) were used. Datum was analyzed by IBM SPSS (version 18.0). For the examination of data and the comparison of two independent groups the t-test was used and for the analysis of more than two groups ANOVA test was used. Post Hoc test was used to find the statistical difference among groups. According to statistical analysis, there was not a statistically significant difference observed in state and trait anxiety levels according to age and sport age (p>0,05). Both of anxiety levels were significantly varied according to eye classification and national team categories of sample group was found (p<0, 01).
As a result of this study; trainers should consider anxiety levels of visually impaired sportsmen according to their eye classification. They should develop training programs which is required to contain not only physical but also psychological skills.

Key Words: Anxiety, Futsal, Visually Impaired

INTRODUCTION

Disability is an organ deficiency or dysfunction resulting in varying functional loses, require support and assistance in everyday life (Özer, 2010). According to another definition, disability is “any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being” (WHO, 1976). Approximately 8-8,5 million people with disabilities are recognized in Turkey (Acet, Karademir, Koç, Açak, Kızılet, 2011, s. 925-931). According to Tubitak’s report, there are approximately 400,000 blind people in Turkey (Tübitak, 2002, s. 13). One of the most important benefits of sports for people is that it facilitates socialization, which is vital for people to live in relatively more peaceful, secure and sheltered (Demirel, 2015, p.113). Sport is promoting better social integration of people with disabilities to society. Recently, sport participation has increased among people who have disabilities (Acet, Karademir, Koç, Açak, Kızılet, 2011, s. 925-931). Making arrangements for control groups within a school or university can be difficult (Harmandar Demirel, 2015, p. 2291). İnal defines sport as “biological, pedagogical and social endeavors which is aimed to improve a person’s physical activity, motor skills, is also biological, pedagogical and social behaviors in certain arrangements” (İnal, 1998, s. 5).

Futsal (the official name for five-a-side indoor soccer) was introduced in 1930 with the aim of allowing football to be played in restricted spaces. Its organizing body remains FIFA, under whose auspices international competitions are arranged (Barbero-Alvarez, Soto, Barbero-Alvarez, Granda-Vera, 2008, s. 63 – 73). It is hard to precise when and where the first blind football activities happened, main reason of these initiatives generally didn't start from the professionals and teachers; usually in blind institutes, the blind students wanting to play football too, as the sighted people can play (De Oliveira Silva, 2008, s. 16).

Blind futsal was joined the IBSA fold in 1996. Since then, official IBSA regional and world championships have been held regularly and international friendly tournaments such as the IBSA Cup are a regular feature on the blind futsal calendar. IBSA has two types of futsal - B1 for footballers who are completely blind, and B2/B3 for players who are partially sighted (IBSA, 2015).

In sport psychology, anxiety refers to an unpleasant emotion which is characterized by vague but persistent feelings of apprehension and dread (Cashmore, 2002, s. 24). Spielberger describes the anxiety which occurs in the sport atmosphere as in general state anxiety, while dividing the anxiety into two as state and continuous anxiety (Spielberger, 1972, s. 3–20).

According to our review of literature, The State Anxiety Inventory is one of the most long-standing and frequently used measures of anxiety. The scale has been translated into numerous languages (Bieling, Martin, Antony, Swinson, 1998, s. 777-788) and has been applied on many people include athletes from different branches, different types of works and disabled people or their families (Acet, Karademir, Koç, Açak, Kızılet, 2011, s. 925-931, Çoksevim, Sarıtaş, Kaya, Pepe, 2006, Polat, Çoksevim, Günay, Pepe, 2010, s. 570-576) but has not been studied on visually impaired futsal players. Therefore, the aim of this study is to determine state and trait anxiety levels of elite futsal players with visually impaired according to their handicapped categories.

MATERIAL AND METHOD

This study include 30 elite futsal players 16 of them from Turkish Blind 1 Futsal Team and 14 from Turkish Blind 2/3 Futsal Team, were participated voluntary. Turkish Blind 1 Futsal Team was participated to Blind 1 Futsal championship in Italy at 2013 and Turkish Blind 2/3 Futsal Team was participated to 7th IBSA B2/B3 European Futsal Championship in Italy at 2014. Socio-demographic Data Form and The State-Trait Anxiety Inventory (STAI) were applied to sportsmen one day before tournament in the camp hotel. Volunteers were provided with assistance by pollsters.

SOCIO-DEMOGRAPHIC FORM

This form include 4 personal questions (Age, Sport Age, Disability Category and Participated National Team)

STATE-TRAIT ANXIETY INVENTORY (STAI)

Spielberger et al (14) originally developed this inventory to separately determine state- trait anxiety levels. It was adapted into Turkish by Öner and Le Compte, and they also conducted reliability and validity studies (Öner, 1983).

This inventory contains 40 items. First 20 questions are for state anxiety and the other 20 questions are for trait anxiety. Participants rated each feeling item on a 4-point scale ranging from 1 (never) to 4 (always). Participants answer to this interval for each question. In the questionnaire 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20th items are reverse expressions. The others items are direct expressions. The points respondents give for each question are summed to find reverse and direct expressions. The total point of reverse expressions is subtracted from the total point of direct expressions. Finally, 50 point is added to the obtained score. This result is state anxiety score. In the questionnaire 21, 26, 27, 30, 33, 36 and 39th items are reverse expressions. The others items are direct expressions. The points respondents give for each question are summed to find reverse and direct expressions. The total point of reverse expressions is subtracted from the total point of direct expressions. Finally, 35 point is added to the obtained score. This result is trait anxiety score. Higher scores indicated high anxiety and lower scores indicated low anxiety levels (Polat, Çoksevim, Günay, Pepe, 2010).

DATA ANALYSIS

Data was saved on computer by using SPSS package program (version 18.0). For the examination of data, for comparison between two independent groups the t-test was used and ANOVA was used for analysis of more than two groups. Post Hoc test was used to find the statistical difference among groups. The level of statistical error was 0.05.

FINDINGS

Table 1: Group comparison according to age variance

Anxiety	Age	N	Mean±SD	$F_{(2,27)}$	P	Difference
State-Anxiety	18- 23	9	39,67±4,18	0,44	0,96	P>0,05
	24-29	14	39,29±3,69			
	Above 30	7	39,14±3,34			
Trait-Anxiety	18- 23	9	34,78±1,30	0,34	0,71	P>0,05
	24-29	14	34,36±1,50			
	Above 30	7	34,29±1,11			

As it is seen in Table 1, there was not a statistically significant difference observed in state and trait anxiety levels according to age as state ($F_{(2,27)}$=0,44 p>0,05 and trait ($F_{(2,27)}$=0,34, p>0,05).

According to Table 2, there was not a statistically significant difference observed in state and trait anxiety levels according to sport age as state ($F_{(2,27)}$= 1,52, p>0,05 and trait ($F_{(2,27)}$= 0,30, p>0,05).

Table 2: Group comparison according to sport age variance

Anxiety	Sport Age	N	Mean±SD	$F_{(2,27)}$	P	Difference
State-Anxiety	Under 8	11	38,82±3,82	1,52	0,24	P>0,05
	9-12	12	38,67±3,65			
	Above 13	7	41,43±2,99			
Trait-Anxiety	Under 8	11	34,73±1,35	1,28	0,30	P>0,05
	9-12	12	34±1,41			
	Above 13	7	34,86±1,07			

Table 3: Group comparison according to disability categories variance

Anxiety	Eye Classification	N	Mean±SD	$F_{(2,27)}$	P	Difference
State-Anxiety	B1	16	42,06±2,41	24,81	0,00**	1-3
	B2	6	36,17±2,04			1-2
	B3	8	36,38±2			
Trait-Anxiety	B1	16	34,94±1,12	6,20	0,01**	1-3
	B2	6	34,83±1,47			1-2
	B3	8	33,25±1,89			

*P<0,05, **p<0,001

In table 3, both state anxiety levels ($F_{(2,27)}$=24,81, p<0,01) and trait anxiety levels ($F_{(2,27)}$=6,20, p<0,01) of the sample groups showed significant differences according to eye classification.

In Table 4 both state anxiety levels (p<0,01) and trait anxiety levels (p<0,05) of the sample groups showed significant differences according to national team categories.

Table 4: Group comporison according to national team variance

Anxiety	National Team Categories	N	Mean±SD	t	P
State-Anxiety	B1	16	42,06±2,41	7,17	0,00**
	B2/B3	14	36,29±1,94		
Trait-Anxiety	B1	16	34,94±1,12	2,20	0,05*
	B2/B3	14	33,93±1,38		

*P<0,05, **p<0,001

DISCUSSION AND RESULT

The state and trait anxiety levels of visually impaired elite futsal players were determined in relation to demographic variables in this study.

The findings don't suggest any statistical difference between age and state-trait anxiety levels of visually impaired elite futsal players (Table 1). Yanlıç et al examined anxiety levels of physically handicapped athletes playing volleyball in sitting position and found no significant relationship between age and state-trait anxiety (Yanlıç, Karademir, Çoban, 2011). In another study, Yücel (2003) stated that age was not an affecting factor of state and trait anxiety levels among sportsmen doing taekwondo. Findings of the presented study showed us similarity with the findings of the studies on literature. The reason that situation was thought that there were no ability identification model of this branches and starting age of athletes in this branches was too late in Turkey according to European countries.

There was not a statistically significant difference observed in state and trait anxiety levels according to sport age of elite futsal players with visually impaired (Table 2). Yücel studied on sportsmen who do taekwondo and found that high or low level of state and trait anxiety did not depend on the year of experience in that sport (Yücel, 2003). In another study, Başaran et al (2009) studied on state and anxiety levels of sportsmen who participated in different types of sports such as basketball, volleyball, handball, taekwondo and wrestling and found significant relationship in results. These different results indicate that it is necessary to do further studies on different sport age groups. Besides, it was unexpected situation to find that athletes with higher sport age had higher state anxiety levels. The reason of this situation; older athletes' awareness of being national team athletes and feeling responsibility for this, to be aware of what positive and negative gains would have when they compete on behalf of national team, and difficulty to accept defeat psychology, then it can be considered as some of the factors of the high level of state anxiety.

When state and trait anxiety levels of the visually impaired futsal players were compared according to eye classification significant differences found between B1 and B3, B1 and B2 but there was not a statistically difference found between B2 and B3 (Table 3). Acet et al (2011) studied on anxiety levels of sportsmen with physically disabilities who participated in different types of sports such as amputee football, wheelchair basketball, archery, power lifting and shooting and there was not statistically difference found in either state or trait anxiety levels according to sport branch. It was thought that significant differences were found because of both visually impaired groups would participate to similar competition status (European Championship) but B1 Blind national futsal team provide a success at European championship in the past and they wanted to have a new success in similar tournament.

According to Table 4, Turkish B1 National Team's state and trait anxiety levels were classified as 42,06±2,41 and 34,94±1,12 respectively and both anxiety levels were classified as 36,29±1,94 and 33,93±1,38 for Turkish B2/B3 National Team. The range of 36-41 points state and trait anxiety levels were classified as high-level by N. Oner and A. Le Compte (Öner, 1983). Both state anxiety levels ($p<0,01$) and trait anxiety levels ($p<0,05$) of the sample groups showed significant differences according to national team categories. As it seen, both national team groups state anxiety levels were classified as high level. Turan et al (2015) studied on sub-elite in-door soccer players and the average score of the students' self-esteem was higher than the average scale scores (14,73± 4,15). In another study Sucan et al (2015) studied on sub-elite in-door soccer players and reported that there are positive increases in the self-esteem and other personality traits. Competitive sport can make even the world's most successful athlete feel nervous. Many factors such as expectations, perfectionism, fear of failure, lack of confidence, induce feelings of anxiety in athletes (Moran, 2004).

B1 futsal is one of the branches of Paralympic but B2/B3 futsal are not like that. Award regulation of Turkish Government is higher for the branches which are Paralympic. Because of this reason, it can be considered as one of the most important factors that has higher level of state and trait anxiety levels than B2/B3 futsal players
As a result of the study, trainers should consider anxiety levels of visually impaired sportsmen according to their eye classification. Trainers should develop training programs which will contain not only physical skills but also psychological state.

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Examination Of The Relationship Between Branches Of Sports Science Faculty Students And Their Problem Solving Skills

Nuri KARABULUT
nuri.karabulut@usak.edu.tr
Usak University, Faculty of Sport Sciences
Uşak/Turkey

Muhammet ÖZER
muhammet.ozer@usak.edu.tr
Usak University, Faculty of Sport Sciences
Uşak/Turkey

Mihriay MUSA
mihriay.musa@usak.edu.tr
Usak University, Faculty of Sport Sciences
Uşak/Turkey

Bahar ALP
baharralp@gmail.com
Usak University, Faculty of Sport Sciences
Uşak/Turkey

ABSTRACT

In this research, it is aimed to reveal whether there is a relation between departments in which Faculty of Sport Sciences students are enrolled, the sport branches of the students and their problem solving skills or not. Totally 207 (71 female and 136 male) Uşak University Faculty of Sport Science students participated in this study. 145 of them are studying in Physical Education and Sport Teaching department and 62 of them are studying in Sport Management department.

In this study, personal information form developed by researcher and originally developed by Heppner and Peterson (1982) and then adapted to Turkish by Şahin and Heppner (1993) "Problem Solving Inventory" were used as data collection tools. Descriptive statistics, Kruskal Wallis H, Man Whitney U and Anova were utilized in analyze of obtained data. The significance level was considered as 0.05.

As a conclusion, while no significant difference was found between genders in terms of problem solving skills at the total scores and sub-dimensions, on the other hand between Physical Education and Sport Teaching and Sport Managment statistically significant consequences were obtained in favour of teaching department. It was determined that problem solving skills of the students who are interested in individual sports and the students whose branches are basketball are better than the students who are interested in volleyball, football and badminton.

Key words: Problem solving, Physical Education, creativity in problem solving, sportive student

INTRODUCTION

Problem solving skill is defined as a process of removing problems to reach desired goal by Bingham (Bingham, 1998). The individual needs to certain amount of knowledge and experience to remove the problem that the individual encountered. It can be mentioned about accumulation of knowledge dating back to the childhood years. Especially children will meet some problems when the things don't go to the plan and they will seek for solutions to handle the problems, even in this process they will make some mistakes which provide them to find the right solution on their own (Berke, 2016). Problem solving skill, being able to handle the problems, is an important vital skill that affects and involves in every part of individual's life (Temel, 2015). This skill is important to handle the individual's problems about society and his/her own. The development of problem solving skill is a subject that starts in the family and needs to emphasize at schools by educators. Because the development level of this skill differs from each individual.

When we speak of sportive activities, everyone thinks about just physical performance. But it should be considered that sportive activities are the whole of social activities as well as physical, mental and psychomotor performance (Kuru, 2000). So the problem solving skill is directly proportional to the character development. Individuals, who are not shy, have high self-esteem and self-respect are more skillful about problem solving skill because of their entrepreneurial characters and not being afraid of taking responsibility (Afyon et al., 2014). Individuals with enterprising characters are more successful about problem solving skill because they are aware of their capabilities and they know their rights (Efe, Öztürk & Koparan, 2008). It has been seen that individuals who have weak problem solving skill are more anxious, have lower self-esteem and have more emotional problems compared to the other individuals who are good at problem solving skill (Şentürk, 2010 & Heppner and Baker, 1997).

In some cases personal creativity might be needed besides knowledge and experience to solve the problem (Basmacı, 1998). It is taught that there is a connection between problem solving and creative thinking (Güzel, 2004). The need of innovative and creative solutions for special circumstances increases day by day (Collins, Sibthort & Gookin, 2016).

This study aims to reveal the fact that whether there is a relation between the departments that students of sport science faculty registered, sport branches they interested in and their problem solving skills.

METHOD

Totally 207 students (71 female and 136 male) of Uşak University Sport Sciences Faculty take part in this study. 145 of these students are studying at Physical Education and Sport Teaching Department and the other 62 students are studying at the Department of Sports Management. All students who take part in this study are asked to answer the Personal Information Form developed by the researcher, and the Turkish version of Problem Solving Inventory developed by Heppner and Petersen (1982) then translated into Turkish by Şahin and Heppner (1993).

The inventory used in the research measures the self-perceiving about individual's problem solving skill and it is a type of likert scale graded 1 to 6 and consisted of 35 items. During the evaluation 3 of 35 items of inventory left out of the evaluation as its original. And inventory consists of 6 sub-dimensions, these are; Hasty Approach, Considerate Approach, Self-Confident Approach, Avoidant Approach, Evaluative Approach and Planned Approach.

It is found that the Cronbach's Alpha internal consistency of the scale was 0.88 and by using split-half method the reliability co-efficient was 0.81 (Aldemir, Biçer & Kale, 2014). The 6 factors of likert type measurement tool consist of 35 items as 'I always behave like this.'(1) and 'I never behave like this'(6). After reversed of the negative items (1., 2., 3., 4., 11., 13., 14., 15., 17., 21., 25., 26., 30., 34. items) and left the 3 items (9., 22., 29. items) out of the scale, the scoring range changes between 39 and 192. If the total score of individual is low, it means individual's problem solving skill is high. After the calculation, results indicate that scores between 32-85 are high, 86-138 are medium, 139-192 are low level of problem solving skill (Şahin, Şahin & Heppner, 1993).

FINDINGS

Table1: The relation between students' departments and their problem solving skills

Department	Median(Min:Max)	P value
Physical Education and Sports Teaching (n=145)	86(49:154)	p<0,001
Sports Management (n=62)	101(67:130)	

At Table1 there are statistical datas as a result of comparison of the relation between students' departments and their problem solving skills. The comparison results indicates that there are significant differences between Physical Education and Sports Teaching Department and Sports Management Department (p<0,001). Sports Management Department's median value of problem solving skill is higher than Physical Education and Sports Teaching Department's median value of problem solving skill. Students of Sports Management Department think that they are more inadequate about problem solving skill than the students of Physical Education and Sports Teaching Department. In that case, it can be concluded that Physical Education and Sports Teaching

Department students' problem solving skill perception is in more positive direction compared to the students of Sports Management Department.

Table 2: Problem Solving Skill Scores of Students According to Their Sport Branches

Students' Sport Branches	N	Mean	SD
Volleyball	31	94,29	23,75
Individual Sports	84	83,90	19,48
Basketball	10	74,70	14,70
Football	69	90,88	19,63
Badminton	13	90,37	14,57

At Table 2 there are distribution of students according to their sport branches, averages of their scores from Problem Solving Inventory and their standard deviation scores. If the scores getting from the inventory are high, it means the problem solving skill perception is low. But if the scores getting from the inventory are low, it means the problem solving skill perception is high. So we can say that Basketball and Individual Sports groups have the highest level of problem solving skill perception. And the Volleyball group has the lowest level of problem solving skill perception.

Table 3: Results of the Pairwise Comparison According to the Students' Branches

Branches	Volleyball	Individual Sports	Basketball	Football	Badminton
Volleyball		P=0.027	P=0.019	P>0.05	P>0.05
Individual Sports	P=0.027		P>0.05	P=0.043	P>0.05
Basketball	P=0.019	P>0.05		P=0.012	P=0.038
Football	P>0.05	P=0.043	P=0.012		P>0.05
Badminton	P>0.05	P>0.05	P=0.038	P>0.05	

At Table3 there are results of the pairwise comparison according to the students' branches. When we examine the table we can see that there is significant difference between Volleyball and Basketball branches (p=0,019). The average of the total score of problem solving skill at Volleyball branch is higher than Basketball branch. So we can say that the problem solving skill perception of the students of Basketball branch is in more positive direction than other students who are interested in the Volleyball branch. On the other hand students of Volleyball branch feel more inadequate about problem solving skill perception compared to the students of Individual Sports. In that case it can be understood that problem solving skill perception of students of other branches are in a more positive direction than students of Volleyball branch. According to the table, students of Football branch feel more inadequate about problem solving skill perception compared to the students of Basketball branch.

Table 4: The Relation between Student's Hasty Approach Attitude and Their Sport Branches

Branch	Mean±S.D	P value
Football (n=69)	31,44±6,93	0,045
Individual Sports (n=84)	28,58±6,06	

It is understood that there is significant difference between football and individual sports students as a result of pairwise comparison to find out about the differences between branches (p=0,045). It can be concluded that students of individual sports use the hasty approach less than football students do because individual sports students' average total score of hasty approach is lower than scores of football students.

Table 5: The Relation Between Student's Considerate Approach Attitude and The Programmes They Study

Department	Median(Min:Max)	P value
Physical Education and Sports Teaching (n=145)	11(5:30)	0,001
Sports Management (n=62)	15(7:29)	

As a result of pairwise comparison , statistically significant difference between Physical Education and Sports Teaching Department and Sports Management Department is obtained (p=0,001). It is seen that Physical Education and Sports Teaching Department students' total score median value of considerate approach is higher than Sports Management Department students' total score median value of considerate approach. So it can be understood that students of Physical Education and Sports Teaching Department use considerate approach more than students of Sports Management Department do.

Table 6: The Relation Between Student's Avoidant Approach Attitude and The Programmes They Studey

Department	Median(Min:Max)	P value
Physical Education and Sports Teaching (n=145)	9(4:23)	0,002
Sports Management (n=62)	10(4:20)	

There is a statistically significant difference between two departments in terms of avoidant approach (p=0,002). Physical Education and Sports Teaching Department students' total score median value of avoidant approach is lower than Sports Management Department students' total score median value of avoidant approach. In other words, Physical Education and Sports Teaching Department students use avoidant approach less than Sports Management Department students use.

Table 7: The Relation Between Student's Self-Confident Approach Attitude and The Programmes They Study

Department	Median(Min:Maks)	P value
Physical Education and Sports Teaching (n=145)	17(8:41)	0,006
Sports Management (n=62)	17(7:35)	

There is a statistically significant difference between two departments in terms of self approach (p=0,006). Sports Management Department students' total score median value of self-confident approach is higher than Physical Education and Sports Teaching Department students' total score median value of self-confident approach so it can be concluded that Sports Management Department students use self-confident approach less than the others.

DISCUSSION

People encounter a lot of problem every part of their lives and they always try to find solutions for these problems and they will never stop seeking for solutions. Today, especially in our country trying to do sports or lead other people to do sports mean to face many problems. To do sports or lead other people to do sports we may have to face many problems such as school management, families, financial potentials etc. Under these circumstances, problem solving skills of students who achieved this struggle and had a chance to study at the Physical Education Department of universities can be seen as developed. In the light of the datas obtained from this study, it is determined that problem solving skill perception of students, studying at Sport Sciences Faculty, is at a medium level. This result shows similarities with the results of Kiremitçi and Canpolat (2014). Aldemir, Biçer & Kale obtained the similar results when they studied about football players aged between 16-20. Çağlayan, Taşğın & Yıldız (2008) came to a conclusion that indicates problem solving skill of high school students who do sports is at a medium level like this study. However, Karabulut and Pulur (2011) have demonstrated different results by this work that youth engaged in sports actively had higher scores than youth doing sports only for health or youth away from sports in terms of problem solving skill in their study on youth center members young athletes. Erozkan (2013) concluded a significant correlation between emotional intelligence and problem solving skill of students of Faculty of Education and Physical Education Teaching Departments. In his study, Otacıoğlu (2011) realized that students of Musical Education Department have a higher level of problem solving skill perception in terms of sub-dimensions such as approaching, avoidance and personal control compared to the students of Psychological Counseling and Guidance Department. Özen (2015) who used indoor climbing as a sportive activity determined that these activities help children to develop their problemsolving perception.

When examined in terms of both total score and sub-dimensions, problem solving skill perception of Physical Education and Sports Teaching Department students is higher than students of Sports Management Department. The results are obtained in favor of students who are studying at teaching department with regard to considerate approach, self-confident approach and avoidant approach. In our country generally more successful students choose Physical Education and Sports Teaching Department firstly compared to the other departments of Physical Education so this situation may cause this result. It is detected that basketball and individual sports students have the highest level of problem solving skill perception as a result of comparison of students' branches. Any significant differences cannot be determined between Volleyball, Football and Badminton players.

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Examining Of Mathematics Teachers And Teacher Candidates' Pedagogical Content Knowledge Regarding The Algebra Within The Context Of Students' Answers

Seval Deniz KILIÇ
Muğla Sıtkı Koçman University, Turkey
sdenizkilic@mu.edu.tr

ABSTRACT

Algebra is one of the main learning areas of mathematics. The present study extends past, as in other areas of mathematics, algebra learning domain refers to the many challenges and misconceptions faced by the students. to overcome the difficulties encountered in algebra teaching, learning can be achieved with the right approach. This way the training of teachers of possible strengthening of the pedagogical content knowledge. For a start, in addition to teachers who are already in office, he has yet to determine whether the teachers take teaching step in what level of pedagogical content knowledge is also of great importance. In this study, teachers and teachers of mathematics, algebra Grade 6 to recovery of two different learning areas located in the two sets be ranked from easy to difficult problems has been requested. In doing so, the justifications were asked why they did sort this way. In this way, we have tried to determine their approach to the question. The participants of the study, which consists of a state university in mathematics teaching reading in primary mathematics teachers and 38 mathematics teachers who volunteer to serve in two different primary schools. Designed as a research case study, data were analyzed based on qualitative research techniques. In the literature, making use of criteria were established for the determination of pedagogical content knowledge (Ball&Thames&Phelps, 2008) participant responses were grouped under different categories. At the end, one of the teachers and teachers' questions appeared to be different from one sorted. Dismissal question of sorting student teachers who were determined that they care more than knowledge and skill levels. These differences are discussed in the context of the importance of pedagogical knowledge and brought different proposals for the development of such information.

INTRODUCTION

Content Knowledge of the teachers, an essential aspect of education and training process, has inarguably a significant effect upon the success of the students. There are ongoing discussions on what the Content Knowledge that a teacher should have is. Those researches have evolved into a notable frame thanks to the support of the experimental studies in our day. With reference to Shulman (1986) and Shaw's (1903) infamous saying as " He who can, does. He who cannot, teaches. " , which started the arguments, Shulman (1986) initially put forward the Content Knowledge as follow:

- Content Knowledge
- Pedagogical Content Knowledge
- Curriculum Knowledge

A year later the same researcher, (Shulman, 1987) revised the knowledge that a teacher should have and expressed it as follow :

- Content Knowledge
- General Pedagogical Knowledge
- Curriculum Knowledge
- Pedagogical Content Knowledge (PCK)
- Knowledge About the Learners
- Knowledge on Forming a Educational Environment
- Knowledge on the Philosophical and Historical Objectives of Education

The component of Pedagogical Content Knowledge mentioned here was then centralised and made the subject of further researches. Ball, Thames and Phelps (2008) broadened the study of Shulman (1986) on "knowledge of teaching" , and stated new developments upon the nature of the content of "knowledge to teach". Contrary to the theoretical studies conducted so far then, this time experimental studies rather than the Curriculum Knowledge were carried out in order to seek answers to the questions that remained unanswered. In their study that seeked answers to the question "what are the components necessary for teaching?" , the issue of "mathematical knowledge for teaching" was handled in two categories as "subject matter knowledge" and "pedagogical content knowledge" by the researchers. This structure is illustrated in figure 1:

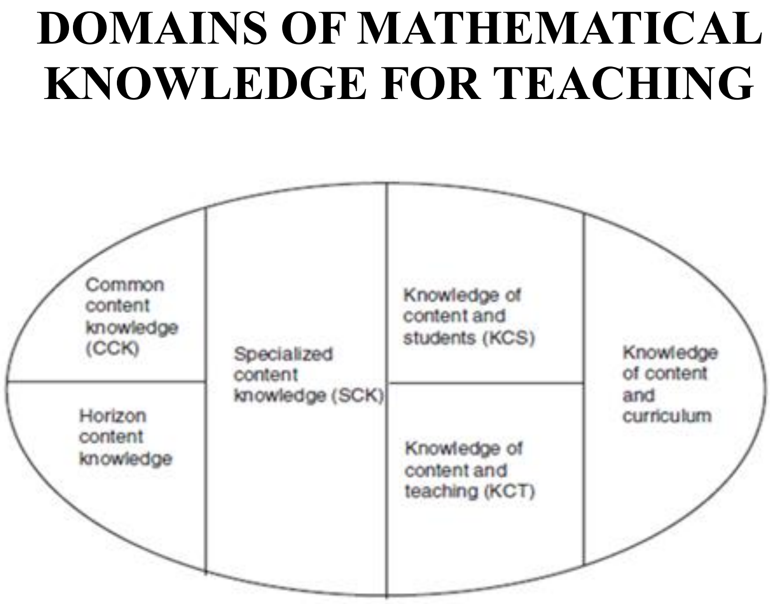


Figure 1: Domains of Mathematical Knowledge for Teaching

The first section of this frame; Subject Matter Knowledge, which we have benefited from in our study, comprises of three categories as; *Common Content Knowledge (CCK)* , *Specialized Content Knowledge (SCK)* and *Horizon Content Knowledge (HCK).* those categories are explained below:

Common Content Knowledge (CCK): CCK, apart from teaching, is defined as the mathematical knowledge and skill that are used for organization. The teacher is to be able to detect a wrong answer coming from a student or an incomplete definition in a book. The teacher is supposed to apply the correct terminology and notation when s/he writes something on the board.

Specialized Content Knowledge (SCK): SCK is defined as the special mathematical knowledge and skill used in teaching. SCK has no typical objective but teach. This type of knowledge deals with issues such as looking for a model in students' mistakes or searching if solutions apart from the standart approaches work or not.

Horizon Content Knowledge (HCK): This type of knowledge involves comprehending the relations among mathematical subjects and concepts. Benefiting from this type of knowledge, the teacher can estabilish a relation between the previous or next subject, and helps students do the same.

Pedagogical Content Knowledge, like the first structure, comprises of three sections as; Knowledge of Content and Students (KCS), Knowledge of Content and Teaching (KCT), and Knowledge of Content and Curriculum (KCC). Those sections that form the focus of our study are explained in detail below:

Knowledge of Content and Students (KCS) : This type of knowledge is quite like the combination of knowing the students and knowing mathematics. The teacher is expected to know what the students are capable of thinking and what things they find confusing. While choosing the examples, the teacher should also be able to foresee whether the students find them interesting, motivating or not. This type of knowledge requires the teachers be close to the students and their type of mathematical knowledge.

Knowledge of Content and Teaching (KCT): KCT is a combination of knowing to teach and knowing mathematics. Most of the mathematical tasks to be used in teaching require mathematical knowledge to design the structure. The teacher composes a special content for the structure and can choose which example s/he starts with and which examples would deepen the learning of the students.

The teacher can evaluate the advantages and disadvantages of the methods that s/he will apply. The materials that the teacher will use are designed in such a way that they consist not only of the mathematical understanding but also the pedagogical approach.

Knowledge of Content and Curriculum (KCC): This type of knowledge requires having a comprehensive knowledge of the curriculum, teaching the lesson at the convenient level and using the relevant curriculum tools.

There are various studies in the literature on how to determine the teacher candidates' mathematical knowledge to teach. This study was designed to fill a gap in the algebra field in Turkey due to the fact that most of such studies focus on geometry (Bozkurt&Koç, 2012; Altaylı&Konyalıoğlu&Hızarcı&Kaplan, 2014; Çakmak&Konyalıoğlu&Işık, 2014 Gökkurt&Şahin&Soylu&Doğan, 2015;).

Problem: Which components of Mathematical Knowledge for Teaching are related with the teachers and teacher candidates' reasons for putting the questions selected from the algebra field into an order from easy to difficult?

METHOD

Of the qualitative approaches, a case study was used in this study. A case study investigates one or a few subjects thoroughly and puts forward the factors of a case, and defines how those factors affect the case or how the case is affected by those factors (Yıldırım and Şimşek, 2008). In our study, the answers of students and teachers were analysed from the documents.

Data Collection Tool

As for data collection tool, a problem paper consisting of 4 questions that cover an acquisition in the algebra field selected from the 6th grade program was used. The questions used cover the acquisitions of 6th grade and they may cover acquisitions beyond 6th grade as well. The said acquisition is in the Turkish secondary school mathematics program and is as follows: "6.2.1.1. Can express the rule of the arithmetic series in letters; can find the rule of the expected term which is put in letters".

Participants of the Study

The participants of the study are;

- 38 teacher candidates (6 male and 32 female) who are studying their 3rd year in the department of Elementary Mathematics Education at a state university.
- 2 mathematics teachers at an elementary school. Either teacher is female and has 15 years of working experience.

Data Collection

The application was carried out within the scope of the course Algrebraic Concepts and Approaches in Teaching. Each teacher candidate was given a problem paper that has 4 questions in and asked to put them into an order from easy to difficult by giving their reasons for doing so. They were also asked to evaluate the reasons for the difficulty with its all aspects. The two experienced mathematics teachers were asked to do the same as well. Teachers firstly analysed the questions individually, and then they were asked to discuss it among each other and arrive at a consensus. Another mathematics teacher joined the discussions right afterwards, and they defined the difficulty level of the questions from the point of the components of Mathematical Knowledge for teaching (Ball, Thames and Phelps, 2008). We tried to specify how differently the teachers and teacher candidates made the order from one other.

Sub-Categories that are used to determine the mathematical knowledge for teaching;

- Common content knowledge: CCK
- Horizon content knowledge: HCK
- Specialized content knowledge: SCK
- Knowledge Of Content And Students: KCS

- Knowledge of Content And Teaching: KCT
- Knowledge of Content And Curriculum: KCC

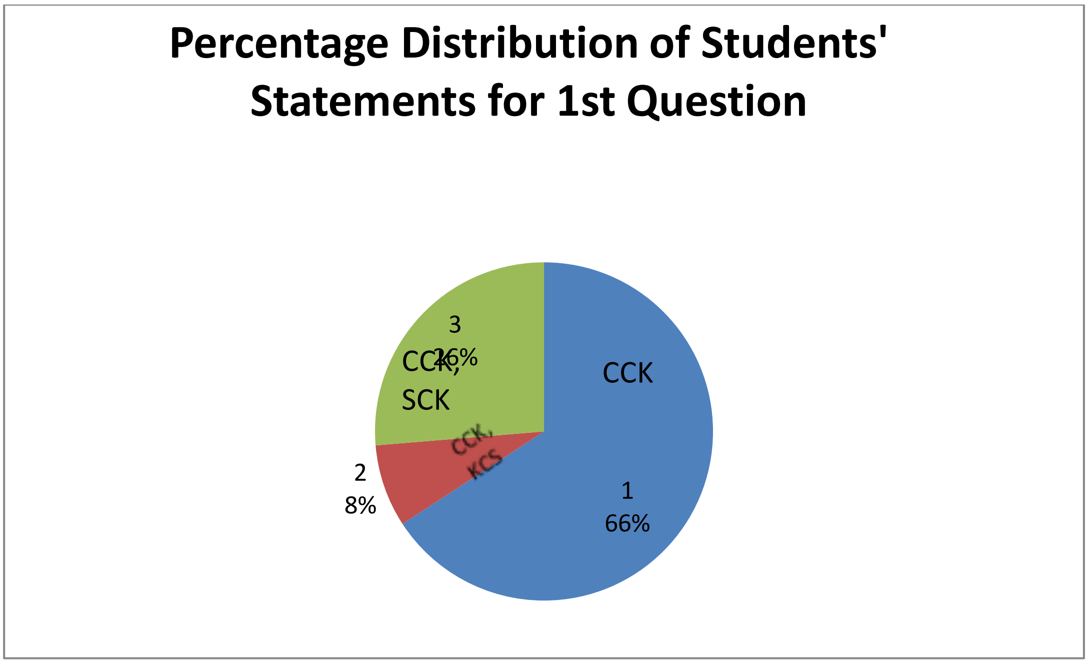
abbreviated as above.

How much of the answers of the students matched to the answers supplied by the teachers was also analysed.

FINDINGS

Findings Regarding the First Question

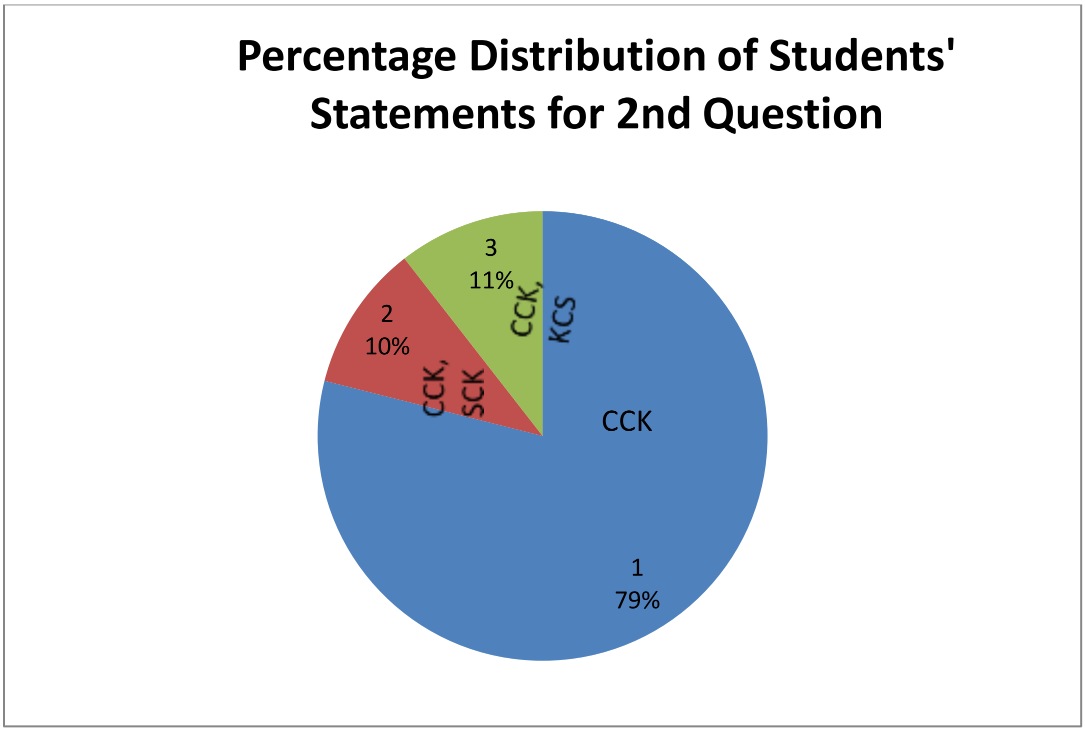
For the 1st question, the teachers stated; CCK, SCK, KCS; 25 students stated CCK; 3 students stated CCK, SCK and 10 of them stated CCK, KCS.



%66 of students' answers focus on the common content knowledge. However the experts state that the common content knowledge also covers the specialized content knowledge and knowledge of content and students. Only %8 of the students included their knowledge of content and students while they were analysing the questions.

Findings Regarding the Second Question

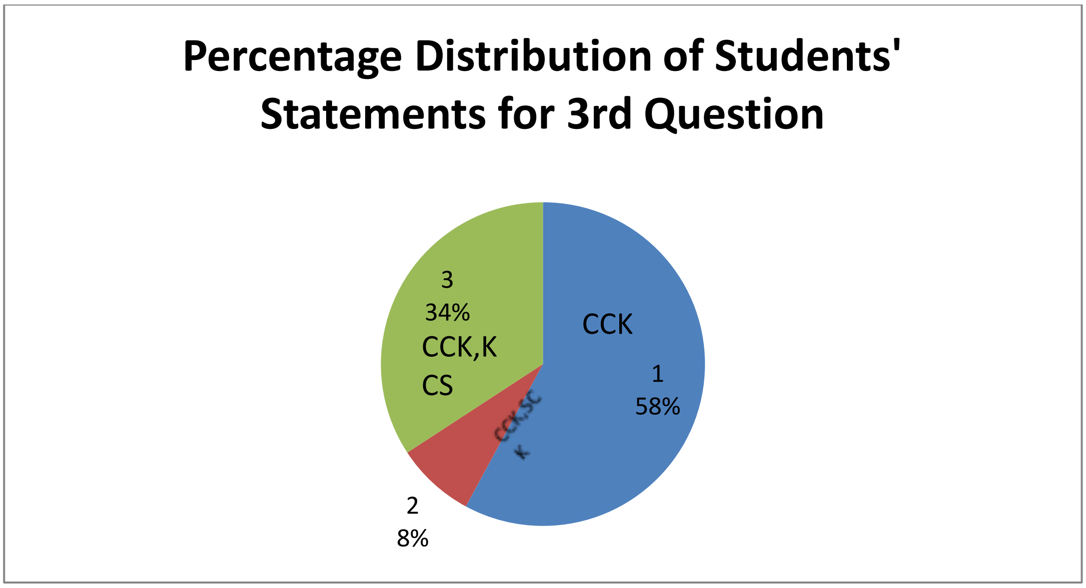
For 2nd question, the teachers stated CCK, SCK, KCS, KCC; 30 students stated CCK; 4 students CCK; SCK, and 4 of the students stated CCK, KCS.



Analysing 2nd question, it is observed that students' statements mainly focus on the common content knowledge (%79), and only %4 of them cover the specialized content knowledge (SCK) and knowledge of content and students (KCS).

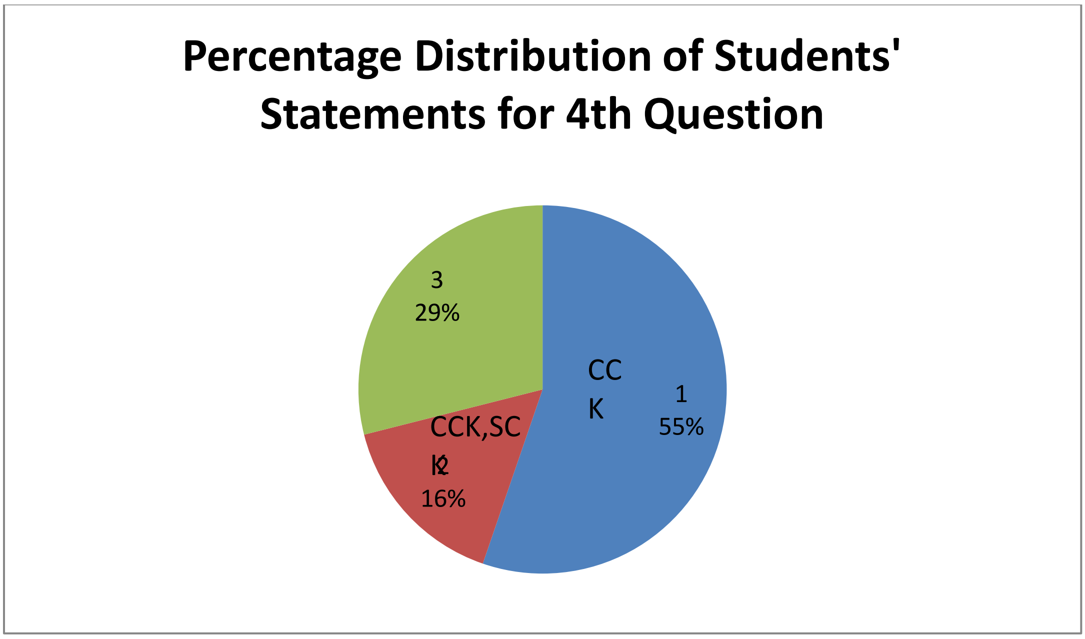
Findings Regarding the Third Question

For 3rd question, teachers stated CCK, SCK, KCS; 22 students stated CCK; 3 students CCK, SCK, and 13 students stated CCK and KCS. As in the earlier questions, the tradition was not broken and answers mainly focused on the common content knowledge.



Findings Regarding the Fourth Question

For the fourth question, the teachers stated CCK, HCK, SCK, KCS; 21 students stated CCK; 6 students CCK and SCK, and 11 students stated CCK, KCS.



In the fourth question, the focus was mainly on the common content knowledge, however an interesting finding was also observed, which is that no students referred to the "horizon content knowledge". This clearly suggests that the teacher candidates do not have a comprehensive knowledge of the elementary school programs.

CONCLUSIONS AND DISCUSSION

The data gathered in the study suggest that while they were putting the questions into an order from easy to difficult, the teacher candidates attending their 3rd year in the department of Elementary Mathematics Education at a state university mainly made their evaluations in compliance with the subject matter knowledge rather than pedagogical content knowledge, which clearly points out the fact that the teacher candidates have a low level of pedagogical content knowledge and have difficulty handling a teaching material from the perspective of student, teacher and curriculum. Çalık and Aytar (2013) arrived at similiar findings in their own study as well. Hacıömeroğlu (2013) also found out that the teacher candidates had a low grasp of KCS.

Results of various studies conducted, which also support these findings indicate that teacher candidates have insufficient pedagogical content knowledge in many mathematical subjects. (Ball, 1990a, 1990b; Baumert et al, 2010; Gökkurt, Şahin, & Soylu, 2012; Lannin et al., 2013; Lubinski, Fox, & Thomason, 1998; Ma, 1999; Nagle & McCoy, 1999; Tirosh, 2000; Toluk-Uçar, 2011).

Apart from these, all students have a good command of common content knowledge. That they were successful in solving the problems is an indicator to that. The reason for this could be the questions were from the elementary level and the teacher candidates could solve them with the basic knowledge that they have.

The first place that the teacher candidates acquire professional competence is the teacher training colleges. Therefore teacher candidates should be given more opportunity to perform activities in order that they should be able to comprehend and have a grasp of knowledge of students (Penso 2002).

On the other hand, PCK is a type of knowledge that usually develops along with the teaching experience (Grossman, 1990; National Research Council (NRC), 1996; Baxer & Lederman, 1999). So, it can be expected that the teacher candidates with little or no experience in the field have a low level of PCK. Teachers increase and enhance their knowledge, experience and pedagogical content knowledge as long as they work, teach, cooperate with colleagues and even make mistakes (National Research Council, 1996). Therefore it is not only helpful but also useful for the teacher candidates that they should do more practice, work on student products with the counselling teachers and do exchange of ideas with other teachers especially during their practical training courses at schools.

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Examining Social Studies Teacher Candidates' Views On Habit Of Reading Books About Political Issues Based On Different Variables

Özge TARHAN
Faculty of Education, Department of Social Studies Education
Pamukkale University, Turkey
ocinar@pau.edu.tr

Deniz COŞKUN
Faculty of Education, Department of Social Studies Education
Pamukkale University, Turkey
dcoskun@pau.edu.tr

ABSTRACT

Statement of the Problem: Reading habit is a prominent element for social development Books are the primary tool for information consumption. Equipping individuals with the habit of regular and continuous reading is an important way for improving the level of welfare in the society. Although reading books is of great importance, sufficient interest cannot be attracted to this habit. In a study on the reading habit of university students, it was found that only 5% of the students spent their free time with reading, and only 26% read books outside classes (Esgin&Karadağ, 2000: 21). A good social studies teacher should have the abilities to understand and use politics, criticize politics, express views about politics, and the skill of understanding how political knowledge and attitudes affect societies. In addition, a social studies teacher should have the habit of reading books about politics so that he/she can have background knowledge on politics.
Aim of the Study: The aim of this study is to reveal the views of social studies teacher candidates who were final year students in the Education Faculty of Pamukkale University on the habit of reading books about politics.
Method: In the study, survey method was used to determine the teacher candidates' views.
Data Gathering Tool: The data were gathered through the "Scale of Identifying Teacher Candidates' Views on the Habit of Reading About Political Issues" developed by Tarhan (2015).
Participants: In the selection of the participants, convenient sampling that is one of the purposive sampling methods was used. The participants of the study were 126 social studies teacher candidates studying at the Education Faculty of Pamukkale University in the 2015-2016 academic year.
Findings: The research process is still in progress. The findings will be presented after the necessary analyses.
Key words: Politics, Teacher Candidates, Reading Books, Qualitative Research.

INTRODUCTION

Reading habit is a prominent element for social development, and books are the primary tool for information consumption. Developments and changes need to be followed constantly in order to achieve progress within the society. Equipping individuals with the habit of regular and continuous reading is an important way for improving the level of welfare in the society. Reading is a crucial skill in terms of individuals' personal development in that learning continues outside the school as well.

Beside gaining the habit of reading, it is also important that the act of reading is performed as a skill. Instead of quick reading and scanning, students need to acquire competencies such as having a critical perspective, looking for information in appropriate sources, and associating their prior knowledge to the new information obtained.

The importance of reading as a habit cannot be neglected because learning continues outside the school as a life-long process, and in individuals' personal development. Although the significance of gaining the habit of reading is known, research shows that the desired interest and motivation in reading as well as the necessary infrastructure and opportunities cannot be ensured. In this regard, in a study on the reading habit of university students, it was found that only 5% of the students spent their free time with reading, and only 26% read books outside classes (Esgin&Karadağ, 2000: 21). A similar result was also reported by Gömleksiz and Telo (2003) who focused on students at an education faculty.

In this case, it can be argued that the habit of not reading is common in our society rather than the reading habit. The only way to gain this habit and improve it as a skill is reading regularly. In this sense, the habit of reading can be developed in early ages (Collins, 1996; Sangkaeo, 1999).

Individuals who have the habit of reading choose the content of what they reading depending on their interests, expectations, needs, wishes and statuses in their process of reading regularly. Interest in history leads them to read publications on history, whereas the aim of achieving certain economical goals orients them towards resources that include the knowledge of economy. In higher education institutions, students have the opportunity to increase their knowledge and skills in the area of their choice beyond performing the profession that they aim to practice. Other than reading textbooks on their area, the desire to obtain information from different resources is about whether students have gained the habit of reading or not.

Politics, a discipline within social sciences, is perceived as distant and even undesirable in the society. Moreover, due to this perception, students are advised not to be involved in politics. This understanding stems from the fact that politics is limited to a narrow area as something that only those practising politics should know about, or it looks as if it is merely about a group of individuals coming together to criticize the ruling party. In fact, politics is a way of life that concerns everybody in the country where it is practised. Talking about politics, which is interwoven with life, without any background knowledge but based on hearsay information can neither move it further as a science, nor contribute to the humanity in terms of enhancing the standards of living. The social studies course that primarily aims to train effective citizens expects from its teachers to equip their students with the skills that effective citizens need to have. Some of these skills include critical thinking and involvement.

In the literature, no studies have been encountered which focused on social studies teacher candidates' views on the habit of reading about politics. In this respect, there is a need to make an in-depth examination of their views on this issue. The aim of this study is to reveal the views of the social studies teacher candidates who study their fourth year at the Faculty of Education, Pamukkale University, on the habit of reading books about political issues. Based on this aim, the following research questions were addressed in the study:

- Do the teacher candidates' views on the habit of reading about political issues differ based on gender and the number of books possessed?
- Do the teacher candidates' views on the habit of reading about political issues without considering any variables?

METHOD

This study was designed based on the survey model. In this regard, some of items in the scale developed by the researcher were revised or excluded after the opinions of field experts were obtained, and the pilot implementation was conducted.

Participants

The characteristics of the sample are presented in Table 1.

Table 1. Characteristics of the Sample

		f	%
Gender	Male	62	49,20
	Female	64	50,80
TOTAL 100			

The population of the study consisted of the teacher candidates studying their fourth year at the Faculty of Education, Pamukkale University, in the 2015-2016 academic year. First, second and third year students were not included because they had not completed the subject area and methodological courses then. The sample comprised of 126 teacher candidates in total. As is seen in the table, 62 of these teacher candidates were male, and 64 were female.

Data Gathering Tool

A scale developed by Tarhan (2015) was used to identify the social studies teacher candidates' views on the habit of reading books about political issues.In the questionnaire consisting of 28 items, 5-point likert scale was used.

While 5 referred to strongly agree, 1 was strongly disagree. The reliability coefficient (Cronbach Alpha) of the scale was calculated as ,88.

Data Gathering and Analysis

The scale used in the data gathering process was administered to the social studies teacher candidates on a voluntary basis by the researchers and the data were transferred to computer environment. In data analysis, t-test and one-way variance analysis (ANOVA) was performed by using SPSS 17.0 package program.

FINDINGS and INTERPRETATION The findings and interpretations regarding the teacher candidates' views on the habit of reading about political issues are presented in this section.

Findings for the First Research Question and Interpretations

Whether the teacher candidates' views differed based on their gender was examined to address the first research question. T-test was performed in this respect, and the findings are shown in the table below.

Table 2. Comparison of the Teacher Candidates' Views on the Habit of Reading About Political Issues Based on "Gender" (t-test)

Groups	N	$\overline{X}$	Ss	t	df	p
Female	64	105,7031	12,11149	2,296	124	0,23
Male	62	110,8871	13,18855		p>0,05 Difference not significant	

The result showed that the male and female teacher candidates' views were different from each other [$t_{(0,05;\ 126)}$ = 2,296]. The level of the female teachers' habit of reading books about political issues ($\overline{X}$ = 105,7031) was lower than that of the male teachers ($\overline{X}$ = 110,8871).

Whether the teacher candidates' views differed based on the number of books they possessed was also examined with regard to the second research question. The results of the analyses are shows in Table 3.

Table 3. Means and Standard Deviations for the Teacher Candidates' Views Based on the Number of Books

Number of Books Possessed	N	$\overline{X}$	Ss
Less than 10 books	20	109,050	10,772
11-25 books	18	108,166	12,926
26-50 books	22	110,227	14,780
51-100 books	21	102,428	12,027
More than 100 books	45	109,688	12,851
TOTAL	126	108,254	12,867

As is seen in Table 4, the mean of the teachers who had 26-50 books was 110,227, that of those who had more than 100 books was 109,688, that of those who had less than 10 books was 109,050, that of those who had 11-25 books was 108,66, and that of those who had 51-100 books was 102,428. The results of the variance analysis conducted to see whether there were significant differences between the groups are presented in the table below.

Table 4. Results of the Variance Analysis for the Differences Between the Teacher Candidates Views Based on the Number of Books

	Sum of Squares	sd	Mean Square	F	p
Between-groups	903,772	4	225,943	1,381	,244
Within-groups	19794,101	121	163,588		
TOTAL	20697,873	125			

As can be seen in Table 2, variance analysis was performed to determine whether there were significant differences between the teacher candidates' views based on the number of books they had, and no significant differences were found as a result of the analyses. Consequently, it can be argued that teacher candidates' views on the habit of reading books about political issues do not change based on the number of books they have.

Findings for the Second Research Question and Interpretations

With this research question, it was aimed to examine the teacher candidates' views without taking any variables into account. Frequencies and percentages for their answers in the scale were calculated along with the means of all items, and the results are presented in Table 5.

Table 5. Frequency, percentage and mean score values related to the teacher candidates' views

	Strongly Agree		**Agree**		**Somewhat Agree**		**Agree**		**Strongly Disagree**		
INDEX ITEMS	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**X**
9. A teacher candidate who does not read books about political issues can still be a good teacher.	66	48,2	47	34,3	10	7,3	3	2,2	-	-	4,39
26. I think reading books about political issues contributes to one's development.	57	41,6	55	40,1	10	7,3	4	2,9	-	-	4,30
14. Reading different books about political issues enables one to form his/her own ideas.	52	38,0	55	40,1	15	10,9	4	2,9	-	-	4,23
23. Reading books about political issues enables one to take part in political discussions without a hesitation.	43	31,4	71	51,8	8	5,8	4	2,9	-	-	4,21
22. I like reading books about political issues.	43	31,4	66	48,2	15	10,9	1	0,7	1	0,7	4,18
17. I have a library with many books on politics.	40	29,2	63	46	20	14,6	3	2,2			4,11
24. Reading books about political issues changes our perspective to politics.	44	32,1	57	41,6	20	14,6	4	2,9	1	0,7	4,10
15. I think reading books about political issues is boring.	39	28,5	66	48,2	17	12,4	1	0,7	3	2,2	4,9
16. I think reading books about political issues would be useful to understand today's politics.	38	27,7	63	46	19	13,9	4	2,9	2	1,5	4,04
27. I think reading books about political issues develops high-order skills (analysis, synthesis and evaluation) in views on politics.	35	25,5	69	50,4	16	11,7	4	2,9	2	1,5	4,03
19. I think reading books about political issues contributes to being more conscious about politics.	32	23,4	65	47,4	20	14,6	4	2,9	5	3,6	3,91

13. Reading books about political issues enables one to have a political opinion.	34	24,8	53	38,7	32	23,4	7	5,1	-	-	3,90
25. I think it is important to read books about political issues in order to understand significant political events.	34	24,8	52	38	33	24,1	7	5,1	-	-	3,89
21. I regularly read books about political issues.	30	21,9	58	42,3	29	21,2	8	5,8	1	0,7	3,85
12th	31	22,6	49	35,8	39	28,5	6	4,4	1	0,7	3,82
28. Reading books about political issues enables us to easily express our feelings and thoughts related to politics .	32	23,4	55	40,1	24	17,5	10	7,3	5	3,6	3,78
Eleventh I think the best way to learn politics is to read books about political issues.	32	23,4	41	29,9	45	32,8	7	5,1	1	0,7	3,76
20. I prefer reading books of different kinds rather than those about political issues.	18	13,1	72	52,6	26	19	9	6,6	1	0,7	3,76
1. Reading books about political issues provides individuals the chance to be an active participant in the events about themselves and their society.	36	26,3	24	17,5	40	29,2	16	11,7	10	7,3	3,48
8. I think I can obtain political information thanks to reading books about political issues.	23	16,8	33	24,1	29	21,2	23	16,8	18	13,1	3,16
18th Reading various books about political issues shows individuals that there are different opinions and decisions as well.	12	8,8	63	46	20	14,6	3	2,2	-	-	3,015
6. I think reading books about political issues helps individuals form unique ideas for the solution of personal and social problems.	9	6,6	30	21,9	48	35	22	16,1	17	12,4	2,94
3. Reading books about political issues help individuals easily comprehend a political incident.	21	15,3	19	13,9	36	26,3	31	22,6	19	13,9	2,94
10. Reading books about political issues increases my interest in politics.	11	8	33	24,1	33	24,1	36	26,3	13	9,5	2,94

2. Reading books about political issues helps us understand the problems related to politics.	12	8,8	16	11,7	41	29,9	39	28,5	18	13,1	2,72
4. Reading books about political issues helps us understand political developments in our country and the world.	13	9,5	15	10,9	38	27,7	36	26,3	24	17,5	2,66
7. I feel my self more comfortable in environments where political topics are discusses because I read books about political issues.	6	4,4	16	11,7	30	21,9	31	22,6	43	31,4	2,29
5. Individuals who read books about political issues would more easily accumulate knowledge of politics.	4	2,9	9	6,6	15	10,9	38	27,7	60	43,8	1,88

RESULTS AND DISCUSSION Sixty-six teacher candidates who participated in the study (48,2%) thought that a teacher who does not read books about political issues can still be a good teacher. On the other hand, 57 teacher candidates (41,6%) argued that reading books about political issues would contribute to individuals' development, whereas 45 teacher candidates (38%) thought it would provide them the opportunity to form their own opinions. The teacher candidates were aware that reading books about political issues was indeed important, but had problems in putting this into practice. The fact that many parents who grew up in the oppressive and unsteady social climate in the aftermath of 1980 prevented their children from being interested in politics, either knowingly or unknowingly, and politics being reflected as men's job only caused the young population to develop negative attitudes towards politics. Teachers are one of the most important determinants for having interest in politics and being informed of political events. All important aspects such as families, teachers, books read, peers and the media can be crucial factors in political socialisation. If teachers introduce their students the books that have a prominent mission in transferring the background of political and social events to young generations, this will help increase the amount of reading books about politics. By reading books on politics, young individuals and children gain the abilities to compare, criticise and questions the political information presented by different authors (Tarhan, 2015). In a democratic, it is of great importance that individuals have critical thinking skills as well as use critical thinking and decision-making skills in the solutions of social problems they encounter (Tarhan, 2016).

One of the reasons why the teacher candidates who thought that a teacher candidate who does not read books about political issues can still be a good teacher kept distant from politics could be that men outnumber women in real political life, and they perform politics with an aggressive attitude. It is thought that by teaching students basic information related to politics starting from elementary school to university, students would be interested in politics and have positive feelings towards politics. In this regard, social studies is regarded as a course in which students develop positive attitudes towards politics as well as questioning and evaluation skills, and that aim to train them as active and effective citizens. Therefore, social studies teachers are important in that they equip elementary school students with democratic attitudes, skills and values (Tarhan, 2015).

SUGGESTIONS

The following suggestions are offered based on the results of the current study:

1. This study was conducted with a small sample in the context of reading books about political issues. Similar studies can be carried out with larger samples, and include faculty members, or teachers.

2. In addition to the courses that social studies teacher candidates take during their undergraduate education, a new course that includes basic knowledge and skills regarding politics, and addresses how critical thinking skills are developed can be included in social studies teacher education programs.

3. Experimental activities on political education can be performed with students in the social studies course to enhance their interests in politics and help them develop positive attitudes towards politics.

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Examining The Implementation Of Inclusive Education And Special Educational Support Services For Students With Hearing Loss In Turkey

Murat DOĞAN
Anadolu University, Turkey
mudogan@anadolu.edu.tr

Hasan GÜRGÜR
Anadolu University, Turkey
hasangurgur@anadolu.edu.tr

ABSTRACT

As a form of educational practice, inclusive education enables students with special needs (i.e. children with hearing loss) to have education as their typically developing peers at the same educational context by supplying them special education support services. Improvements in language and communication skills, and social and academic skills are the summary benefits of inclusive education for children with hearing loss. These possible benefits are also the answer of the question "Why inclusive practices should be disseminated through national level?" There are many prerequisites for successful inclusion practices such as physical adaptations in schools and classrooms, training and in-service improvement of the education staff, individualization of the educational programs, adaptation of education and instruction processes, and supplying special education support services. The purpose of this proposed presentation paper is to examine the implementation of inclusive education and special educational support services for students with hearing loss in Turkey. Parallel to the frame of the purpose, a questionnaire, "Inclusion and Educational Support Services Questionnaire" (I-ESSQ; K-DEHA), was developed by the responsible research team within the context of the TUBİTAK 1001 project on the inclusion of children with hearing loss (Project no: 114K236). I-ESSQ contains 39 items that aims to determine (a) the opinions of the teacher about inclusive practices, (b) the status quo of the children with hearing loss in inclusive settings, (c) problems of inclusive education, and (d) demographics of the participants. The analysis of the questionnaire is in statistical process. Following the statistical analysis, the findings will be available, and discussion and suggestions will be supplied on the bases of the findings.

INTRODUCTION

As a form of educational practice, inclusive education enables students with special needs (i.e. children with hearing loss [CHL]) to have education as their typically developing peers at the same educational context by supplying them special education support services (Antia & Kreimeyer, 2003; Easterbrooks, 2011; Hanks, 2013; Hintermair, 2010; Hornboy, 2015).

There are many prerequisites for successful inclusion practices (Caethon, 2001; Easterbrooks & Baker, 2002; Foster & Cue 2009; Hanks, 2013; Hornboy, 2015). These include:

- physical adaptations of schools and classrooms,

- training and in-service improvement of the education staff,
- individualization of the educational programs,
- adaptation of education and instruction processes, and
- supplying special education support services

If the aforementioned prerequisites are in charge, improvements in language and communication skills, and social and academic skills were the major benefits of inclusive education for CHL (Antia & Kreimeyer, 2003; Bauer & Kroeger, 2004; Caethon, 2001; Easterbrooks, 2011; Easterbrooks & Baker, 2002; Hanks, 2013). These possible benefits are also the answer of the question "Why inclusive practices should be disseminated through national level?" But before dissemination attempt there is a need of situation determination of inclusive practices in general education settings.

Purpose of the Study

The purpose of this study is to examine the implementation of inclusive education and special educational support services for students with hearing loss in Turkey.

Method

Design

This study is based on quantitative paradigm with the sub-design of descriptive research.

Participants

Participants are 121 teachers from seven geographical regions of Turkey. All the teachers are teaching in inclusion classes or supplying special education support services. The demographics of the participants were shown in Table 1.

Table 1. Demographics of the Participants ($N = 121$)

Categorical Variables	**f**	**%**
Gender		
Female	64	61,5
Male	40	38,5
Total	104	100
Level of Education		
Bachelor	80	76,9
Master	20	19,2
Doctoral	3	2,9
Total	104	100
Field of Education		
Hearing-Impaired	37	37
Intellectual Disability	5	5
Visually-Impaired	-	-
Special Education	12	12
Primary Class Teaching	30	30
Other	16	16
Total	104	100
Continuous Variables	**Mean**	**SD**
Age	34,6	8,9
Experience of teaching	10,9	8,8
Experience of Inclusive Education	5,7	5,6

As seen in Table 1, there seemed a balance between the genders of the participants. The level of education of the participants were prominently bachelor's degree. The field of education are the education of the hearing impaired and special education. The average duration for participants' experience of inclusive education is 5 years and 7 months.

DATA COLLECTION

Parallel to the purpose, a questionnaire, "Inclusion and Educational Support Services Questionnaire" (I-ESSQ), was developed by the responsible research team within the context of the TUBİTAK (The Scientific and Technological Research Council of Turkey) 1001 project on the inclusion of children with hearing loss (Project no: 114K236). I-ESSQ contains 39 items that aims to determine

A. teacher competencies about inclusive practices,
B. the status quo of the CHL in inclusive settings,
C. problems of inclusive education, and
D. demographics of the participants.

The development process of the I-ESSQ was as follows:

1. Building the development team (four researchers)

2. Literature review (21 thesis + 35 articles)
3. Creating an item pool (almost 500 items)
4. Purifying the item pool (71 items)
5. Having expert opinions
6. Preparing the final form (39 items)

Of the 121 questionnaires, 66 were administered manually, 55 were administered via web. The return rate was 70%.

Data Analysis

All the data were analyzed by using SPSS descriptive statistics.

MAJOR FINDINGS

The major findings of the study were given for I-ESSQ sub-dimensions in Table 2, Table 3 and Table 4.

Table 2. I-ESSQ Dimension I: Teacher Competencies About Inclusive Practices

No	Question	Positive Responses	%
1	Any lecture about inclusion?	Yes	71
2	Any in-service seminar about inclusion?	Yes	59
3	Using any formal assessment for following the progress of CHL?	Yes	38
4	Using any technique for managing behavioral problems?	Yes	46
5	Information about legal arrangements?	Yes/Partial	56
6	Directors' knowledge of inclusion?	Partially enough	44
7	Fit between IEPs by GRC and student's academic performance?	Partially	54
8	Fit between IEPs by GRC and student's social skills?	Partially	60

As obvious in Table 2, most of the items on teacher competencies about inclusive practices of I-ESSQ were rated below %50. This indicates that teacher competencies about inclusive practices are not found enough according to teacher reports.

Table 3. I-ESSQ Dimension II: The Status Quo of CHL in Inclusive Settings

No	Questions	Responses	%
1	Existence of IEP team in the school?	Yes	80
2	IEP team fit for purpose?	Partially	57
3	Placement type?	GRC plan	30
4	Assessment procedure?	GRC plan	28
5	Use of hearing technology by CHL?	CI, HI	50
6	Routine control of hearing technology?	Yes	30
7	Audiological controls in school?	Yes	0
8	Physical arrangements in classroom?	Yes	30
9	Any collaboration with families?	Yes	35
10	Contributions of the Director to inclusion?	Yes/Partial	65
11	Contributions of the PCG teacher to CHL?	Yes/Partial	70
12	Contributions of the in-field-teacher to CHL?	Yes/Partial	70

As seen in Table 3, most of the items on the status quo of CHL in inclusive settings of I-ESSQ were rated below %50. In some items the rate of the positive response was %0, for example, there was no audiological controls in any schools. This indicates that the status quo of CHL in inclusive settings are far from enough according to teacher reports.

Table 4. I-ESSQ Dimension III: The Status Quo of Special Education Support Services

No	Question	Responses	%
1	Special education support service (SESS) at school?	Yes	44
2	SESS type?	One-to-one/out of classroom	70
3	How to determine of SESS need?	Observations and IEP	43
4	How to plan SESS?	Observations and MoNE targets	58
5	How to structure the content of SESS?	All materials	100
6	SESS materials?	All materials	100
7	Assessment of SESS?	IEP tools	45
8	Problems faced during SESS practice?	Physical, environmental	33

As presented in Table 4, most of the items on the status quo of special education support services of I-ESSQ were rated mostly negative. This indicates that the status quo of special education support services is in need of development according to teacher reports.

DISCUSSION

The purpose of this study is to examine the implementation of inclusive education and special educational support services for CHL in Turkey. In accordance with the purpose, the findings of the study indicate severe problems at least in three areas:

- Problems regarding teacher competencies about inclusive practices (e.g. teachers from unrelated branches, not enough education and training on inclusion and SESS, insufficiency of assessment skills, behavior management skills, legacy knowledge, mismatch between IEPs by GRC and student's academic performance and social skills) (Easterbrooks, 2011; Gürgür & Uzuner, 2010; Hintermair, 2010).
- problems regarding CHL in inclusive settings (e.g. lack of IEP team in some schools, mismatch between team's work and purpose, ambiguity of placement and assessment procedure, lack of routine audiological controls in schools, inadequacy of physical arrangements in the classroom, insufficient instructional adaptations, inadequate collaboration with families, and even with the other teachers) (Bauer & Kroeger, 2004; Caethon, 2001; Hanks, 2013; Hintermair, 2010).
- problems regarding special educational support services (e.g. Lack of SESS in most of the schools, ambiguity in determination of SESS need and planning, physical problems faced during SESS practice) (Antia & Kreimeyer, 2003; Akay, Uzuner & Girgin, 2014; Gürgür & Uzuner, 2010).

All the results indicate a clear need for improvement about the aforementioned areas before or during inclusion of CHL. We come to a conclusion that prerequisites for successful inclusion practices should be met. The specific needs are:

- physical adaptations of schools and classrooms,
- training and in-service improvement of the education staff,
- individualization of the educational programs,
- adaptation of education and instruction processes, and
- supplying special education support services

We tried to describe the problems of inclusive education and SESS for CHL in Turkey. Further research may focus on "How to improve the system."

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Examining The Problem Types In Middle School Mathematics Textbooks In The Context Of Presentation, Content And Solution

Cemalettin YILDIZ
Giresun University, Turkey
cemalyildiz61@gmail.com

Mihriban HACISALİHOĞLU KARADENİZ
Giresun University, Turkey
mihrideniz61@gmail.com

ABSTRACT

Considering the update of curricula and the importance of problem solving skills in mathematics education; the need for examining the problems in mathematics textbooks in the context of presentation, content, and solution becomes a current issue. In this study, it was aimed to designate the problem types used in middle school mathematics textbooks and to determine whether the problem types used are dependent on class levels or not. The study was conducted by using the document analysis method. Data were analyzed by using content analysis method. In terms of presentation, it was observed that textbooks involved the problems rather verbal, not including quantitative data, and short. When contents of the problems were considered, it was observed that the use of the problems routine, not involving missing and irrelevant data, being curriculum dependent, and not being far from daily life is quite high. On the other hand, in terms of solution, it was observed that textbooks included the problem types which are easy, not requiring much calculation, and not involving different strategies more. Types of problems used in the textbooks can be enriched in the context of presentation, content, and solution to improve achievements and problem solving skills of students in mathematics classrooms.

Keywords: Mathematics education, problem types, problem solving, mathematics textbooks.

INTRODUCTION

Problems are obstacles that we face in daily life and situations that we have difficulty dealing with (Huilt, 1992; Kneeland, 2001). In other words, a problem is a conflict situation in which individuals encounter obstacles when trying to achieve a goal (Morgan, 1999). For a mathematics teacher, a problem means an unconventional question for which the steps and paths that will take the student to a solution are not known (Schoenfeld, 1989). Problem solving in mathematics is defined as the process of solving non-routine problems, applying mathematics to real situations, suggesting and testing interpretations that may lead to creation of new fields (Charles, 1985). All experiences gained by the individual from childhood form the basis of the problem solving process (Kennedy, 1980). In this sense, problem solving can be seen as a process that may eliminate many obstacles to development of the individual.

National Council of Teachers of Mathematics (NCTM) published a document titled Curriculum and Evaluation Standards for School Mathematics in 1989 (NCTM, 1989). The document notes that the use of problem solving skills by students will only be possible by turning problems into mathematical equations, utilizing different strategies when solving problems, checking the accuracy of, and generalizing results (NCTM, 1989: p.209). This statement highlights how important problem solving is for mathematics teaching. For this reason, it can be said that problem solving is of vital importance (Yıldız, 2016). The importance of improving problem solving skills is emphasized in renewed and updated mathematics curricula in Turkey as well (Ministry of National Education [MoNE], 2009, 2013).

Middle school mathematics curriculum aims to provide students with basic concepts and skills, help them understand problem solving strategies, and allow them to see that mathematics can be applied to problems of daily life (MoNE, 2013). Students will learn to value mathematics by finding different ways to solution in the problem solving process, which will allow them to be successful, and successful students will develop positive attitudes toward mathematics (MoNE, 2009). Also, the use of different methods or strategies by teachers will motivate students and encourage them to become active in in-class applications (Silver, Ghousseini, Gosen, Charalambous, & Font Strawhun, 2005). In order to keep students active during the class, teachers may use different problem types in their lectures. The use of different problem types during in-class applications is of great importance for the development of students' problem solving skills (Özmen, Taşkın, & Güven, 2012).

It is obvious that curricula and in-class applications of teachers alone will not be enough to help students reach the desired level in terms of problem solving skills. The importance of problem types used in mathematics textbooks cannot be denied, since "we cannot expect students to improve when they face with the same problem type all the time (Özmen et al., 2012)". For this reason, textbook authors need to "be careful when choosing problem types which teachers use in their in-class applications as well (Hembree, 1992)". Also, in order to attain goals of middle school mathematics curriculum specified above, it is necessary to introduce teachers to textbooks prepared with different problem types. Because teachers firstly refer to textbooks when making a decision on how to teach subjects and how to make use of the curriculum (Beaton, Mullis, Martin, Gonzalez, Kelly, & Smith, 1996). Moreover, as well as guiding teachers in facilitating the learning process, textbooks are the most important sources for students to study at home, develop projects or do homework (Duman, Karakaya, Çakmak, Eray, & Özkan, 2001). The use of different problem types in mathematics textbooks will allow for raising individuals who are able to understand and deal with problems and develop appropriate strategies to solve them. Since problem types play a significant role in improvement of problem solving skills of students and textbooks are of vital importance for both teachers and students, it is necessary to investigate whether mathematics textbooks are prepared in a way that they contain different problem types and whether problem types are selected based on students' level.

Studies in the literature seem to classify problem types used in in-class applications in terms of presentation, content or solution and address one or several of these classifications (Özmen et al., 2012). Although there are numerous studies in the literature reviewing mathematics textbooks for different purposes (Altun, Arslan, & Yazgan, 2004; Arslan & Özpınar, 2009; Demir, Maskan, Çevik, & Baran, 2009; Erbaş, Alacacı, & Bulut, 2012; Gökçek & Hacısalihoğlu Karadeniz, 2013; Işık, 2008; Şahin & Turanlı, 2005; Ünsal & Güneş, 2004; Yan & Lianghuo, 2002; Yıldız, Hacısalihoğlu Karadeniz, & Göl, 2015), the lack of a study examining problem types in middle school mathematics textbooks in terms of presentation, content, and solution created a need for the present study. From this point, how problem types are handled in middle school mathematics textbooks published by MoNE in terms of presentation, content, and solution and whether problem types used are dependent on levels of students at different grades emerged as an important subject of research. Therefore, this study aims to determine the current situation of problem types in middle school mathematics textbooks in terms of presentation, content, and solution and whether problem types used are dependent on levels of students at different grades.

METHOD

The study utilizes the document analysis method. The document analysis method involves the analysis of written or visual materials containing information (books, journals, newspapers, letters, diaries, films, videos, etc.) (Cansız Aktaş, 2014). Considering the purpose of the research, the document analysis method was used in this study with the idea that it would allow for examining middle school mathematics textbooks.

Data Sources and Data Collection

Data sources of the research were randomly selected from middle school mathematics textbooks which were announced by MoNE on its official website to be used in 2015-2016 school year. The list of middle school mathematics textbooks used in the study is as follows:

Committee. (2015). *Middle school mathematics 5th grade 1st book* (3rd Edition). Ankara: MoNE Publishing.
Committee. (2015). *Middle school mathematics 5th grade 2nd book* (3rd Edition). Ankara: MoNE Publishing.
Bağcı, O. (2015). *Middle school mathematics 6th grade textbook.* Ankara: Dikey Publishing.
Bağcı, O. (2015). *Middle school mathematics 7th grade textbook.* Ankara: Tutku Publishing.
Baykal Yelli, B., & Kişi, E. (2015). *Primary education mathematics 8th grade textbook* (2nd Edition). Ankara: MoNE Publishing.

"Problem Types Data Collection Form" was developed by the researchers in order to examine middle school mathematics textbooks. When developing the data collection form, firstly the relevant literature was reviewed and it was checked whether there was a collection tool available to examine middle school mathematics textbooks in terms of presentation, content, and solution. Then, the researchers discussed what criteria could be used to examine mathematics textbooks in accordance with the purpose and the scope of the study and opinions of one Turkish language and three mathematics experts were taken. In this context, we decided to examine problems with solutions found in the textbooks under the titles of grade, unit, subject, and problem types. The grade title in the data collection form indicates the 5th, 6th, 7th, and 8th grades, the unit title and the subject title indicate what units and subjects are addressed in the textbook, and the problem types title indicate categories and sub-categories in Table 1. Categories, sub-categories, and definitions related to sub-categories adapted from the study of Özmen et al. (2012) for problem types are shown in Table 1:

Table 1: Categories, sub-categories and definitions used for problem types

PRESENTATION	Verbal	Problems presented with written statements or figures.
	Visual	Problems presented with visual aids such as figures, tables or graphics.
	Including quantitative data	Problems presented with five or more quantitative data.
	Not including quantitative data	Problems presented with four or fewer quantitative data.
	Long	Problems presented using a large number of words or sentences (at least five sentences).
	Short	Short problems presented using a small number of words or sentences (four and fewer sentences).
CONTENT	Routine	Problems including concretized versions of events encountered by students in real life.
	Non-routine	Problems encouraging the use of flexible methods, in other words; the problems that require not using routine solutions to reach the answer.
	Involving irrelevant data	Problems including data that is not needed for the problem situation and solution.
	Not involving irrelevant data	Problems including all necessary information to find a solution and not involving irrelevant data.
	Far from daily life	Problems with content which students cannot associate with daily life and make adaptations.
	Not far from daily life	Problems with content which students can associate with daily life and make adaptations.
	Involving missing data	Problems for which some of the necessary information is not given.
	Not involving missing data	Problems for which all of the necessary information is given.
	Curriculum dependent	Problems containing attainments of the relevant grade.
	Curriculum independent	Problems containing attainments of the relevant grade and also addressing to different grades or levels.
SOLUTION	Requiring much calculation	Problems which take time to solve and require a lot of operations to solve.
	Not requiring much calculation	Problems with short solutions which require fewer operations to solve.
	Involving different strategies	Problems which can be solved with different solutions other than the linear solution (such as drawing a diagram, intelligent guessing and testing, organizing the data, working backwards strategies, etc.)
	Not involving different strategies	Problems which can only be solved using the linear solution (problems can be solved by direct calculation or construction equation).
	Difficult	Problems which cannot be solved by all students and can discriminate between students at different levels.
	Easy	Problems which can easily be solved by all students and have similar structures.

Data Analysis

The content analysis method was used for data analysis. The content analysis method was preferred for the study for reasons such as "it allows for associating properties of written sources with messages produced and it offers the opportunity to analyze informing techniques (Arıkan, 2004)". The data were tabulated under the titles of grade, unit, subject, and problem types after the content analysis. The types of problems in the textbooks were determined through a consensus between both researchers. In matters on which the researchers could not come to an agreement, opinions of two mathematics teaching experts were taken and the problem types were finalized in accordance with expert opinions. Problems with solutions were classified after being assessed under multiple categories. Also, the chi-square independence test was used in order to determine whether problem types used in the textbooks were independent from grades of students in terms of presentation, content, and solution. Since the number of frequencies smaller than five was more than 20% of the entire data, some arrangements were made to be able to perform the chi-square independence test. In this context, problems including quantitative data under the presentation category were combined with the problems under the long sub-category. Similarly, problems involving missing-irrelevant data under the content category were combined with curriculum independent and non-routine problems. Lastly, all problem types were brought together and the chi-square independence test was used again in order to determine whether problem types were independent from grade.

FINDINGS

It was found that 5th, 6th, 7th, and 8th grade mathematics textbooks contained 133, 69, 50, and 49 problems with solutions respectively. Information related to which units and subjects contained these problems and the number of problems is summarized below:

In the 5th grade mathematics textbook, a total of 22 subjects under 5 units contained problems with solutions. In the "Natural Numbers and Operations (39)" unit, the following subjects contained problems with solutions: '*Patterns (3)', 'Operations with Natural Numbers (16)', 'Operations with Parenthesis (1)', 'Mental Operations (1)', 'Problems (8)', and 'Measuring Time (10)'.* In the "Data Processing (7)" unit, the following subjects contained problems with solutions: '*Creating a Research Question and Data Collection (4)', 'Data Organization and Interpretation (2)', and 'Tree Diagram (1)'.* In the "Geometry (1)" unit, only the *'States of Points According to Each Other (1)'* subject contained problems with solutions. In the "Fractions, Decimal Notation, and Percentage (34)" unit, the following subjects contained problems with solutions: '*Introduction to Fractions with Whole Numbers (3)', 'Equivalent Fractions (2)', 'Calculating The Desired Fraction of Quantities (3)', 'Addition and Subtraction with Fractions (11)', 'Decimal Notation (1)', 'Addition and Subtraction with Decimals (4)', and 'Percentages (10)'.* In the "Geometry and Measurement (52)" unit, the following subjects contained problems with solutions: '*Measuring Length (13)', 'Length of Circumference (15)', 'Angles in Triangles and Quadrilaterals (6)', 'Measuring Area (15)', and 'Geometric Solids (3)'.*

In the 6th grade mathematics textbook, a total of 21 subjects under 5 units contained problems with solutions. In the "Natural Number (10)" unit, the following subjects contained problems with solutions: *'Operations with Natural Numbers (2)', 'Solving Problems with Natural Numbers (4)', 'Prime Numbers (2)', 'Adjacent, Complementary, Supplementary, and Alternate Angles (2)'.* In the "Fractions (26)" unit, the following subjects contained problems with solutions: '*Addition and Subtraction with Fractions (7)', 'Multiplication and Division with Fractions (7)', 'Solving Problems with Fractions (4)', 'Multiplication and Division with Decimal Fractions (1)', 'Estimating Results of Operations with Decimal Fractions (2)'*, and *'Solving Problems with Decimal Fractions (3)'.* In the "Geometry (11)" unit, only the *'Data Analysis (11)'* subject contained problems with solutions. In the "Whole Numbers (5)" unit, the following subjects contained problems with solutions: '*Whole Numbers (1)', 'Addition and Subtraction with Whole Numbers (4)'.* In the "Circumference, Area, and Volume (17)" unit, the following subjects contained problems with solutions: '*Area of Parallelogram (2)', 'Area of Triangle (1)', 'Area Measurement Units (3)', ''Solving Problems Related to Volume (2)'*. '*Volume Measurement Unites (2),* and *'Fluid Measurement Unites (2)'.*

In the 7th grade mathematics textbook, a total of 10 subjects under 5 units contained problems with solutions. In the "Operations with Whole Numbers and Rational Numbers (9)" unit, the following subjects contained problems with solutions: '*Problems Requiring Operations with Whole Numbers (5)'* and *'Multi-staged Operations and Problems with Rational Numbers (4)'.* In the "Equations (5)" unit, the following subjects contained problems with solutions: *'Protecting the Equality in Equations (4)'* and *'Coordinate System (1)'.* In the "Ratio-Proportion and Percentages (26)" unit, the following subjects contained problems with solutions: *'Quantities in Ratio (5)', 'Inverse Proportion (11)',* and *'Percentages (10)'.* In the "Lines, Circles, and Data Processing (3)" unit, the following subjects contained problems with solutions: *'Circle Graph (1)'* and *'Lines and Angles (2)'.* In the "Polygons and Rotation Geometry (7)" unit, only the *'Area of Rhombus and Trapezoid (7)'* subject contained problems with solutions.

In the 8th grade mathematics textbook, a total of 12 subjects under 6 units contained problems with solutions. In the "From Geometry to Probability (12)" unit, the following subjects contained problems with solutions: *'Exponential Numbers (2)',* and *'Probability and Combination (10)'.* In the "The World of Numbers (9)" unit, the following subjects contained problems with solutions: *'Real Numbers (5)',* and *'Identities, Factorizing, and Rational Expressions (4)'.* In the "The World of Triangles (7)" unit, the following subjects contained problems with solutions: *'Edges and Angles in Triangles (1)',* and *'Identity and Similarity in Triangles and Trigonometric Ratios (6)'.* In the "A Journey in Mathematics (6)" unit, the following subjects contained problems with solutions: *'Slope, Equation Systems, and Graphs (4)',* and *'Different Representation of Data and Statistics (2)'.* In the "Introduction to Geometric Solids (9)" unit, the following subjects contained problems with solutions: *'Prisms and Pyramids (3)', 'Cone and Sphere (3),* and *'Intersections of Geometric Solids (3)'.* In the "Volume of Geometric Solids and Illustrations (6)" unit, only the *'Volume Relations (6)'* subject contained problems with solutions.

Findings Related to Distribution of Problems with Solutions In Terms of Presentation

Problems with solutions found in the middle school mathematics textbooks were examined in terms of presentation and the number of problems under each sub-category was tabulated as follows according to grade:

Table 2: Distribution of problems with solutions in terms of presentation

Grades	Unit Names	Verbal	Visual	Including Quantitative Data	Not Including Quantitative Data	Long	Short
5th Grade	Natural Numbers and Operations	36	3	2	37	9	30
	Data Processing	5	2	3	4	1	6
	Geometry	0	1	1	0	0	1
	Fractions, Decimal Notation, and Percentage	31	3	0	34	0	34
	Geometry and Measurement	18	34	5	47	3	49
6th Grade	Natural Numbers	10	0	3	7	4	6
	Fractions	25	1	2	24	5	21
	Data, Tables, and Graphics	10	1	8	3	4	7
	Whole Numbers	5	0	1	4	2	3
	Circumference, Area, and Volume	15	2	2	15	5	12
7th Grade	Operations with Whole Numbers and Rational Numbers	2	7	1	8	1	8
	Equations	1	4	1	4	1	4
	Ratio-Proportion and Percentages	18	8	0	26	1	25
	Lines, Circles, and Data Processing	1	2	0	3	0	3
	Polygons and Rotation Geometry	4	3	2	5	0	7
8th Grade	From Geometry to Probability	12	0	1	11	4	8
	The World of Numbers	8	1	0	9	3	6
	The World of Triangles	2	5	1	6	5	2
	A Journey in Mathematics	4	2	3	3	6	0
	Introduction to Geometric Solids	2	7	1	8	5	4
	Volume of Geometric Solids and Illustrations	2	4	2	4	5	1
	Total	211	90	39	262	64	237

The table shows that the middle school mathematics textbooks mostly use verbal and short problems which do not include quantitative data. The result of the analysis performed in order to determine whether the presentation structure of problems were independent of grade was found to be χ^2(sd=12, n=903)=90.836 and p=0,000<0.05. It is understood that there is a significant relationship between the presentation structure of problems used in the textbooks and grade.

Findings Related to Distribution of Problems with Solutions In Terms of Content

Problems with solutions found in the middle school mathematics textbooks were examined in terms of content and the number of problems under each sub-category was tabulated as follows according to grade:

Table 3: Distribution of problems with solutions in terms of content

Grades	**Unit Names**	**Routine**	**Non-routine**	**Involving Irrelevant Data**	**Not Involving Irrelevant Data**	**Far from Daily Life**	**Not far from Daily Life**	**Involving Missing Data**	**Not Involving Missing Data**	**Curriculum Dependent**	**Curriculum Independent**
5th Grade	Natural Numbers and Operations	34	5	0	39	1	38	0	39	39	0
	Data Processing	7	0	0	7	0	7	0	7	7	0
	Geometry	1	0	0	1	0	1	0	1	1	0
	Fractions, Decimal Notation, and Percentage	34	0	0	34	0	34	0	34	34	0
	Geometry and Measurement	42	10	0	52	18	34	0	52	52	0
6th Grade	Natural Numbers	10	0	0	10	3	7	0	10	10	0
	Fractions	25	1	2	24	1	25	0	26	26	0
	Data, Tables, and Graphics	11	0	0	11	5	6	0	11	11	0
	Whole Numbers	5	0	0	5	0	5	0	5	5	0
	Circumference, Area, and Volume	17	0	0	17	5	12	0	17	17	0
7th Grade	Operations with Whole Numbers and Rational Numbers	9	0	0	9	0	9	0	9	0	9
	Equations	5	0	0	5	1	4	0	5	5	0
	Ratio-Proportion and Percentages	26	0	0	26	0	26	0	26	26	0
	Lines, Circles, and Data Processing	3	0	0	3	0	3	0	3	3	0
	Polygons and Rotation Geometry	7	0	0	7	2	5	0	7	7	0
8th Grade	From Geometry to Probability	12	0	1	11	0	12	0	12	12	0
	The World of Numbers	9	0	0	9	3	6	0	9	9	0
	The World of Triangles	7	0	0	7	0	7	0	7	7	0
	A Journey in Mathematics	6	0	0	6	0	6	0	6	6	0
	Introduction to Geometric Solids	8	1	0	9	1	8	0	9	9	0
	Volume of Geometric Solids and Illustrations	5	1	0	6	1	5	0	6	6	0
Total		283	18	3	298	41	260	0	301	292	9

The table shows that the middle school mathematics textbooks mostly use routine, curriculum dependent problems which are not far from daily life and do not involve missing and irrelevant data. The result of the analysis performed in order to determine whether the content structure of problems were independent of grade was found to be χ^2(sd=21, n=1505)=23.666 and p=0.310>0.05. It is understood that there is an insignificant relationship between the content structure of problems used in the textbooks and grade.

Findings Related to Distribution of Problems with Solutions In Terms of Solution

Problems with solutions found in the middle school mathematics textbooks were examined in terms of solution and the number of problems under each sub-category was tabulated as follows according to grade:

Table 4: Distribution of problems with solutions in terms of solution

Grades	Unit Names	Requiring Much Calculation	Not Requiring Much Calculation	Involving Different Strategies	Not Involving Different Strategies	Difficult	Easy
5th Grade	Natural Numbers and Operations	12	27	1	38	2	37
	Data Processing	5	2	2	5	0	7
	Geometry	0	1	0	1	0	1
	Fractions, Decimal Notation, and Percentage	6	28	2	32	3	31
	Geometry and Measurement	19	33	14	38	13	39
6th Grade	Natural Numbers	4	6	4	6	4	6
	Fractions	5	21	6	20	1	25
	Data, Tables, and Graphics	6	5	0	11	2	9
	Whole Numbers	0	5	0	5	0	5
	Circumference, Area, and Volume	8	9	0	17	1	16
7th Grade	Operations with Whole Numbers and Rational Numbers	0	9	0	9	1	8
	Equations	4	1	5	0	5	0
	Ratio-Proportion and Percentages	6	20	8	18	6	20
	Lines, Circles, and Data Processing	0	3	0	3	0	3
	Polygons and Rotation Geometry	0	7	0	7	0	7
8th Grade	From Geometry to Probability	8	4	3	9	4	8
	The World of Numbers	2	7	1	8	2	7
	The World of Triangles	3	4	1	6	2	5
	A Journey in Mathematics	4	2	2	4	1	5
	Introduction to Geometric Solids	2	7	0	9	2	7
	Volume of Geometric Solids and Illustrations	3	3	0	6	1	5
Total		97	204	49	252	50	251

The table shows that the middle school mathematics textbooks mostly use easy problems which do not require much calculation and different strategies. The result of the analysis performed in order to determine whether solution of problems were independent of grade was found to be χ^2(sd=15, n=903)=17.577 and p=0.286>0.05. It is understood that there is an insignificant relationship between the solution structure of problems used in the textbooks and grade. The result of the analysis performed in order to determine whether the problems types used in textbooks were independent of grade was found to be χ^2(sd=54, n=3311)=132.079 and p=0,000<0.05. It is understood that there is a significant relationship between the problem types used in the textbooks and grade.

DISCUSSION and CONCLUSION

The following results were found as a result of the discussion made based on findings of the study, which was conducted in order to investigate whether mathematics textbooks are prepared in a way that they contain different problem types and whether problem types are selected based on students' level:

It was determined that there was a significant relationship between the presentation structure of problems used in the textbooks and grade. Also, it was found that the middle school mathematics textbooks mostly used verbal and short problems which do not include quantitative data. This result may be related to the fact that the nature of units and subjects in the textbooks are more appropriate for verbal problems. However, considering that visually presented problems increase student success (Hembree, 1992), we believe that adding visual problems to textbooks will be useful. This may allow students to improve their problem solving skills. In addition, it seems that short problems which do not include quantitative data are preferred frequently. The authors may have preferred to use short problems which do not include quantitative data in textbooks with the idea that long problems which include quantitative data may be too difficult for and misunderstood by students. However, short problems which include quantitative data may be added to textbooks in order to allow students to improve their problem solving skills.

When problem types in textbooks were examined in terms of content, it was found that routine, curriculum dependent problems which are not far from daily life, and do not involve missing and irrelevant data were preferred more frequently. Also, problems involving missing data were not seen in any of the textbooks. It was found that authors used routine problems more frequently compared to non-routine problems. The reason behind authors' reluctance to use non-standard problems may be the curriculum dependent and exam-centric nature of the Turkish educational system or that they do not possess the necessary experience and knowledge to prepare different types of problems. Considering that non-routine problems will have positive effects on students' learning of problem solving strategies (Dönmez, 2002) and development of different strategies (Follmer, 2000), we believe that non-routine question should be added to textbooks as well.

When problem types in textbooks were examined in terms of solution, it was observed easy problems which do not require much calculation and different strategies were preferred more frequently. It is noted in the literature (Özmen et al., 2012) that mathematics teachers use very easy problems which do not require much calculation in their lectures. It seems that authors prefer problem types which will allow students to solve a high number of problems and practice. We believe that the exam-centric educational system in Turkey is effective in this case. Considering that it is necessary to provide students with different solutions for a problem in order to motivate them and increase their participation to class (Silver et al., 2005), we recommend that problems with different difficulty levels which require using different strategies are added to textbooks.

In summary, it is understood that there is a significant relationship between the problem types used in the textbooks and grade. Also, it seems that authors of textbooks prefer to use verbal, short, routine, easy, curriculum dependent problems which are no far from daily life and do not include quantitative data, do not require much calculation and strategies, do not involve missing and irrelevant data. In order to visualize problems for students and allow them to gain more concrete experiences, we recommend that visual and long problems which include quantitative data are added to textbooks in terms of presentation. We also recommend that non-routine, curriculum independent problems which are far from daily life and involve missing and irrelevant data are added to textbooks in order to increase mathematical thinking skills of students and allow them to develop different solutions for problems which they encounter. In order to ensure students become good problem solvers in future and allow them to develop different strategies, we believe that difficult problems which require much calculation and different strategies should be added to textbooks. Thus, teachers who use textbooks containing different problem types will raise students who can think mathematically, have improved reasoning ability and high associating ability. Lastly, we recommend that future researchers examine problems without solutions in middle school mathematics textbooks in terms of presentation and content and conduct similar studies for problems with and without solutions in high school mathematics textbooks.

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Experiential Education In Undergraduate Teacher Training And Its Influence On The Classroom Climate

Renata OROSOVA
Faculty of Arts, Department of Education, Slovakia
renata.orosova@gmail.com

Andrea KLİMKOVA
Faculty of Arts, Department of Education, Slovakia
andrea.klimkova@upjs.sk

ABSTRACT

Classroom climate is an essential determinant of educational and edifying process of students in the school. One possibility of effective development experiential education appears from the process aspect of Ethics whose inspiration can be used. The paper presents the possibility of a positive classroom climate through the implementation of experiential education already in undergraduate teacher training. The authors, which results based of research conducted at selected elementary schools in Slovakia, emphasize influence by the class teacher, his approach impact heads to one component of the classroom climate - satisfaction. They also point to the need for changes in undergraduate teacher training towards the acquisition of competences how to create and develop a positive classroom climate.

INTRODUCTION AND THEORETICAL STARTING-POINTS

In the 20th century, the professionalization of teaching as an occupation shifted the minimal competencies of teachers from disseminating knowledge into a broad and open expertise (Kosová in Kasáčová et al., 2006). World pedagogy is progressing from the understanding of teaching as a technological process towards perceiving it as a flexible and creative process of personal meetings between the teacher and pupil through the subject matter. The teacher is perceived as an expert in these meetings; they facilitate the learning process and solve educational situations in school (Coolahan, Vonk, Shulman, Hustler, Intyre, Perrenoud, Berliner and others in Spilková, 2004). Therefore, the teacher should be able to expertly diagnose situations and subjects, identify, and apply interpersonal strategies as well as self-reflection (Vašutová, 2004). Spilková (2004) shifts the accent from the theoretical basis of academic subjects to psychodidactic education, and general cultivation of the teacher. Current European trends reflect the requirement regarding the structure of teacher competencies and the common effort of the experts, thus dividing these competencies into two major groups: a) competences related to the process of teaching, b) competencies related to the results of teaching (European Commission, 2002). Based on this study, the expert group in Slovakia designed a **teacher competency profile,** which defines both key and specific competencies in the context of professional standards (Kasáčová et al., 2006). It is comprised of three dimensions: a) pupil, b) educational process, and c) teacher's own personal development. Within these dimensions, the teacher is expected to identify the developmental and individual characteristics of their pupil, the psychological and social factors influencing their learning, and the sociocultural context of their development. They are expected to mediate the subject matter, create appropriate conditions for education (positive classroom climate), influence personal development, and last but not least, to grow professionally and self-develop. During pre-graduate training, there are opportunities to develop competencies in future teachers – establish the basis of their professionalism. The framework of the key competencies is a part of it, maintaining the status of teachers as experts. The core of teacher professionalism consisting of the didactic component and practical training is currently the most underestimated area (Kosová et al., 2012). Whilst the preparation of future teachers in basic theoretical disciplines evolved at universities, the practical and professional components of training did not change much (Kosová, Tomengová et al., 2015). Based on this, it seems that one of the priorities of pre-graduate training should be the development of competencies in future teachers related to practical and professional skills.

Innovations in approaches, methods and forms have been recently introduced, however, they need to be employed as soon as the pre-graduate training. Turek (2014) points out that there are hardly any innovative approaches regarding the teacher personality development in the context of the competence profile. He states that scientific and expert competencies prevail in teacher training. Personalist, constructivist, and social contextual trends are integrated into the model of the teacher as a reflexive expert (Kosová et al., 2012). These trends emphasize the gradual development, maturing of the teacher's personality, who – through constant reflection – turns from a student into a teacher, an expert in teaching and developing other people.

As for the innovative approach to the creation and development of the competence profile of the future teacher, experiential education gradually finds its way into the system of pedagogic sciences. Experiential education develops an individual's personality universally by using specific forms, methods, and educational tools based on personal experience (Kratochvílová, 2010). Many research studies and analyses speak of the psychological, sociological, physiological, and educational benefits of experiential activities (Ewert, 1989, Barrett, Greenaway, 1995). According to Jurásek (2004), experiential education teaches through personal experience; apart from traditional pedagogy, it allows one to confront themselves with other people. Based on this, experiential education rightly has its place in the educational process, therefore also in the pre-graduate training of teachers. Moreover, it is desirable that teachers learn how to apply experiential education in their teaching practice and use its tools effectively – research indicates that experiential education positively influences the classroom climate (Orosová, 2010; Orosová, 2011, Brestovanský, 2013; Ferencová, Šuťáková, 2004). During pre-graduate training, it is necessary to develop the personality of the future teacher, acquaint them with new, untraditional methods, techniques, and approaches; encourage their creativity and innovative ideas related to the educational process they plan and control, and make them realize the importance of their own self-development. It seems that experiential education as a method should be taught during pre-graduate training; research has proven that teachers are not sufficiently prepared to take care of extraordinarily talented or specific-needs students (Machu, Málek, 2015). Scientific research of experiential education and its influence on the personality development of future teachers as well as its impact on the competence profile of a student of teaching has become a topical issue.

As for inspiration regarding the implementation of experiential education in the educational process, Ethics as an academic subject is a great source. Ethics as an academic subject, as its name indicates, is not only an educational subject – it is a very specific and original subject consisting of three interconnected levels: cognitive – educational (learning knowledge, skills, and habits, upbringing – (an affective level) forms, develops, and refines moral, civil, and aesthetic attitudes and values; and developing (motivation for life-long improvement, searching for a life mission, creativity, cooperation, identity, autonomy). In comparison with other subjects, Ethics has a very specific processual constitution. According to Podmanický (2013), Ethics as an academic subject draws from the fact that ethical attitudes are formed through live experience and exposure to morally relevant situations. A model of education and upbringing that involves original experiences consisting of stages and sequences is more than suitable for ethics. Here we are speaking of the 4-level model of experiential education. The current teaching styles in ethics involves the processually relevant experiential method, which emphasizes essential human experience, their identity, as well as the holistic approach permitting the person experience and process something on various levels. The extraordinary nature of the situations, its newness – the challenge – turns into a specific and personal reflection for the pupil/student. Upbringing is mainly a formative and relationship-creating process; a person is considered integrated based on the quality of the relationships they exist in (Říčan, 2004).

In the school environment, relationships can be discussed in the context of the classroom climate. Kolář et al. (2012) define **classroom climate** as the long-term atmosphere typical for the given class. The climate is created by all pupils as a whole, groups of pupils, individuals, and also teachers who teach this class. The classroom climate can be observed from five perspectives: satisfaction, friction, competitiveness, teaching difficulty, and class cohesiveness. According to Hanuliaková (2010), creating a positive atmosphere and optimal climate is a precondition to form and improve social competencies in pupils. Finally, the creation of a positive climate in a class is in the hands of the teacher, one of its basic factors. The teacher's approach significantly influences the classroom climate. Often it is said, that a class –as the collective, and therefore also the classroom climate, reflects the approach of the class teacher. The classroom climate needs to be addressed as soon as the pre-graduate training. Future teachers should develop their competencies related to the formation of a positive classroom climate. They should be prepared both theoretically and practically; know the ways and tools to do so (Honzíková, 2015). The classroom climate can be positively influenced using various tools; one of them seems to be dramatization (Puchalová, 2005). Due to the absence of previous research regarding experiential education and its influence on positive classroom climate, we decided to maintain the continuity of studies regarding classroom climate, pre-graduate training, and experiential education, join them, and carry out our own research.

METHODOLOGY

The research was focused on the influence of experiential education applied by the class teacher in their work on the classroom climate. The aim of the research was to find out whether the classroom climate is, in fact, influenced by the class teacher who had employed the features of experiential educational already during their own pre-graduate training.

The goal of our research was to detect the influence of expert level experiential teaching on the classroom climate. As the independent variable, class teachers of the 5th year of the primary school were selected, based on the following criteria:

a) *they used experiential education on the expert level*, i.e. *they studied* subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; and they actually apply this knowledge during class meetings.
b) *they used experiential education on the non-expert level*, i.e. they *did not study* subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; however, they apply the method during class meetings because they learned it on their own.

The dependent variable was the classroom climate consisting of the following components: satisfaction, friction, competitiveness, teaching difficulty and class cohesiveness. For the purpose of this study, only satisfaction was selected for focus.

In order to achieve the research goal, it was important to fulfil the following **research tasks**:

1. Identify the initial classroom climates in the research groups – pretest.
2. Carry out a teaching experiment – use experiential education by the class teacher during class meetings.
3. Verify the classroom climate after the experiment was carried out – post test.

After these tasks were fulfilled, obtained data were statistically processed and correlations detected. Based on them, recommendations for the teaching practice were formulated.

The selected sample of subject consisted of pupils of the 5th year of primary schools located in the eastern part of Slovakia, namely the districts of: Stará Ľubovňa, Sabinov, Humenné, Prešov, Vranov and Košice. The collectives did not change in terms of members between the 4th and 5th years.

The sample was selected according to three criteria:

- ✓ there were at least two classes in the given year of study at the given school,
- ✓ one of the class teachers studied subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; and they applied this knowledge during class meetings.
- ✓ one of the class teachers did not study subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; however, they applied the method during class meetings based on what they learned on their own.

The experimental group (EG) consisted of 160 pupils from 6 primary schools. The control group (CG) consisted of 154 pupils from 6 primary schools. The total number of pupils involved in the research was 314 pupils in their 5th year of studies from 6 primary schools. 12 class teachers participated in the research; 6 teachers studied subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; and they applied this knowledge during class meetings, i.e. they used experiential education expertly; 6 teachers did not study subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; however, they applied the method during class meetings based on what they learned on their own, i.e. they did not use experiential education expertly.

Research sample labelling:

EG – experimental group – classes led by teachers who studied subjects aimed at the implementation of experiential education in the educational process from the position of the class teacher, i.e. they used experiential education expertly
EG – control group – classes led by teachers who did not study subjects aimed at the implementation of experiential education into the educational process from the position of the class teacher; however, they applied the method during class meetings based on what they learned on their own, i.e. they did not use experiential education expertly.
EEE – Class with a class teacher who used experiential education expertly.
NEE – Class with a class teacher who did not use experiential education expertly.

Table 1: Structure of research samples

Group	Class	# of pupils			Total
		boys	girls	total	
EG	1EEE	13	16	29	160
	2EEE	10	14	24	
	3EEE	12	15	27	
	4EEE	13	13	26	
	5EEE	12	13	25	
	6EEE	12	17	29	
CG	1NEE	11	16	27	154
	2NEE	11	13	24	
	3NEE	10	16	26	
	4NEE	11	14	25	
	5NEE	12	13	25	
	6NEE	13	14	27	
Total		**140**	**174**	**314**	**314**

Source: own processing

The standardized „Naša trieda“ MCI (My Class Inventory) questionnaire originally created by Fraser and Fischer (1986, in Lašek, Mareš, 1991) was used in the first and third stages of our research. The questionnaire is designed for primary school pupils from the 3rd to 6th years of study. This method was selected because of the simplicity of questions, ways the opinion was to be expressed, and minimization of exhaustion in pupils. The questionnaire was filled in by both the experimental and control groups before (pretest) and after (post test) the experiment was carried out. The questionnaire allowed us to evaluate the classroom climate from five perspectives. However, for the purpose this study, only one perspective will be discussed – class satisfaction. The items in the questionnaire were assigned 3, 2, and 1 points to the answers YES, I DON'T KNOW, and NO respectively. Items no. 6, 9, 10, 16, 24 points were assigned the other way around. The characteristics of the classroom climate were subsequently evaluated based on the following criteria:

Table 2: Scale of classroom climate characteristics for satisfaction

Variable	Climate characteristics	# of points
satisfaction	Excellent	13.1 - 15
	Good	10.1 - 13
	Worse	7.1 - 10
	Inappropriate	5 - 7

Source: personal processing according to Köbölova, Rötling, Sihelsky, 2006

In the second stage of the research, the teaching experiment was carried out: all teachers led the class meetings according to identical plans. In the experimental groups, class teachers used methods of experiential education (physical activities, visiting nature, didactic games, music, painting, etc.) as they were taught during their pre-graduate training. In the control groups, class teachers used experiential education methods (physical activities, visiting nature, didactic games, music, painting, etc.) as they learned on their own.

RESEARCH RESULTS

Phenomenon analysis, descriptive statistics (mean, mode, standard deviation, kurtosis, skewness, range, maximum, minimum, sum, median) and inductive statistics (Kolmogorov–Smirnov test – a nonparametric test of data distribution normality; Wilcoxon signed-rank test – to verify the research hypothesis).

Items no. 1, 6, 11, 16, 21 were aimed at identifying class satisfaction. Statements were focused on the pupils' interest in class activity, happiness, affection and fun in the class. The fifth year of study is a milestone for primary school pupils, because the system of teaching changes and the frequency of their contact with their class teacher are much lower. Class satisfaction is very important in this year, because students are just acquiring habits necessary for the second level of primary school (subjects suddenly taught by different teachers, etc.).

Table 3: Class satisfaction

Group	Class	Satisfaction				
		pretest		post test		change
		mean	climate	mean	climate	
EG	1EEE	12.34	Good	14.48	Excellent	2.14
	2EEE	9.88	Worse	12.29	Good	2.42
	3EEE	11.63	Good	13.85	Excellent	2.22
	4EEE	11.96	Good	14.19	Excellent	2.23
	5EEE	10.16	Good	12.88	Good	2.72
	6EEE	11.93	Good	14.17	Excellent	2.24
	Total	11.38	Good	13.69	Excellent	2.32
CG	1NEE	11.96	Good	12.00	Good	0.04
	2NEE	10.96	Good	11.04	Good	0.08
	3NEE	12.27	Good	12.31	Good	0.04
	4NEE	10.77	Good	10.88	Good	0.11
	5NEE	11.96	Good	12.00	Good	0.04
	6NEE	11.93	Good	11.96	Good	0.04
	Total	11.65	Good	11.71	Good	0.07

Source: own processing

The initial measurement showed that the overall climate in the research groups was good. In one group – 2EEE – the satisfaction component of the climate was weaker. The numerical representations of other groups did not differ significantly. However, the final measurement showed differences in the climate among different groups. The most significant change was observed in EEE – the climate changed by 2.72. Another significant change was observed in 2EEE in which the worse climate improved for good. The overall climate – satisfaction in the EG and CG changed by 2.32 and 0.07 respectively.

Using the methods of descriptive statistics, basic characteristics of the statistical sets were identified.

Table 4: Descriptive statistics Pretest_EG

N	*Valid*	160
	Missing	0
Mean		11.38
Mode		13.00
Std Dev		2.21
Kurtosis		-,67
Skewness		-,34
Range		8.00
Minimum		7.00
Maximum		15.00
Sum		1820.00
Percentiles	*50 (Median)*	11.00

Table 5: Descriptive statistics Posttest_EG

N	*Valid*	160
	Missing	0
Mean		13.69
Mode		15.00
Std Dev		1.64
Kurtosis		1.23
Skewness		-1.22
Range		8.00
Minimum		7.00
Maximum		15.00
Sum		2191.00
Percentiles	*50 (Median)*	15.00

Table 6: Descriptive statistics Pretest_CG

	Valid	154
	Missing	6
Mean		11.74
Mode		11.00
Std Dev		2.14
Kurtosis		-,63
Skewness		-,23
Range		8.00
Minimum		7.00
Maximum		15.00
Sum		1808.00
Percentiles	*50 (Median)*	11.50

Table 7: Descriptive statistics Posttest_CG

N	*Valid*	154
	Missing	6
Mean		11.71
Mode		11.00
Std Dev		2.03
Kurtosis		-,36
Skewness		-,21
Range		8.00
Minimum		7.00
Maximum		15.00
Sum		1804.00
Percentiles	*50 (Median)*	11.00

Results were statistically verified. Using the Kolmogorov–Smirnov test it was found out that the data distribution was not normal in either of the groups.

Table 8: One-Sample Kolmogorov-Smirnov Test

		Pretest_EG	Pretest_CG	Posttest_EG	Posttest_CG
N		160	154	160	154
Normal Parameters	*Mean*	11.38	11.74	13.69	11.71
	Std. Deviation	2.21	2.14	1.64	2.03
Most Extreme Differences	*Absolute*	,16	,14	,30	,17
	Positive	,11	,14	,21	,17
	Negative	-,16	-,14	-,30	-,17
Kolmogorov-Smirnov Z		2.06	1.79	3.78	2.11
Asymp. Sig. (2-tailed)		,000	,002	,000	,000

Due to the results of the Kolmogorov–Smirnov test ($p < 0.05$), hypotheses were verified using the non-parametric Wilcoxon signed-rank test.

Before the teaching experiment statistical equality of the research samples (both experimental and control groups) was detected.
H0: At the beginning of the experiment there was no difference between the experimental and control groups.
H1: At the beginning of the experiment there was a difference between the experimental and control groups.

Table 9: Wilcoxon pretest_EG with pretest_CG (Paired)
Ranks

		N	Mean Rank	Sum of Ranks
Pretest_EG – Pretest_CG	*Negative Ranks*	65	68.45	4449.00
	Positive Ranks	58	54.78	3177.00
	Ties	31		
	Total	154		

TestStatistics

	Pretest_EG – Pretest_CG
Z	-1.61
Asymp. Sig. (2-tailed)	,107

Conclusion
$p > 0.05$ The null hypothesis was accepted: There was no statistically significant difference between the experimental and control groups at the input.

During the teaching experiment statistical differences in the classroom climate – satisfaction was detected and hypotheses verified.

H0: (Expert) use of experiential education in the position of a class teacher does not influence satisfaction in class pupils.
H1: (Expert) use of experiential education in the position of a class teacher does influence satisfaction in class pupils.

Table 10: Wilcoxon Pretest_EG with Posttest_EG (Paired)
Ranks

		N	Mean Rank	Sum of Ranks
Pretest_EG – Posttest_CG	*Negative Ranks*	123	70.52	8674.00
	Positive Ranks	12	42.17	506.00
	Ties	25		
	Total	160		

TestStatistics

	Pretest_EG – Posttest_CG
Z	-9.04
Asymp. Sig. (2-tailed)	,000

Conclusion
$p < 0.05$ Alternative hypothesis was accepted. (Expert) use of experiential education in the position of a class teacher does influence satisfaction in class pupils.

H0: (Non-expert) use of experiential education in the position of a class teacher does not influence satisfaction in class pupils.
H1: (Non-expert) use of experiential education in the position of a class teacher does influence satisfaction in class pupils.

Table 11: Wilcoxon Pretest_EG with Posttest_EG (Paired)
Ranks

		N	Mean Rank	Sum of Ranks
Pretest_EG – Posttest_CG	*Negative Ranks*	36	34.03	1225.00
	Positive Ranks	34	37.06	1260.00
	Ties	84		
	Total	154		

TestStatistics

	Pretest_EG – Posttest_CG
Z	-,10
Asymp. Sig. (2-tailed)	,917

Conclusion
$p > 0.05$ The null hypothesis was accepted: (Non-expert) use of experiential education in the position of a class teacher does not influence satisfaction in class pupils.

Statistical verification of hypotheses at the significance level of 0.05 confirmed differences in the impact of expert and non-expert use of experiential education on the classroom climate – satisfaction.

CONCLUSIONS

The aim of the research was to point out the importance of the positive relationship on the class teacher – class – pupil axis, teacher's competencies related to the use of experiential education in their work, and finally, also the importance of implementing experiential education in the pre-graduate training of future teachers. Research results confirmed that it is important to pay more attention to the pre-graduate training of future teachers and improve their competencies related to the practical use of experiential education in the educational process. The findings provided by this research have been implemented in the pre-graduate training of future teachers at Pavol Jozef Šafárik University in Košice in the selected subjects of the Teaching of Academic Subjects study programme (Experiential Education, Class Management). It can be stated that graduates of the currently running teaching courses in their Master degree studies should possess competencies related to active usage experiential education features in the educational process. Teachers play the role of class teachers and the main aim is related to upbringing. Their primary task should therefore be to create and develop a positive classroom climate. One of the tools to achieve it is experiential education and its expert use in the educational process.

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Exploring Midwives' Knowledge About Myelomeningocele In North Western Indonesia

Siahaan AMP
Neurosurgery Department, Medical Faculty Universitas Sumatera Utara, Medan-Indonesia
andremarolop@gmail.com

Lumbanraja SN
Obstetrics and Gynecologic Department, Medical Faculty Universitas Sumatera Utara, Medan-Indonesia
sarmalumbanraja@yahoo.com

ABSTRACT

Background. Myelomeningocele is a condition that still becomes a burden in third world countries. This is actually a highly preventable chronic condition and the prognosis is significantly affected by the timing of primary neurosurgical repair. Midwives have critical role in diagnosing and enhancing families' education about this condition.

Objectives. To provide insight into midwives' knowledge about (a) prevention of myelomeningocele, (b) diagnosing myelomeningocele, and (c) management of myelomeningocele.

Method. A cross sectional descriptive study was conducted using a questionnaire. A total of 74 midwives from North Western Indonesia participated in this study.

Results. This study found that vast majority of the midwives (>80%) responded correctly about the role of folic acid in prevention of myelomeningocele, but only less than a quarter of the participants knew how to diagnose and manage this condition.

Conclusion. This study suggests that new educational strategies should be developed for Indonesian midwives to improve their knowledge about diagnosis and management of myelomeningocele.

INTRODUCTION

Myelomeningocele is a highly preventable and treatable chronic condition. It has poor outcome when untreated, while aggressive treatment will allow good outcome. The incidence of this malformation has been reduced significantly in last decade, could be due to better prenatal diagnosis, genetic counseling, and mostly folic acid supplementation during pregnancy.[1] Even so, the incidence of this malformation is still around 1 per 1000 live birth.[2]

Surgery remains the main treatment modality for this condition. The goal of surgery is to stabilize the neurological status of infant and to prevent the risk of new deficit.[3] Timing of surgery is very important, since closure of the spinal lesion on the first day is proved to provide best chance of having good lower urinary tract function.[4]

Midwives are female health workers who are trained to provide prenatal, labor and delivery, postpartum and neonatal care, how to raise community awareness and understanding of abnormal labor, and provide health education. There is growing proof indicating significant contribution of midwives to the pregnancy outcome, either for women or infants.[5] Shortage or poor knowledge of midwives would give bad implications for the care of women as well as the baby. The main factors contributed to this problem include poor access to continuous education, high workload, stress, and burnout.[6]

In Indonesia, it is estimated that almost 70% of births are conducted by midwives in maternity home.[7] This fact makes midwives have significant role in detection of prenatal congenital abnormalities, including myelomeningocele. Thus, the main objective of the study was to investigate knowledge of North-Western Indonesian practicing midwives on myelomeningocele treatment. We also explored the correlation between knowledge and attitudes, years of education, and midwives training experience.

METHODS

Design and Setting

A multicentric cross sectional study was performed in three districts in Northwestern Indonesia (Asahan, Labuhan Batu, and Tapanuli Selatan) between December 2015 and February 2016.

Study Population

Data on midwives' knowledge were collected using convenience sampling: all registered practicing midwives who worked in government health centers were included. Midwives who did not accept to participate or who do not sign the informed consent were excluded. On a total of 115, 74 midwives completed the questionnaire, for an overall response rate of 64.3%.

Ethical Consideration

The study protocol was approved from the Review Board and Ethics Committee at the Universitas Sumatera Utara (blinded for referee).

Study Procedures and Data Collection

In each participating center, a trained researcher was personally responsible for participants' recruitment and information about the purpose of the study. To be enrolled all participants had been informed about the study via written information and, those who voluntarily agreed to participate in the study, had to sign the informed consent. After enrollment, the researcher personally administered questionnaires to each midwife. Participants had 30 minutes to individually fill out and return the instrument, and the researcher supervised the test's fulfillment in order to avoid other resources consultation by participants. To guarantee the confidentiality and anonymity, participants re-submitted the completed questionnaire in an envelope inside a special urn.

Instrument Description

The structured questionnaire included three parts, i.e. (i) General information. Socio-demographic information was collected: age, gender, year of practice, continuous medical education (ii) Knowledge Assessment Instrument, include: (1) etiology and development; (2) diagnosis; (3) management.

Data Analysis

Continuous variables were summarized as mean and standard deviation (SD). Categorical variables were synthesized as frequencies and percentages. In order to test for differences in scores among groups, one-way analyses of variance and independent sample t-test were performed. A correlation analysis was performed to quantify the strength of association between knowledge and attitude scores. The statistical significance was set at p value < 0.05. All statistical analyses were performed with SPSS 20.0 (SPSS Inc, Chicago, Illinois).

Result

Characteristics of Subject

74 midwives accepted to participate and completed the questionnaire. The mean age of the sample was 29.5±7.3 years (range 25-45 years). All participants were female. Most participants had at least one continuous medical education in last three years (89.1%). More than half participants had less than five years' experience, and around one third had more than ten years working experience. Demographics and participants' characteristics are summarized in table 1.

Table 1
Overall characteristics of the subject.

Characteristics	
Overall subject, n(%)	74 (100)
Age (years), mean ± SD	29.5±7.3
Gender, n(%)	
Female	74 (100)
Male	0 (0)
Years of education, n(%)	
3	69 (93.2)
4	5 (6.8)
Working experience, n(%)	
>10 years	23 (31.0)
5-10 years	11 (14.8)
<5 years	40 (54.05)
Continuous medical education in 3 years (n,%)	
Yes	66 (89.1)
No	8 (10.8)

Knowledge

Multiple choice questions, response possibilities, and respective answers are shown in Table 2. Among options of the questionnaire, none achieved 100% correct answers. The mean knowledge score was 48.3%. Only 28.7% (21/74) of the participants had a mean score ≥60% (Table 3).

Table 2. Participants' answers on multiple-choice questions regarding myelomeningocele

Items	% (right)
When do the failure of neural tube closure happen that may cause meningonecele?	
1 week of pregnancy	4.0
2 weeks of pregnancy	20.2
4 weeks of pregnancy*	65.0
2 months of pregnancy	12.1
These are health issues related to myelomeningocele, except:	
Difficulty in mobility	8.1
Difficulty in controlling urine and bowel movement	24.3
Mental health issue	47.3
Difficulty in hearing*	20.3
These are the ways to reduce the risk of having spina bifida, except:	
Take 100 mcg of folic acid every day*	16.2
Avoid overheating your body, as if hot tub or sauna	52.7
Control diabetes and obesity	18.9
Just have acetaminophen to treat any fever the patient has.	12.1
When is the best time for treating myelomeningocele?	
In the first 48 hours of life*	44.6
One month	35.1
One year	20.2
Five years	0
What is the best dose of folic acid given as prevention of meningomyelocele?	
100 mcg, daily	5.8
200 mcg, daily	9.2
400 mcg, daily*	81.0
1000 mcg, daily	4.0
There are some modality treatments for meningomyelocele before birth	
True*	67.5
False	32.4
A person of meningomyelocele cannot fully participate in life	
True	32.4
False*	67.5
A woman with history of baby having myelomeningocele have to take 4000 mcg of folic acid every day, instead of usually recommended dose	
True*	22.9
False	77.0
Ruptured myelomeningocele is an emergency condition	
True*	91.8
False	8.1
Myelomeningocele patients are more prone to have hydrocephalus	
True*	59.4
False	40.5

- Correct answer

The lowest scores were obtained in question "Health issues related to meningomyelocele" (20.3%) and "Folic acid supplementation in women with previous history of myelomeningocele baby" (22.9%). Almost all participants said that ruptured myelomeningocele is an emergency condition (91.8%) and know the recommended dose of folic acid supplementation (81%). Less than half participants know that the best time for treating myelomeningocele is in the first 48 hours of life (44.6%)

We found all participants that have score more than 60 have less than 5 years' working experience. There is no significant difference of knowledge between midwives that had continuous medical education with they who did not have that education (p=0.729).

Discussion

Myelomeningocele (meningomyelocele or spina bifida) is condition when the spinal cord (myelum), its covering (meninges), and vertebral arches develop abnormally early in gestation. Children born with this condition, which is one of the most complex birth defects compatible with life, have impairments of both the spinal cord and brain. Despite fortification of food with folic acid and the increased use of maternal folic acid, myelomeningocele has not been eliminated. Thus, the primary care pediatrician is likely to provide care for children who have this condition.

Women carrying fetuses found to have myelomeningocele should be referred for delivery to a tertiary medical center that specializes in the care of these children. All children who have myelomeningocele should be followed during childhood by a multidisciplinary team that includes experts in child development, neurosurgery, orthopedics, urology, orthotics, social work, nursing, physical and occupational therapies, and plastic surgery. Finally, the adolescent's care should be transferred to skilled adult medical practitioners. Since more than half labor in Indonesia was conducted by midwives, the knowledge of congenital anomaly is very crucial for midwives' practice.

Our result showed that most participants had a poor knowledge about myelomeningocele, ranged from etiology, pathogenesis, until management. The most crucial thing is about the pathogenesis and prevention for previously patient diagnosed with myelomeningocele baby. The most interesting part in this paper is either working experience or continuous medical education does not improve the midwives' knowledge. The highest score was got by fresh graduate midwives, maybe because the difference of curriculum they have.

The strength of this study is due to the multicenter design. To the best of our knowledge, this is the first research about midwives' knowledge regarding myelomeningocele. However, this study presents some limitations that need to be discussed. First, the cross-sectional design of the study did not allow to determine causal relationships but only associations in the analysis of potential predictors of knowledge. Second, with the relatively small sample size, we do not think it will represent all the midwives' knowledge about myelomeningocele.

In conclusion, our participants showed an inadequate overall level of knowledge on myelomeningocele. An insight to the curriculum implemented in midwifery schools should be performed.

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Exploring Secondary School Teachers' Constructivist Beliefs Using Talis 2013

Putthachat ANGNAKOON
Faculty of Learning Sciences and Education
Thammasat University, THAILAND
Angnakoon@gmail.com

Jeff M. ALLEN
Department of Learning Technologies
University of North Texas, USA
Jeff.Allen@unt.edu

ABSTRACT

A variety of educational reform efforts and the urgent need to develop students' 21st century skills have prompted school administrators and educators to explore a more constructivist-oriented approach to teaching and learning. Research suggests that choices of classroom practice are associated with teachers' beliefs. The author of this study analyzed the international data set of the Teaching and Learning International Study (TALIS) 2013 to examine the relationship between lower secondary school teachers' constructivist beliefs, their self-efficacy beliefs, degree of teacher co-operation, teacher background information, and the school principals' instructional leadership. A series of hierarchical linear modelling (HLM) studies were performed to examine the data set of three countries (South Korea, Finland, and Mexico). These countries represent the high and the low achievers in the global index of cognitive skills and educational attainment. An understanding of how constructivist beliefs associate with other factors will assist curriculum developers in designing quality teacher preparation and professional development programs. Additionally, a measure of how school principals' instructional leadership associates with teachers' beliefs will provide guidelines for administrators' and implications for future study on school leadership.

1. INTRODUCTION

The Organization for Economic Co-operation and Development (OECD) introduced the Teaching and Learning International Survey (TALIS), which is the largest international survey of teachers and school principals regarding their feelings, beliefs, and pedagogical practices in 2008. The complete data collection also includes information regarding employment, classroom, and school characteristics and school principals' management and leadership. The second and most recent survey, TALIS 2013 - which was available to public in 2014, included more than 6,600 lower secondary schools and 107,000 teachers from 34 countries and sub-national entities (OECD, 2014). Researchers believe that this information could help educators and administrators across nations in shaping the effective teaching practices and policies (OECD, 2014) and could provide the opportunity to see differences or similarities of each TALIS participating countries in terms of their challenges and teaching approaches (Jensen, Sandoval-Hernández, Knoll, & Gonzalez, 2012). A clear understanding of teachers' beliefs in teaching, as one of the most important psychological constructs (Pajares, 1992), would help educators understand how these beliefs associate with their instructional practices and it would further provide guidance in strengthening innovative instructions in classroom.

The conceptual framework of this study has evolved from the integration of several theories and concepts. The author proposed five constructs including 1) teachers' constructivist beliefs, 2) teachers' self-efficacy beliefs, 3) teachers' professional activities, 4) teachers' background, and 5) principals' instructional leadership (Figure 1.1.)

2. LITERATURE REVIEW

2.1 Teachers' constructivist beliefs

According to Piaget's cognitive development theory, students construct their knowledge through assimilation and accommodation; on the contrary, Vygotsky's social constructivism concept stated that an individual constructs his or her knowledge by interacting with others (Liaw, 2004). In a range of studies, researchers explained that constructivist learning approach, which is one of the learner-centered approaches, introduces a process that allow students to develop their own meaning of things. Students are allowed to be curious. They start developing new knowledge by asking questions, interacting with friends and teachers to gain more information, and interpreting the information into a concept that make sense to them by using their previous knowledge and experiences (Brooks and Brooks, 1999; Prawat, 1996; Thayer-Bacon, 2000; Windschitl, 1999a; Woolfolk, 2010). The process cannot be accomplished by the teacher-directed approach. It is necessary that the teacher takes a role of a facilitator who support students to explore, construct and re-construct information and finally to develop conclusions that are valid and unique to each of them (Richardson, 2003).

A number of studies investigated how science teachers adopted the constructivist instructional approach in their classrooms and how importance of this concept in the science education field (e.g., Cakir, 2008; Singer & Moscovici 2008; Taber, 2014; Witteck, Beck, Most, Kienast, & Eilks, 2014). Numerous researchers supported the transition of classroom practices from the teacher-directed approach, e.g. lecturing, to a more constructivist-oriented instruction, which ultimately enhance students' critical-thinking, problem-solving, and decision-making skills (e.g., Barak & Shakhman, 2007; Ford, 2010; Nadelson et al., 2013). As such, the constructivist instructional practices have become more dominant in public schools and teacher education programs (Bybee et al., 2006; Davis & Sumara, 2002; Fang & Ashley, 2004; Gordon & O'Brien, 2007; Marlowe & Page, 2005).

Although there is a range of empirical studies examined the influence of constructivist instruction practices on student learning achievement, there is still a gap in the body of knowledge regarding how the constructivist beliefs of the teachers associated with other factors, especially those in the educational system, and how these factors associated with each other. Few studies have reported variables that associate with constructivist beliefs, for example, teacher self-efficacy (Nie, Tan, & Liau, 2013), and administrative and community support (Beamer et al., 2008; Yore, Anderson, Shymansky, 2005).

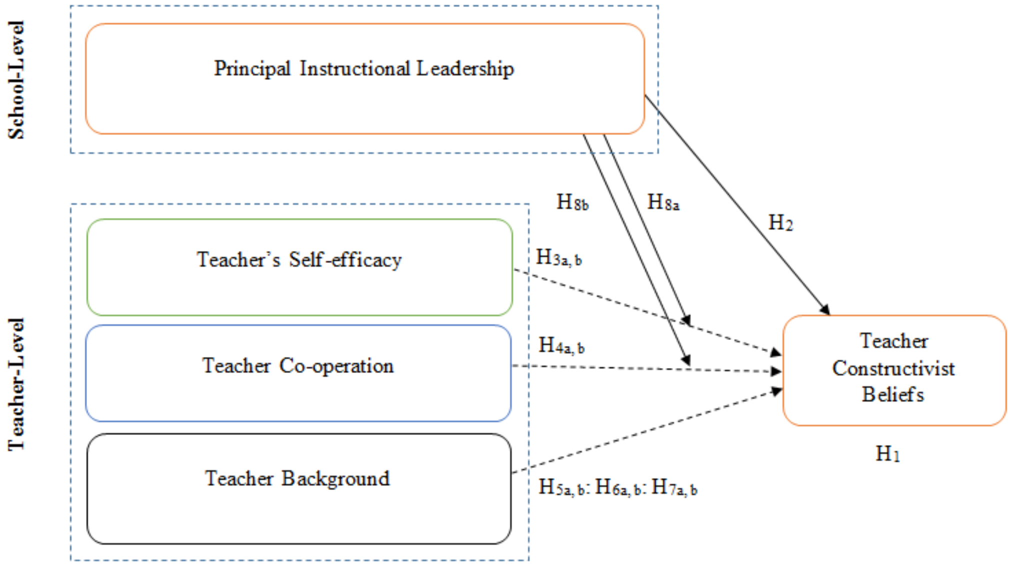


Figure 1.1. Conceptual framework and proposed hypotheses

2.2 Teachers' self-efficacy beliefs

The teacher self-efficacy, or teacher efficacy, is defined as the degree to which a teacher believes in his or her own ability to complete an assigned goal that required several activities such as planning, organizing, and teaching (Bandura, 1977; Bandura, 2006). Consistently, Protheroe (2008) described teacher efficacy as a sense of confidence in the teachers themselves to engage students and promote the students' learning. A range of studies have reported determinants of teacher self-efficacy, such as prior teaching experience, training and development, school culture (Bandura, 1993; Protheroe, 2008), teaching practices (Vieluf, Kunter, & Vijver, 2013; Smylie, 1988), constructivist instructional practices (Nie et al., 2013), and attitudes toward the use of innovative instructional practices (Guskey, 1988).

Numerous empirical studies investigated whether there is an association between teachers' constructivist beliefs and teacher efficacy. Appleton and Kindt (2002) revealed that whenever science teachers do not feel confident in their knowledge, they tend to use a more traditional teacher-directed instructional practice, such as lecturing. On the contrary, if the teachers feel confident in their content of knowledge, they are more likely to experiment with innovative instructional practices (Protheroe, 2008).

The main goal of constructivist instruction is that it provides a safe learning environment for learners to engage in knowledge constructions. Hence, this approach relies heavily on the teacher's ability to facilitate learning with understanding. Teachers with insufficient knowledge content and sense of confidence tend to find it difficult to adopt this approach in their classrooms practices.

2.3 Teachers' collaboration and cooperation

The term "collaboration" has been defined in many ways since this term has been widely used in many fields. Schrage (1991) described collaboration as "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or an event." (p. 40). According to Goddard, Goddard, and Tschannen-Moran's study (2007), teachers collaborate and cooperate, as part of their professional activities, in several ways: 1) they exchange their teaching materials, 2) they develop curriculum and lesson plans together, and 3) they discuss the progress of their students. In the educational context, teachers' collaboration can "promote the most effective teaching possible for the greatest number of students" (Pugach & Johnson, 1995, p. 178). Dewey (1963) described how teachers and school librarians collaborated at work in order to integrate their expertise with an aim to foster students to reach their full potential. In the educational context, collaboration would ultimately increase the quality of teaching since it increased the possibilities of new way of teaching (Haycock, 1998). Teachers collaborated by sharing experience, sharing responsibilities, and conceptualized together (Dewey, 1963; Goddard, Goddard, & Tschannen-Moran, 2007).

2.4 Principal Instructional Leadership

Instructional leadership was defined as the influence of a school principal on school management in terms of teaching practices and curriculum with an aim to improve student achievement (Flath, 1989). Blase & Blase (2000) explained that school principal with a high level of instructional leadership tend to initiate and support learning communities. In order to emphasize the high-quality teaching, school principals with instructional leadership would give instructional feedbacks to teachers, model an effective instructional and encourage teachers to use assessment (Blase & Blase, 2000).

A range of empirical studies have confirmed the association between school principal practices and the students' achievement. Several studies have confirmed a small to moderate effect of school principal practices on student achievements (Hallinger, 2005; Hendriks & Steen, 2012; Huber & Muijs, 2010; Leithwood, Harris, & Hopkins, 2008; Robinson, Lloyd, & Rowe, 2008). Additionally, numerous empirical studies reported that the instructional leadership has positive effect on teacher practices and student achievement (Blase & Blase, 1999; Leithwood, Louis, Anderson, & Wahlstrom, 2004; Seashore Louis, Dretzke, & Wahlstrom, 2010; Robinson, Lloyd, & Rowe, 2008). Researchers have reported a list of school principals' strategies that had a positive effect on teachers' motivation, satisfaction, sense-of-security, teacher efficacy, and self-esteem. The strategies include providing feedbacks to teachers, soliciting opinions for improvement, modeling effective teaching practices, and giving compliments to teachers (Blase & Blase, 2000). Robinson et al. (2008) further stated that the impact of instructional leadership on student achievement was three to four times larger than that of other leadership practices.

Teddlie (2005) investigated the association between instructional leadership and teacher efficacy and professional development. A recent study of Gumus, Bulut, and Bellibas (2013) examining the relationship between instructional leadership and teacher collaboration in Turkish primary schools. There are more than a hundred empirical studies investigating determinants of instructional leadership (e.g., school principal gender, experience, professional development, etc.) and the effect of instructional leadership on student achievement and the organization (e.g., school mission, curriculum) (Hallinger, 2005).

Although, researchers have concluded that school principals influenced their students' achievement through having an effect on teachers' behaviors, beliefs, and classroom practices (Hendriks & Steen, 2012; Leithwood et al., 2008), there is still a discrepancy in knowledge regarding how these variables interact to each other and whether or not the influences are mediated or moderated by other factors in school system, such as teacher practices, school environment, and national characteristics (Huber & Muijs, 2010).

This quantitative study aims to investigate the associations between teachers' constructivist beliefs, self-efficacy beliefs, professional activities, and school principals' instructional leadership. The study was guided by three research questions:

1. Do teachers' constructivist beliefs vary across schools?
2. What factors have direct relationships with teachers' constructivist beliefs?
3. Does principal instructional leadership moderate the relationships between teacher-level predictors, namely self-efficacy and teacher co-operation, and constructivist beliefs?

3. METHODOLOGY

A cross-national data set of "the Teaching and Learning International Study" (TALIS) 2013 from OECD was used to examine the associations among teachers' constructivist beliefs, self-efficacy beliefs, professional activities, and the school principals' instructional leadership. The IDB analyzer was used to generate SPSS data files and to produce unbiased descriptive data for three countries, including South Korea, Finland, and Mexico.

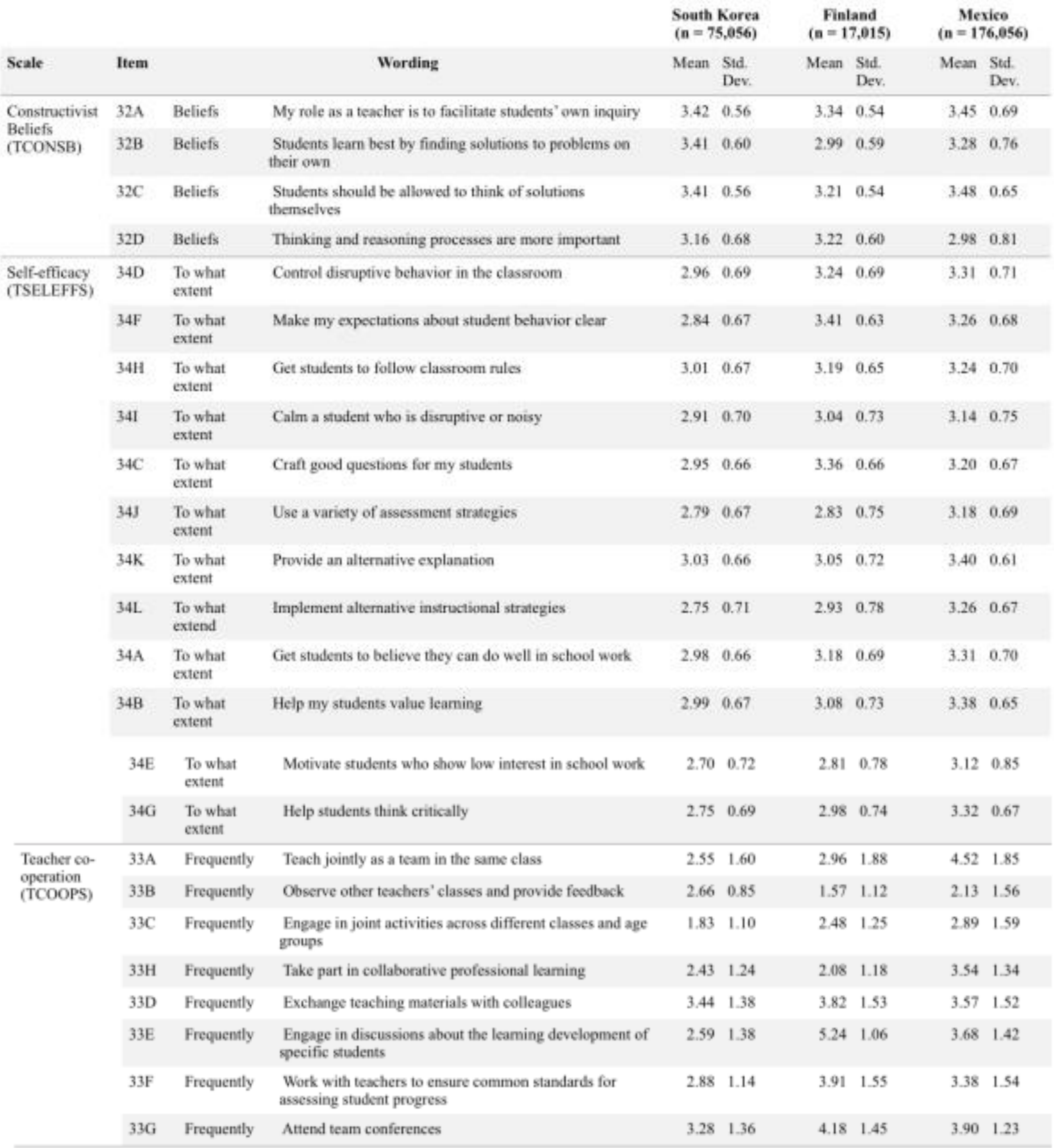
Since teachers were nested within schools, a series of hierarchical linear modelling (HLM) studies was employed to analyze the data. Outputs from HLM would allow researchers to understand the variations among schools (if there is any) and to test whether principals (school level) had a direct or moderating effect on teachers' beliefs and practices (individual level). Researchers specified the school estimate weights (level 2) as the product of the school base weight and the school non-response adjustment factor. According to the OECD (2014), the TALIS 2013 data set employed two-stage stratified cluster sampling. Firstly, 200 lower secondary schools per country were selected using probability proportional to size technique. Then, a minimum of 20 teachers, who teach regular classes, and a school principal were randomly selected (OECD, 2014). This study's sample consisted of 3 countries: South Korea, Finland, and Mexico.

4. RESULTS

The following tables (Tables 1.2 and 1.3) show the descriptive statistics of the main variables which consisted of 27 teacher- and principal-level measuring items. The analysis includes a sample of 2,933 teachers in 177 schools in South Korea, 2,722 teachers in 145 schools in Finland, and 3,138 teachers in 187 schools in Mexico. The teacher respondents' ages ranged from 22 to 62 years with an average age of 43 years (M = 42.50, SD = 9.13) in South Korea, 19 to 67 with an average age of 44 years (M = 44.04, SD = 10.07) in Finland, and 19 to 75 with an average age of 42 years (M = 42.34, SD = 10.07) in Mexico. Teacher respondents in South Korea reported having an average of 16.58 years (SD = 9.83) of working experience as a teacher, while teacher respondents in Finland and Mexico reported having an average of 15.51 years (SD = 9.64) and 16.37 years (SD = 9.65), respectively.

The researchers found a significant positive correlations between the teacher respondents' ages and their amounts of working experience as teachers in all three countries (South Korea: $r = .929$, $p < .001$; Finland: $r = .864$, $p < .001$; Mexico: $r = .832$, $p < .001$.).

Table 1.2
Descriptive Analysis of Level-2 Variable Using Teacher Weights



				South Korea (n = 75,056)		Finland (n = 17,015)		Mexico (n = 176,056)	
Scale	**Item**		**Wording**	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Constructivist Beliefs (TCONSB)	32A	Beliefs	My role as a teacher is to facilitate students' own inquiry	3.42	0.56	3.34	0.54	3.45	0.69
	32B	Beliefs	Students learn best by finding solutions to problems on their own	3.41	0.60	2.99	0.59	3.28	0.76
	32C	Beliefs	Students should be allowed to think of solutions themselves	3.41	0.56	3.21	0.54	3.48	0.65
	32D	Beliefs	Thinking and reasoning processes are more important	3.16	0.68	3.22	0.60	2.98	0.81
Self-efficacy (TSELEFFS)	34D	To what extent	Control disruptive behavior in the classroom	2.96	0.69	3.24	0.69	3.31	0.71
	34F	To what extent	Make my expectations about student behavior clear	2.84	0.67	3.41	0.63	3.26	0.68
	34H	To what extent	Get students to follow classroom rules	3.01	0.67	3.19	0.65	3.24	0.70
	34I	To what extent	Calm a student who is disruptive or noisy	2.91	0.70	3.04	0.73	3.14	0.75
	34C	To what extent	Craft good questions for my students	2.95	0.66	3.36	0.66	3.20	0.67
	34J	To what extent	Use a variety of assessment strategies	2.79	0.67	2.83	0.75	3.18	0.69
	34K	To what extent	Provide an alternative explanation	3.03	0.66	3.05	0.72	3.40	0.61
	34L	To what extend	Implement alternative instructional strategies	2.75	0.71	2.93	0.78	3.26	0.67
	34A	To what extent	Get students to believe they can do well in school work	2.98	0.66	3.18	0.69	3.31	0.70
	34B	To what extent	Help my students value learning	2.99	0.67	3.08	0.73	3.38	0.65
	34E	To what extent	Motivate students who show low interest in school work	2.70	0.72	2.81	0.78	3.12	0.85
	34G	To what extent	Help students think critically	2.75	0.69	2.98	0.74	3.32	0.67
Teacher co-operation (TCOOPS)	33A	Frequently	Teach jointly as a team in the same class	2.55	1.60	2.96	1.88	4.52	1.85
	33B	Frequently	Observe other teachers' classes and provide feedback	2.66	0.85	1.57	1.12	2.13	1.56
	33C	Frequently	Engage in joint activities across different classes and age groups	1.83	1.10	2.48	1.25	2.89	1.59
	33H	Frequently	Take part in collaborative professional learning	2.43	1.24	2.08	1.18	3.54	1.34
	33D	Frequently	Exchange teaching materials with colleagues	3.44	1.38	3.82	1.53	3.57	1.52
	33E	Frequently	Engage in discussions about the learning development of specific students	2.59	1.38	5.24	1.06	3.68	1.42
	33F	Frequently	Work with teachers to ensure common standards for assessing student progress	2.88	1.14	3.91	1.55	3.38	1.54
	33G	Frequently	Attend team conferences	3.28	1.36	4.18	1.45	3.90	1.23

Table 1.3
Descriptive Analysis of Level-2 Variable Using School Weights

				South Korea (n = 707)		Finland (n = 2,824)		Mexico (n = 14,399)	
Scale	**Item**	**Wording**		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Principal's Instructional Leadership (PINSLEADS)	21C	Frequently	Engage in - supporting co-operation among teachers	2.95	0.70	2.58	0.58	2.93	0.72
	21D	Frequently	Engage in - teachers responsibility for improving teaching skills	2.97	0.65	2.32	0.71	3.04	0.76
	21E	Frequently	Engage in - teachers responsibility for learning outcomes	3.06	0.72	2.41	0.75	3.24	0.68

Table 1.4
Results

	SOUTH KOREA				FINLAND				MEXICO			
Fixed Effect	Coefficient	Standard error	t-ratio	p-value	Coefficient	Standard error	t-ratio	p-value	Coefficient	Standard error	t-ratio	p-value
For INTRCPT1, β_0												
INTRCPT2, γ_{00}	3.3594	0.0106	318.3770	<0.001	3.1829	0.0092	344.3520	<0.001	3.2962	0.0120	273.8910	<0.001
PINSLEAD, γ_{01}	0.0268	0.0208	1.2890	0.1990	0.0112	0.0175	0.6420	0.5220	-0.0276	0.0204	-1.3500	0.1790
For **YRSEXP** slope, β_1												
INTRCPT2, γ_{10}	-0.0016	0.0011	-1.4920	0.1370	-0.0024	0.0008	-2.9790	**0.0030**	0.0037	0.0011	3.2740	**0.0010**
For **TSELEFFS** slope, β_2												
INTRCPT2, γ_{20}	0.1783	0.0255	6.9920	**<0.001**	0.1624	0.0159	10.2060	**<0.001**	0.1730	0.0256	6.7460	**<0.001**
PINSLEAD, γ_{21}	-	-	-	-	-	-	-	-	-0.1261	0.0435	-2.8990	**0.0040**
For **TCOOPS** slope, β_3												
INTRCPT2, γ_{30}	0.0365	0.0144	2.5260	**0.0120**	0.0242	0.0086	2.7990	**0.0050**	0.0134	0.0111	1.2110	0.2280
PINSLEAD, γ_{31}	-	-	-	-	-	-	-	-	0.0254	0.0188	1.3540	0.1770
For CLASSSIZ slope, β_4												
INTRCPT2, γ_{40}	-0.0005	0.0017	-0.3160	0.7520	-0.0013	0.0010	-1.2650	0.2060	-0.0004	0.0012	-0.3490	0.7280
For TIMETEAC slope, β_5												
INTRCPT2, γ_{50}	0.0014	0.0009	1.5720	0.1180	-0.0009	0.0006	-1.4430	0.1490	0.0014	0.0008	1.8040	0.0730
Random Effect		Variance Component	$\chi2$	p-value		Variance Component	$\chi2$	p-value		Variance Component	χ^2	p-value
INTRCPT1, u_0		0.0007	185.5679	0.2430		0.0039	220.5164	<0.001		0.0040	244.0217	0.0010
YRSEXP slope, u_1		0.0000	205.4071	0.0520		-	-	-		0.0000	211.0907	0.0620
TSELEFFS slope, u_2		0.0205	198.3913	0.0990		-	-	-		0.0118	244.1260	0.0010
TCOOPS slope, u_3		0.0057	281.2364	<0.001		-	-	-		0.0020	286.2851	<0.001
CLASSSIZ slope, u_4		0.0000	171.2318	>0.500		-	-	-		0.0001	224.2527	0.0160
TIMETEAC slope, u_5		0.0000	266.9844	<0.001		-	-	-		0.0000	184.7999	0.4080
level-1, r		0.2061	-	-		0.1476	-	-		0.2419	-	-
Criteria fit												
Deviance				3894.5034				2574.5106				4627.53
# estimated parameters				29				9				31.00
AIC				3952.50				2592.51				4689.53
BIC				4126.03				2645.69				4877.13

4.1 Do the constructivist beliefs vary across schools?

Based on the analysis results, researchers found no significant differences among South Korea teacher's constructivist beliefs, unlike teachers from Finland and Mexico. However, when looking at the school level, teachers' constructivist beliefs vary very little in all three countries, which can be interpreted that the variation in teacher's constructivist beliefs occurred within school rather than between schools. According to OECD (2009), teacher beliefs tend to be diverse within school because the teachers already formed their beliefs from previous working experience and stayed unchanged.

4.2 What factors have direct relationships with teachers' constructivist beliefs?

Teachers' self-efficacy (TSELFFS) have a significant positive relationship with the teachers' constructivist beliefs (TCONSB) ($p<.001$) for both high and low performing countries. Although teachers' self-efficacy was the major predictor in this study since it has the highest magnitude, researchers cannot draw conclusion that teachers' self-efficacy was the cause of the teachers' constructivist beliefs. Researchers would like to point out that for each different country the researchers used difference rating-scale items. The items that are identical among the three countries are 1) ability to craft good questions for my students, 2) ability to provide an alternative explanation, and 3) ability to help my students value learning.

The second factor that has a significant positive relationship with the teachers' constructivist beliefs is teacher co-operation (TCOOPS). However, this significant relationship only occurred in the high performing educational systems, South Korea and Finland ($p = 0.012$; $p = 0.005$, respectively). Therefore, teachers who have higher level of constructivist beliefs tend to engaged more in professional collaboration and exchange and coordination for teaching.

The third factor is years of working experience as a teacher (YRSEXP). Researchers found it to be interesting that while years of teaching experience for teachers in Mexico has a significant positive relationship with the level of the constructivist beliefs, those in Finland found to have reverse relationship. In other words, senior teachers in Mexico appreciated constructivist beliefs more than novice teachers. At the same time, beginning teachers in Finland have a higher attitude toward constructivist beliefs than the experienced teachers.

Surprisingly, principal instructional leadership (PINSLEAD) has no significant relationship with any variation in teachers' constructivist beliefs among teachers and schools. The researchers speculate the explanation that the variation of teachers' constructivist beliefs occurred mostly within schools. As such, any constructs at the higher level has no or very small effect the variation of teachers' constructivist beliefs.

Furthermore, the researchers found that class size (CLASSSIZ) and time spent on actual teaching (TIMETEAC) have no significant relationship with teachers' constructivist beliefs in all three countries. The level of willingness to adopt the idea of constructivist beliefs were similar among three counties regardless of their class size or actual instructional time.

4.3 Does principal instructional leadership moderate the relationship between teacher-level predictors, namely self-efficacy and teacher co-operation, and constructivist beliefs?

Blase and Blase (2000) indicated that principal instructional leadership positively influenced classroom practices and beliefs among classroom teachers. While this may be true in Blase and Blase (2000) researchers found no significant relationship between principal instructional leadership (PINSLEAD) and the teachers' constructivist beliefs, but in the case of Mexico, principal instructional leadership simply moderated a negative relationship between teachers' self-efficacy and teachers' constructivist beliefs. This implies that the action of principal instructional leadership inadvertently impeding the effect of teachers' self-efficacy on constructivist beliefs. In contrast, this case would not applicable to those in high performing countries where principal's influence have no impacts on teacher's self-efficacy. Also, this lack of impact by principal instructional leadership was found in the case of teachers' cooperation and teacher's constructivist belief as well. Indeed, the researchers found that teachers in higher performing systems are likely to be more independent in their beliefs. The constructivist beliefs among teachers in South Korea and Finland relied mainly on the individual teachers' confidence in their teaching ability and their level of co-operation with colleagues.

5. DISCUSSION AND IMPLICATIONS

According to the relationships found between self-efficacy and teachers' constructivist beliefs in this study, researchers found that focusing only on the development of content knowledge and general pedagogy is insufficient. Teacher education should develop teacher preparation program that not only increase the level of self-efficacy but also introduce the context that founded on the constructivist instructional approach. While several researchers indicated that training and development can improve teachers' self-efficacy (Bandura, 1993; Protheroe, 2008), inquiry-based learning is a fundamental of constructivist approach. Hence, teacher education program should allow pre-service teachers to be trained and to develop their own repertoire in the context of inquiry-based learning. Similarly, in the case of in-service teacher, the teacher professional development should allow teachers to have an opportunity to have a hands-on experience in student-centered environments. These will not only challenge the in-service teachers' existing beliefs, but also to increase their awareness of the innovative instructional method. Additionally, the support (e.g., time allocation for teachers) for and commitment to the innovative instructional approach by school administrators are important to ensure the prolonged engagement of the teachers in the professional development programs.

Based on the results in the high performing systems (South Korea and Finland), the level of teacher co-operation and the teachers' self-efficacy are significantly associated. The teachers who reported engaging in activities such as exchanging instructional materials with colleagues, engaging in discussion about student learning, or participating in team conference are likely to have a high level of constructivist beliefs, and vice versa. Considering this finding, teachers should participate more in professional activities. Goddard, Goddard and Tschannen-Moran (2007) suggested that these particular activities help teachers comprehending their teaching knowledge and improve their teaching practices. Additionally, school principals and administrators can help increase the level of teachers' cooperation by 1) setting a side time for teacher beyond teaching hours so that the teachers can work with their colleagues, 2) allocating budget, technology, and location to facilitate teacher collaborative work, 3) communicating goals and values so the teachers understand that collaboration is part of their regular practices, and 4) promoting collaboration plan and rewarding teachers' collaboration.

Furthermore, teachers in the high performing systems (South Korea and Finland) should be empowered and provided with high level of autonomy since the principal instructional leadership was not directly or indirectly related with their constructivist beliefs. Interventions from school administrators should be maintained at a low degree in order to allow their high quality workforce to work on curriculum development and teaching practices effectively. On the contrary, school administrators in Mexico could help their teachers to adopt the constructivist approach faster by demonstrating a high degree of instructional leadership. As such, the critical step is to improve the quality of instructional leadership among school principals.

6. RESEARCH IMPLICATIONS

For future study, researchers should consider the possibility of introducing new covariates in order to explore the variation of teachers' beliefs within and between schools. Researchers can also explore other variable possibilities to gain a more in-depth analysis of teachers' and countries characteristics. Another possibility is to conduct a qualitative study to understand the cause and effects in these relationships.

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Exploring The Role Of Academic Heads In Maintaining The Quality Of Teaching And Learning Within Their Departments: A Case Study Of A Private University

Annyza TUMAR
Academic Enhancement Division
Sunway University, Malaysia
annyzat@sunway.edu.my

Soaib ASIMIRAN
Faculty of Educational Studies, Universiti Putra Malaysia

Zaidatol Akmaliah Lope PIHIE
Faculty of Educational Studies, Universiti Putra Malaysia

Ismi Arif ISMAIL
Faculty of Educational Studies, Universiti Putra Malaysia

ABSTRACT

Higher education institutions are generally concerned with the quality of their graduates. Many institutions put in a lot effort in ensuring quality teaching and learning experience to their students because this is a reflection on the quality of the institutions themselves. This paper reports the findings of a qualitative case study at a Malaysian private university. It explores the meaning of quality teaching and learning, form the perspectives of academics and their heads of departments. It also reviews the roles of the heads of departments in maintaining the quality of teaching and learning within their departments. Data was derived from focused group interviews with academics and individual interviews with heads of departments. Findings indicate that heads of departments play a very important role in three areas: 1. assessing the quality of teaching and learning 2. identifying academic staff development needs; 3. supporting continuous professional development activities within the departments. In addition, in efforts to improve the quality of their teaching, academics were found to be more satisfied with professional development activities at department level than activities carried out at institutional level. The paper concludes with suggestions on strategies for enhancing professional development opportunities for improving teaching and learning within the departments and the institution itself.

Keywords: CPD, quality teaching and learning, higher education

INTRODUCTION

Both public and private higher education providers in Malaysia are hard-pressed to prove that they can be held accountable to their stakeholders. Although there is a differing view of what quality and what quality teaching means to different stakeholders, there is a general consensus that quality teaching is one that results in student learning (Fenstermacher & Richardson, 2005). Especially in the case of private higher education providers, students' learning is often translated into their ability to apply their learning into real world application and employability. As stated by Henard (2010, p.4), higher education providers see the need to be responsive to students' "demand for valuable teaching" which leads to employment and equip them with relevant skills needed not only for the present but also the future.

One of the early public perceptions of private higher education institutions is that the education provided is substandard in quality of delivery and that they are not partial towards improving their quality (Wilkinson & Yussof, 2005). The reason could be because private higher education institutions are profit driven and quality assurance and quality enhancement efforts are costly and can cut into the profit they earn. However, in addressing these concerns, many Malaysian private institutions have strived towards complying with the various quality assurance requirements and also subject themselves to further review of quality by other universities that they partner with. For example, Sunway University, not only ensures that it complies with requirements set by the Malaysian Qualifications Agency (MQA), but further subjects itself to assurance processes by Lancaster University, UK for many of its programmes and Le Cordon Bleu for its hospitality-related programmes, just to name two. For Taylor's University, articulation pathways to various reputable international institutions meant that it had to meet quality requirements set by these institutions, in addition to those set by MQA (Taylor's University, 2016).

MQA itself has set specific recruitment and staff development requirements to ensure quality teaching is possible. It has established guidelines for recruitment and identified specific criteria that applicants had to fulfill in order to be appointed as academics or senior academics (MQA, 2014a, p.4). Criteria for academic staff appointment are described in the Programme Standards for each programme of study. One example is the criteria for academic staff appointment for the Accounting programme (MQA, 2013, p.27). Academic staff must have academic qualifications that are at least one level higher than the level to be taught (MQA 2013, p.27). Professional qualifications and industry experience are also considered important. The variations to acceptable combination between academic and professional qualifications and industry experience are described further in the programme standard (MQA, 2013, pp. 27-29). In addition, MQA has set its expectations of academic staff development and provided guidelines on how institutions should support and develop their academic staff (MQA, 2014a, pp. 30-39). However, the onus is still on the institutions to ensure that only knowledgeable academics who can teach effectively are appointed and that professional development opportunities are sufficiently made available to them later, in accordance to the need of their field (MQA, 2014b).

In this respect, academic heads play a crucial role as they are the ones responsible for implementing institutional quality assurance processes. At the same time, they are the ones closest to the academics they supervise and therefore, should have a better understanding of the challenges that academics face in delivery quality teaching. Being in that position, they have the responsibility to identify what are the developmental needs of the academics to be fulfilled to achieve the shared goal of quality teaching and learning.

STATEMENT OF THE PROBLEM

Enhancement of quality teaching and learning for any higher learning institution can only be achieved when there is a clear picture of what is the current level of quality for that institution, whether there are systems in place to assess that quality and whether there are clear concentrated efforts by the institution to enhance that quality through specific and systematic methods. The role of academic heads is important as they could provide a 360-degree view of how well institutional systems are designed and implemented in pursuit of that goal. Despite this importance, there is limited information on it, especially information which is derived from the Malaysian private higher education scene. Currently, there is significant literature on quality enhancement of teaching and learning (D'Andrea & Gosling, 2005; Crockett, 2003; Biggs, 2001) but the U.S, U.K. and Australia are the leading sources of information. Availability of more information will enable an institution to learn from its own practices in supporting professional development and quality enhancement processes. Other institutions will also be able to learn from the best practices of others.

PURPOSE

The main purpose of this study was to explore the roles undertaken by academic heads of a private university in implementing institutional measures to assess the quality of teaching and learning. It was also intended to explore the academics' perception of the accuracy and relevance of these measures in determining teaching and learning quality. In addition, the study intended to explore the approaches undertaken by academic heads to enhance the quality of teaching and learning in their respective departments.

THEORETICAL FRAMEWORK

This study relied on two theories. The first theory is the systems theory from the field of management. Based on systems theory, an organisation is viewed as made up of interdependent parts. Effective management can be achieved through understanding of internal as well as external factors which impact them. Essentially, an organisation needs to be viewed as a system "to design meaningful interventions" to potential problems which may prevent it from achieving its goals (Porter & Cordoba, 2009, p. 226) This theory is applicable to the case study as the study focused on the roles that academic heads play in ‘connecting the dots’ between academics and their specific needs, institutional aim and policies, students’ expectations and satisfaction, other servicing departments in the university which form part of the cluster enabled effective teaching and learning to take place. Examples include facilities and maintenance; another is administration involved in class scheduling.

Another relevant theory is a learning theory – social constructivist theory. Various literature point out that the professional development activities are effective when can be directly linked to instructional practices, students’ learning experience and feedback (Smith, 2008; Trowler, 2005). This makes the theory is particularly relevant. Social constructivism in teacher development involves a culture of participant engagement and meaningful learning process that to a large extent, connects ideas with real life situations (Beck & Kosnik, 2006, p. 2).

METHODOLOGY

This was a qualitative case study; it was located within the boundary of one place (Merriam, 1998). The case study was conducted at a private Malaysian University. The main data collection method was through interviews with respondents selected through purposive sampling. The adoption of purposive sampling enabled the researcher to gain an in-depth understanding of the focal point of the study. There were 10 participants who came from two faculties within the institution (to be referred to as Faculty A and Faculty B). Triangulation of information gathered from the interview was achieved through documentary analysis of institutional documents.

All the 10 participants had a minimum of 6 years teaching experience. The longest teaching experience stated was 34 years. Nine of the participants had been employed by the institution between 4 to 10 years. One had been with the institution for 2 years. At the time of the interview, the academics had a varying teaching load from 9 to 19.5 hours and were teaching at pre-diploma, diploma and degree levels. Two academic heads had a teaching load of 6 hours per week. The third did not take on a teaching role but would substitute for a number of academic staff under his supervision who were away from the university. However, this was limited to “a few hours a week” and did not happen every week. Of the 10 respondents, two were PhD holders, 3 were pursuing their PhDs and 4 were masters’ degree holders.

As recommended by Creswell (2013), qualitative reliability was obtained through maintaining consistency in interview procedures including the briefing and debriefing process. Interviewees were informed of the purpose of the study, how the interviews were to be conducted and assured of the maintenance of their anonymity. Permission was sought and granted to audio-record the interview sessions.Semi-structured, focused group interviews were conducted with the academics. There was one focused group interview with academics from Faculty A and another focused group interview with those from Faculty. The semi-structured interviews with the academic heads were conducted individually. The transcribing of the interview adopted adopted a naturalised approach in order to focus on the informational contents of the sessions. “Idiosyncratic” elements such as pauses, stutters, nonverbal cues and involuntary vocalisations were removed as befitting the approach (Oliver, Serovich & Mason, 2005).

Following Creswell’s (2009) recommendations, qualitative validity was achieved by checking and rechecking the accuracy of transcription followed by a review of the transcription drafts by the participants before the final agreed versions were validated.

FINDINGS AND DISCUSSION

The academic heads who participated in the interviews are labelled as HOD1, HOD2 and HOD3. The academics are labelled as A1, A2, A3, A4, A5, A6 and A7. Six participants were from Faculty A: HOD1, HOD2, A1, A2, A3 and 4.Four participants were from Faculty B: HOD 3, A5, A6 and A7.

The meaning of quality teaching and learning in higher education is stake-holder dependent (Harvey, Burrows & Green, 1992). What one perceives to be high quality teaching and learning may differ from another due to differences such as subjects, programme and students. It was important to gain an insight into what the interview respondents perceived to be quality teaching and learning within the context of their field and their teaching environment. Only when this concept had been clarified, a consensus achieved, at least among academics and academic heads within the institutions, could there be an agreement on whether there was indeed quality teaching and learning. What measures to be taken to enhance the quality of teaching and learning could then be ascertained.

1. *The meaning of quality teaching and learning*

Based on the two focused group interviews, all the respondents agreed that quality teaching needed to be viewed from students' perspective and student learning. and that learning itself was incomplete if it was not accompanied by the ability to apply the learning to a real situation. As stated by A1, *"if [they] learn something but they [are] unable to apply it in the real life scenario, they [are]... learning nothing."*

In a quality teaching and learning situation, the teacher was passionate, facilitated students' learning, built a supportive classroom environment. Teaching was not confined to the classroom, was research-informed and established a connection with the real world. Learners in such a class were viewed to be engaged in the learning activities, demonstrated achievement of learning outcomes and were able to demonstrate ability to apply what they learned to real situations. These perceptions of the meaning of quality teaching and learning were similar to those found in current literature on quality teaching and learning (Devlin & Samarawickrema, 2010; D' Andrea, 2007; Fenstermacher & Richardson, 2005).
A4 added that his perception of quality teaching had "evolved over time". He said:

> *Back in those days,… quality teaching meant that I must finish teaching everything that [was] required in the syllabus and to expect the highest performance from my students… Over the years, I discovered that may not be true, or that [it] is a little bit too idealistic."*

2. The role of academic heads as implementer of institutional teaching and learning quality assurance measures

The participants reported several quality assurance measures used to assess the quality of teaching and learning. The three mentioned were students' evaluation of subject and teaching that was conducted each semester, teaching observation and evaluation by the academic heads, and the overall Student Experience Survey conducted by the institution. Responses indicated that all interviewees were positive about student course evaluation and the student experience survey as a source of information on their teaching. However, there were contrasting views about the usefulness of teaching observation and evaluation as a source for assessing and improving the quality of teaching and learning. All participants from Faculty A were unreceptive towards it. On the other hand, participants from Faculty B found that it was helpful but had differences of opinions over the extent of the usefulness of teaching observation by their HOD to improve teaching and learning.

HOD 1 and HOD 2 from Faculty A stated that academics in their faculty had objected to the evaluation of their teaching. As stated by HOD 1,

> *As the faculty grew, there was greater resistance to it…. The view of the teaching staff was that you should have confidence in what happens, unless in exceptional situations where students are very vocal about it and complain about a particular teacher. Only then would there be a need for that [teaching observation and evaluation] to happen…. It was considered to be extremely intrusive and it wasn't looked upon favourably because it was observation by your superior, reporting person, head of school.*

HOD 2 attributed the problem to one head of department within the faculty who had raised the objection to being observed by other academic heads. The head of department mentioned was also responsible for observing and evaluating the teaching of academic staff in her department. However, in response to her own teaching being observed and evaluated by other heads of department, HOD 2 stated that she had questioned their credibility and whether they would be able to correctly assess her teaching. As this was raised in a meeting, it set off a *"chain reaction"*. HOD 2 added, *"Subsequently, many felt relieved, that's the word to use, that somebody disagreed with the idea"* of formal evaluation of teaching.

Statements by A1, A2, A3 and A4 corroborated HOD1 and HOD2's statements. They criticised the evaluation of teaching and rejected its value, either in providing accurate assessment of the quality of teaching and learning or in providing feedback to enable teaching quality to be enhanced. They gave their reasons:

> "You just come in **once** into [my] lecture, evaluate, and then give me marks." (A1) [emphasis added]
>
> "And you get penalised for the entire year because your marker doesn't work" (Laughs) (A4)
>
> "I failed, you know! My mark [was] so poor." (Laughs) (A1)

A1-A4 all cited the person who observed and evaluated their teaching as the reason for their rejection. The HOD they were referring to was the same HOD who questioned the credibility of her observers, as mentioned by HOD 1 and HOD 2. In response to the objections raised, the practice had been discontinued for almost two years prior to the interview. A1-A4 were appreciative of their immediate superiors who had listened to their opinions and feelings and then discontinued the practice.

In sum, this faculty stopped implementing one institutional measure of identifying the quality of teaching and learning as it was rejected by faculty members. The faculty then moved towards utilising other means to assess the quality of teaching and used these means in a complementary manner with each other. De Boer, Goedegebuure, and Meek (2010) viewed this to be a form of effective academic leadership. They emphasised that academic managers are more effective when their management style matched "the existing organisational unit culture."

There were several reasons why A1, A2, A3 and A4 strongly objected to the practice. The first was the link of teaching observation to their year-end appraisal and to a certain extent, their salary increment and bonus calculation. The manner in which the process was done was extremely important to ensure objectivity, fairness validity and reliability of the score attached to the teaching observed. A1, A3 and A4 reported that their strong objection stemmed from negative past experience with the same faculty. Ironically, A1, 3 and 4 pointed out that it was the academic head who objected to the observation of her teaching who was herself perceived to be judgmental, unfair and insensitive when she observed the teaching of others. A1 also pointed out that with one observation a year, the academic head came into the class, evaluated their teaching and gave them marks as if one observation could give an accurate picture of the academics' entire year of teaching.

Another reason was that the practice was open to subjectivity from one implementer to another. A4 added that she had two academic heads observing one lesson yet the scores given by the two observers were markedly different, with one score being *"very good"* but the other *"very poor"*. She added, *"We are left at the mercy of the people who come into our class who do not necessarily have complete understanding of the dynamics of the students in the class"*.

A5, A6 and A7 reported that evaluation of teaching was still a practice in their faculty. Unlike their colleagues in Faculty A, A5, A6 and A7 reported no major issues with the teaching observation and to a certain extent, understood that it had to be done because the institution needed to ensure and be able to prove that it took specific measures to maintain quality. However, both A5 and A6 added that while they understood the need, they did not necessarily believe that evaluation of teaching through yearly classroom observation linked to monetary rewards was the best way to fulfill that need. In addition, unlike their colleagues, A5, A6 and A7 found value in the feedback given by their academic heads after each observation process. A7 stated, *"You know, [you] can sit and chat with the boss and he can really explain to you and go through the whole lesson and how you fared. And that's really helpful."* This could be linked to the strategy that H3 used. H3 stated that *"observation that is linked to a kind of summative observation of teachers which is linked to other reward systems can be dangerous"*. Because of this, it had to be approached in a sensitive manner and balanced with feedback. H3 added:

> *My feedback is always on specific, changeable behaviours… It has to be behaviours that are changeable. And you usually can't present everything all at once if there are a number of issues in terms of being an effective teacher.*

A5, A6 and A7's only contention was that because of the infrequency of classroom observations, whether the yearly evaluation of teaching or observation for developmental purposes, that form of feedback was infrequent as well. This constraint was acknowledged by H3 who attributed it to the number of academic staff under his supervision and other administrative and academic concerns that needed attention.

Despite the informative nature of feedback received by A5, A6 and A7, there was a consensus among all the academics that evaluation of teaching held limited value in its ability to accurately assess whether the academics taught to the best of their ability consistently. Additionally, if there was inability to achieve this, they were concerned whether the findings from the observation could be correctly used for developmental purposes. As A6 mentioned:

> *I feel that … we are on our best behaviour when we know that the boss is around and possibly, I mean this is speaking the truth, possibly people will gear up. You know, [the] boss is coming [into the class].*
>
> All the academics felt that there was a tendency for some to put up *"a show"* for the observation and that show was not representative of what happened in class for the rest of the year. HOD3 agreed with this. He mentioned that because the procedure was to inform the academics to be observed, he realised that to a certain extent, he would get a *"show and tell"* session. He mitigated this effect by providing a time frame for when he would go into the classes and conduct his observation but would not identify a specific time. Even then, he admitted that he would still get some *"show and tell"* sessions. He stated, *"You know you're getting the best show on earth"* but that he had to implement it because *"it's part of the system."*
>
> The situation with evaluation of teaching in both faculties was a reflection of the problems which occur with the evaluation of teaching in higher education. Henard (2010, p. 7), in his summary of 29 higher education institutions across 20 countries stressed that *"even if accepted in principle, the evaluation of quality teaching is often challenged in reality"* and added that institutions continue to struggle to come up with an instrument that could measure quality teaching and learning in a reliable way.

3. Other measures to determine the quality of teaching

For the faculty where HOD1, HOD2, A1, A2, A3 and A4 came from, the discontinuation of the evaluation of teaching as a source of information to determine the quality of teaching and learning meant they had to rely on other sources of information. All the respondents from the faculty identified the following methods as the source of information: feedback gained from exam paper moderators, both the internal moderators and external moderators; feedback from second-markers for students' coursework and final exam scripts; student course evaluation using the institutionally-provided template; monthly student-staff committee meeting when issues about teaching and learning were raised; individual including anonymous feedback given by students.

For Faculty B where HOD3, A5, A6 and A7 came from, evaluation of teaching was still practised. However, for HOD3, because of the limitations of the process in holistically identifying whether or not quality teaching and learning occurred beyond the observation period, it was important for him to look into other means of assessment.

Like the other faculty, student course evaluation was used as one source of information. However, adjustment had been made to the course evaluation that was distributed to students enrolled in the English proficiency programme. As students from this programme were limited in their language proficiency, HOD3 felt that using the existing template would not produce a reliable finding as the students were liable to misunderstand or perhaps unable to comprehend the items in the evaluation sheet. The revised course evaluation was one that was agreed on by academics teaching that programme. How the course evaluation was conducted for this programme was also adapted. The usual practice was to distribute the course evaluation sheet, give the students general instructions and ask the students to complete the evaluation sheet on their own before returning the evaluation sheet to the administrator. In this instance, the course lecturer would go through the items one by one to ensure that students understood the items.

In addition to the student evaluation, HOD3, in collaboration with the academics teaching the English proficiency programme, put in place a "mid-term feedback session". HOD3 stated that students at Level 3 and 4 of the four-level programme were required to complete a self-evaluation feedback. Their lecturer would then put his or her own feedback on the students' skill set. This process also pushed the lecturers *"to reflect on what they've been teaching or have not been teaching"* while at the same time provided HOD3 more information about the nature of teaching and learning that had taken place. A5, A6 and A7 agreed with this. A6 mentioned that through the feedback exchange, she gained a better understanding of how students' perceived the quality of her teaching. She explained, *"Usually, I will ask them. So how [can] this class or this lesson be improved? Or this course? So that's where [when] they will say it. So you have to be bold enough to listen."*

4. *What do the academic heads do to support their academics' professional development efforts to enhance their teaching*

All three academic heads agreed that soliciting feedback from their subordinates in reference to areas of needs for developmental programmes was important. This enabled them to determine how crucial the needs were and what were the best strategy to fulfill those needs. All three used the monthly staff meeting to solicit this feedback, but additionally, HOD3 also relied on what he had observed in classes to form an assessment of what developmental work was needed. Where internal expertise was available, they facilitated the organisation of professional development sessions for academics in their led by these internal experts. Where places were available, these sessions would also be opened up to academics in other faculty. HOD3 for example, mentioned that during his observations, he discovered particularly effective teaching strategies or techniques and would then organise the academic staff involved to showcase their strategies to the rest of the team. Where the expertise was unavailable, they would then look outside the institution. All three academic heads agreed that they were not dependent on both the university's Teaching and Learning Unit to meet their needs or the Human Resource Department which also organised training and workshops for the university. HOD2 felt that the faculty was happy with this approach although he did acknowledge that there faculty members wanted an increase in the activities organised. In addition, HOD3 also ensured increased opportunity in peer collaboration through team-teaching by incorporating it into the time-table but admitted that constraints of number of staff and the number of students to be taught did set a limit to how far he could organise this in one semester.

All the academics agreed that the professional development programmes organised especially for their faculty were very helpful in helping them enhance their teaching skills. In relation to enhancing the quality of their teaching, the academics found these programmes to be more helpful than those organised by external providers. As Birman, Desimone, Porter and Garet (2000) pointed out, effective professional development programmes for teaching professionals are, among others, clear in the form they take, involve collective participation of colleagues within the same setting, focus on content area, involve active learning, and are coherent with the lecturers' overall experience as well as institutional policies. Knight, Tait and York (2006) added that the reason why externally organised programmes often fail is due to lack of application to the academics' own teaching context. The situation is a reflection of social constructivism at work. Palinscar (1998, p. 345) stressed that according to social constructivism, there is an interdependence of "social and individual processes in the co-construction of knowledge."

5. *What else needs to be done?*

HOD1 and HOD2 felt that observation of teaching could be very valuable in providing academics with feedback on teaching. They acknowledged that observation of teaching for evaluation purposes had stigmatised other forms of observation because of what had happened previously. They agreed that there was a need to resell the idea of observation for development purposes, either by peers or by senior academics. HOD2 specifically felt that it was an appropriate time to do so because the senior academic who raised the objection and who was herself the reason why many objections had been raised by other academics was no longer with the faculty

HOD1 also mentioned that there were still some basic issues with teaching which had consistently been raised in Students' Experience Survey. These included voice projection, monotonous voice and boring lesson. He added that issue with command of English language was also raised though significantly at a lesser degree and that the faculty was still working on what was the best approach to deal with the situation. The dilemma, as he put it: *"I mean, what do you do? Do you tell the staff to go and attend English classes and this person may actually be a PhD candidate? So it doesn't gel with that."*

HOD3 mentioned that it was crucial for many academics to improve their technological skills and he needed to facilitate this. He also pointed out that whether an academic was IT-savvy had nothing to do with age. The concern was that although a minority of students were *"digitally-out-to-lunch"*, many others were *"whizz kids"*. Some academics were willing to *"engage with new technology"* and incorporate it into their teaching but *"others…are reticent to do it."*

Institutionally, all the academic heads agreed that there were several things which required attention. The Teaching and Learning Unit was viewed to have increased the activities that it organised but at that point, most of the unit's offering catered more for the novice academics newly embarking on their teaching careers. The academic heads acknowledged that it was difficult for the unit to organise programmes which would meet the needs of all academics but were positive that given time, the unit would be able to offer a wide range of programmes which met different needs.

There was also consensus among the academic head that institutional policy regarding professional development needed to be adapted, changed or refined to fit with the institution's current status as a university and what it expects of its academics in terms of professional growth and enhancement of teaching quality. The university wass viewed as being caught in a complex situation where it had inherited the structures set up for a college and that even as changes to these structures were being made, more changes were occurring within the institution. As HOD3 commented, in relation to professional development, "We are still evolving the policy and how it is operationalised." Although the institution had been on the frontline of the private higher education industry for over two decades, it was a young university. HOD3 mentioned:

> *Some of the criteria that come in for supporting staff in terms of their outcomes, from international conferences need to recognise that many of the people are young researchers, young academic writers…in terms of experience…. And need support to go through that process. So, we have a university structure. Yes we all want SCOPUS journals….ISI journals that are highly ranked and so on. Well, we need to sort of walk before we can run.*

HOD2 also pointed out that the manner in which the policy was implemented also needed consistency. For example, he cited the case of one staff who submitted an application for training organised in another state within Malaysia, which met the stipulations of the policy and which he had approved. However, he stated that the Human Resource person in-charge of training and development suggested that the academic should go to a training somewhere closer for non-academic reasons. Although this problem was eventually sorted out and the academic staff obtained the final approval needed, these were examples of implementation gap that needed attention.

To add to the mix, the institution was also part of a larger, non-education-based, corporate structure. While the uniqueness of the institution had been taken into consideration, many of the management practices adopted were those which were implemented across the larger organisation which, according to the participants, did not fit well with the institution's "nature of business".

Finally, all the interview respondents agreed that there needed to be a better understanding of what it takes to deliver quality teaching. H1 summed this up clearly by saying:

> *I think that there is a need for… stakeholders to understand the needs of the teaching profession. Stakeholders here not just limited to HR but would include ITS [IT Services], [and] also include Facilities and Maintenance. So for example, even in terms of the space that a teacher has. Or the allocation of time-tabling and scheduling. These are things that should not be taken lightly…. So everybody needs to get into it because I think there is a misconception by many stakeholders involved in this process that teaching is an easy thing to do.*

CONCLUSION

The findings of this study reinforced the important role that academic heads, as those in the middle, played in implementing institutional policies and regulations to assure the quality of teaching and learning in the institution and implement strategies that could assist in further enhancement. In that capacity, it was found that the academic heads played a crucial role in exercising their own judgment as to what institutional measures worked and what did not work with their own faculty. It was found that all the academic heads practised a soft systems approach to assessing, maintaining and improving the quality of teaching. In the case of HOD1 and HOD2, because of the strong objections by their faculty members, discontinuing the practise and exploring other means of obtaining information about the quality of teaching and learning in the classroom was seen as the best solution. In the case of HOD3, anticipation of problems if teaching observation and evaluation was not conducted with objectivity and sensitivity resulted in the procedure being accepted by the academic staff under his supervision. Despite this, all respondents agreed that the procedure could not accurately inform the academic heads on what academics actually do in class for the rest of the year.

All respondents agreed that multiple-source of information should be utilised in order to form a holistic evaluation on the actual quality of teaching and learning that took place. In relation to the systems theory, this scenario is one which Checkland (1994, p.80) would recognise as moving away from "hard systems thinking" in which an organisation is recognised as a set of systems which can be "systematically engineered" to achieve objectives. The movement was towards "soft systems thinking" in which an organisation is viewed to be problematic but the process of inquiry into the problematic situations... can be organised as a system."

All the respondents concurred that academics should continuously develop themselves in order achieve or maintain high quality. While they agreed that attending or presenting at conferences, seminars and workshops were valuable to their learning and helped enhance their knowledge, they felt that departmentally-organised programmes were the most effective in helping them increase the quality of their teaching as these programmes addressed specific needs and the knowledge and skills learned from such programmes could be immediately applied to their own teaching situation. All participants were highly satisfied with the departmentally-driven programmes available for them. The academics felt that this occurred because their academic heads were responsive to their needs and took the initiative to find out what specific challenges they had in their teaching and organised developmental programmes accordingly.

Although institutionally, most respondents were aware of the professional development programmes organised by the Teaching and Learning Unit, all agreed that that more concentrated effort was needed to make the unit highly functioning. All respondents agreed that as the institution was caught up in the process of change, in transforming to become a university that could be comparable to other international universities recognised for their achievement, the situation was a highly complex one. Institutional policies, regulations and implementation had to be revised and such changes were only possible with time and concentrated effort by all stakeholders to provide sufficient input into the process. This situation could be familiar to other Malaysian private universities as they may be going through similar changes. As such, future research could explore how the institution is strategising its institutional policy changes in relation to professional development and who, among the academics are involved in the process. Additionally, future research could explore strategic approaches in streamlining professional development programmes for academics within the institution to tap into what the academics had already identified as the most effective source of input to enhance their teaching.

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Factor Affecting Creative Problem Solving Performance Of Pre-Service Teachers In Blended Learning Environment

Samoekan SOPHONHIRANRAK
Faculty of Education, Chulalongkorn University
Faculty of Learning Sciences and Education
Thammasat University, Thailand
Samoekans@gmail.com

Praweenya SUWANNATTHACHOTE
Faculty of Education
Chulalongkorn University, Thailand
praweenya@gmail.com

Sungworn NGUDGRATOKE
Faculty of Education
Sukhothai Thammathirat Open University, Thailand
sungworn@hotmail.com

ABSTRACT

The aim of this study was to examine factors involved in the creative problem solving and blended learning context that can improve creative problem solving performance. Mixed-methods research with embedded design was used for collecting and analysing data. The quantitative data was analysed through structure equation model (SEM) for identifying blended learning and creative problem solving factors. Qualitative data was collected by undertaking observation and conducting semi-structured interviews, and focussed on finding appropriate techniques and learning environments in both traditional and online classrooms. The study revealed that creative problem solving performance could be significantly enhanced through blended learning instruction factors. In addition, blended learning instruction was statistically related to creative problem solving processes. The 'Learning activities' factor was the most important factor that enhanced creative problem solving performance in blended learning context. Furthermore, the results from the observation and interview process demonstrated that the instructors applied creative problem solving process through diverse strategies such as Wh-questions, brainstorming, and metaphor for enhancing the thinking skills of students in blended learning environments. Moreover, instructors organized a flexible classroom climate, which encouraged students to free to share ideas and present their opinions in the classroom and create projects in alignment with their own interests.

INTRODUCTION

Higher education not only develops learners in a specific area to work or apply practical knowledge; but it also enables learners to be experienced citizens through various environments (Longson, 1997). The instructors should undergraduate students, prepare, and plan their learning in a way that fits with their goals, time, and resources (Longson, 1997). Meanwhile, learning spaces and environments in universities are the other factors affected learning such as diverse activities, experiences, and resources (Strange & Banning, 2001). In addition, pre-service teachers who might be instructors in the future should have basic knowledge in education including: technology, pedagogy, and content knowledge for integrating the best instruction (Koehler & Mishra, 2009). Thus, instructors should have knowledge in "subject matter" for delivering the correct information and understanding the steps of delivering information in order. Instructors should also have the pedagogical knowledge to select the most appropriate strategies for their students. In the same way, technologies were integrated in instruction for improving and facilitating learning activities (Koehler & Mishra, 2009). The other goal of instructors in learning proficiency should be thinking capacity through applying knowledge and skills that learners have never learned. Such knowledge and skills might be related with prior knowledge and other perspectives. So, the pre-service teachers might organize the best classroom and improve the high quality learners if they were developed in skill of creative problem solving and ability to apply technology in instruction as blended learning.

Due to the evolution of technology, many universities around the world have integrated blended e-Learning instruction in order to solve problems related to interaction, instruction time and place, boundary of learning, environment (Garrison, D. Randy and Vaughan, 2008; Littlejohn & Pegler, 2007; Picciano, Anthony G. & Dziuban, 2007). Accordingly, this showed that blended learning instruction has grown rapidly (Allen, Seaman, & Garrett, 2007)

Blended Learning

Blended learning instruction is one type of instruction that integrates face-to-face and online instruction in various settings. For example, some instructors used online tools as a course management system (CMS) for posting assignments, course syllabi, or some documents; whereas, some used online tools or learning management system (LMS) as a communication tools for discussion, giving feedback, or interactive activities with students such as sharing ideas, brainstorming, or others (Allen et al., 2007). As a result, integrating various online learning tools to improve students' learning and enhance their creative and critical thinking has become one pedagogical strategy for instructors. (Garrison, D. Randy and Vaughan, 2008; Littlejohn & Pegler, 2007; Picciano, Anthony G. & Dziuban, 2007; Runco, 2007; Thorne, 2003). Instructors in universities applied tools on online platforms for improving instruction and learning, particularly to enhance creativity and criticality.

Although blended learning has been known as the integration between classroom and online learning environments (Picciano, Anthony G. & Dziuban, 2007), there are various instructional elements that instructors ought to realize, as follows:

1) Online learning and classroom activities that include orientation activities; the presentation of objectives; guidance for using online platforms; assignments; group discussions; collaboration; or studying online presentations, video, or other resources (Allan, 2007; Alshwiah, 2009; Bach, Haynes, & Smith, 2006; Bonk, Graham, Cross, & Moore, 2006; Chen & Cheng, 2009; Y. M. Huang, Kuo, Lin, & Cheng, 2008; Kashefi, Ismail, Yusof, & Rahman, 2011; Littlejohn & Pegler, 2007; Nel & Wilkinson, 2006; Orhan, 2008; Stacey & Gerbic, 2009; Thorne, 2003; Usta & Özdemir, 2006; Wilson & Smilanich, 2005; Zhao & Yuan, 2010)

2) Feedback that instructors could give through online and face-to-face (f2f) for improving learners' thinking skills (Bach et al., 2006; Lim, Morris, & Kupritz, 2007; Nel & Wilkinson, 2006; Orhan, 2008; Thorne, 2003; Wilson & Smilanich, 2005; Zhao & Yuan, 2010)

3) Hard/soft resources and online tools that consisted of course documents, videos, multimedia textbooks, and others. (Allan, 2007; Alshwiah, 2009; Bach et al., 2006; Bonk et al., 2006; Lim et al., 2007; Orhan, 2008; Stacey & Gerbic, 2009; Thorne, 2003; Usta & Özdemir, 2006; Wilson & Smilanich, 2005; Zhao & Yuan, 2010)

4) Communication channels to share messages between instructor-learner and learner-learner; however, interactions had to be applied with learning resources and/or online tools and moved forward in activities. (Allan, 2007; Bach et al., 2006; Littlejohn & Pegler, 2007; Orhan, 2008; Stacey & Gerbic, 2009; Wilson & Smilanich, 2005; Zhao & Yuan, 2010)

5) Evaluations, including both formative and summative evaluation. Formative assessment includes quizzes, mini project assessments, or reflection, each of which are focused on the progress of learners; while, the purpose of summative evaluation is to evaluate learning after the course as a whole. (Allan, 2007; Bach et al., 2006; Bonk et al., 2006; Orhan, 2008; Stacey & Gerbic, 2009; Thorne, 2003; Wilson & Smilanich, 2005; Zhao & Yuan, 2010)

Online Classroom

In terms of the online classroom, the Internet connection may help learners to learn at their own appropriate place and time. There were many features in online platforms such as multimedia for presenting the content, discussion board for sharing ideas, grade book for updating results, chat rooms for online talking, video or audio conferencing for online meeting. Some classrooms used learning management system (LMS) for managing online classroom (Thorne, 2003); however, some instructors implied social network for enhancing learners' idea sharing and collaborating (Mathew, 2014). In summary, online classroom features include: (1) Internet to connect with learners anywhere and anytime, (2) multimedia for presenting content, (3) discussion board for sharing ideas, (4) grade book for updating learning results, (5) chat room for classroom communication, (6) Audio and video conferencing tools for online meeting, (7) learning management system (LMS), and (8) social networking for connecting and collaborating among learners. (Littlejohn & Pegler, 2007; Mathew, 2014; Thorne, 2003).

According to blended learning feature, the instructors should examine epistemologies, theories of learning, pedagogical approaches, instructional strategies, and acts that were parts of blended environments. In addition, blended learning pedagogical approaches might be one factor to solve classroom problems through enhancing flexibility in classroom and improving learners' thinking skills (Picciano, Anthony G. & Dziuban, 2007). For example, small group discussions that could improve critical and creative thinking might be not only in classroom but also on an online discussion board (Lim et al., 2007).

Creative Problem Solving (CPS)

Creative problem solving (CPS) is blended between problem solving and creative thinking, which helps instructors apply various strategies to improve learning activities (Treffinger, Isaksen, & Dorval, 2003). For example, learners can improve problem-solving skill through creative thinking approaches. Learners might discuss together in brainstorming sessions, share new ideas, incubate them, and then decide on the best solution (Barak, 2013). As many authors writing about 21st century skills have demonstrated, the creative thinking and problem solving skills are the most important skills that pre-service teachers should have to be effective in-service teachers in the future (Brookhart, 2010). Higher order thinking as problem solving and creative thinking was the most important skill in higher education because of the need to solve pressing problems in the future (Kirton, 2003). Therefore, undergraduate students including pre-service teachers in every academic area need to improve these skills to enhance learning in a period of limited resources, materials, amount of time, and special learners (Brookhart, 2010). Although the problem solving process was important for making solution in any field, those solutions still were not the best ways because the solutions were based on analysis step and quantitative element. As a result of solution gaps, the problem solving process was integrated with creativity to create better solutions (Higgins, 1994).

CPS is the instruction process to improve creative problem solving performance that has been investigated by Alex Osborn since 1952 (Treffinger et al., 2003). For more than five decades, many researchers conducted, developed, and updated creative problem solving (CPS) process more than 10 times. At the present, the latest version 6.1 CPS version consisted of four steps: (1) understanding the challenge, (2) generating ideas, (3) preparing for action, and (4) planning your approach. Each of these four steps consist of sub-steps as follows: (Treffinger et al., 2003).

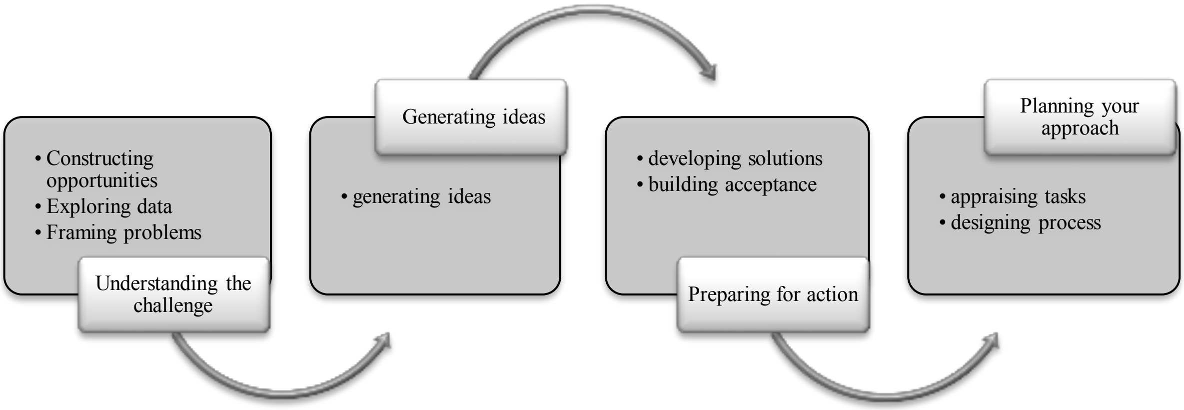

Figure 3: Creative Problem Solving Process

CPS was the process that integrated creativity in problem solving process through generating new ideas to invent innovative solutions (Higgins, 1994). In the CPS process, the 'understanding challenge' was the first important step that enhanced learner understanding of the challenge or problems in their context and started to set up their goals through 'constructing the opportunities' process. The learners need examine the expected problems or challenges for making the clear objectives (Treffinger et al., 2003). According to analyzing the environment, the problem solvers might understand and be aware of the existing conditions. Moreover the learners could expect the possible results and advantages (Higgins, 1994). After constructing the opportunities step, the learners need to consider various data through different perspectives in the 'Exploring data' step. The learners might see the situation and create many ways to solve the problems through 'Framing problems' that may help the learners to form creative ideas (Treffinger et al., 2003).

After framing the problem step, the instructors should give the learners opportunities for generating ideas (Treffinger et al., 2003) through creative thinking techniques, including brainstorming, asking open-ended questions, comparing by metaphor process, and others because the creative techniques might enhance the generation of solutions (Higgins, 1994). In addition, the creative thinking ideas are based on the creativity factors including: (1) fluency (presenting diverse ideas), (2) flexibility (modifying to new perspectives), (3) originality (creating new ideas or innovations) (Thorne, 2007; Treffinger et al., 2003), and (4) elaboration (describing in more detail) (Thorne, 2007). This step, which would help learners to generate in divergent thinking that extend their ideas, was important for 'preparing for action' step. The preparing for action step included two sub steps that were 'developing solution' and 'building acceptance' for creating solution in practical area (Treffinger et al., 2003). A step for applying solution in practical area might relate to the probable solving techniques in diverse perspective (Higgins, 1994) through the purposive approach to improve the possible and best solution for effective problem solving (Treffinger et al., 2003).

Creative thinking and problem solving are parts of higher order thinking skills, which could be improved through instructional strategies (Brookhart, 2010). These strategies are organized by instructors as facilitators through brainstorming (Fogler & LeBlanc, 1995; Higgins, 1994; Lumsdaine & Lumsdaine, 1995; Osborn, 1957; Proctor, 2005), metaphor (Higgins, 1994; Lumsdaine & Lumsdaine, 1995; Osborn, 1957; Proctor, 2005), asking 5W 1H questions (Fogler & LeBlanc, 1995; Higgins, 1994; Lumsdaine & Lumsdaine, 1995; Osborn, 1957), and synthesising ideas (Osborn, 1957). Additionally, these strategies could be set up in online learning sessions. For example, learners could share their ideas through a discussion board (Ajayi, 2009), social network (Perry-Smith & Shalley, 2003), or mobile application (McQuiggan, Kosturko, McQuiggan, & Sabourin, 2015).

Although research studies from 2003 – 2013 (Bahr et al., 2006; Barak, 2013; Chang, 2013; Chen & Cheng, 2009; Deininger, Loudon, & Norman, 2012; Jaarsveld, Lachmann, & van Leeuwen, 2012; Ju Lee, Bain, & McCallum, 2007; Kashefi et al., 2011; Nakagawa, 2011; Peelle, 2006; Tseng, Chang, Lou, & Hsu, 2013; Uribe Larach & Cabra, 2010; Zeng, Proctor, & Salvendy, 2011) were conducted in experimental research design showed that learning strategies in blended instruction could enhance creative problem solving skills, these research results could not identify the significance and relation between creative problem solving process and blended learning instruction.

Accordingly, this research study proposed a research framework of blended learning that enhance creative problem solving performance. The aims of this research study were (1) analyzing CPS and blending learning instruction factors that might affect problem solving skills and (2) investigating the correlation between blended learning and CPS factors.

METHODOLOGY

Mixed-methods research with embedded design was used for collecting and analyzing both quantitative and qualitative data in this study. First, questionnaires were distributed to 545 pre-service teachers who studied in a subject related either to educational innovation or instructional media. The questionnaire instrument items included: (1) demographic data, (2) learning tools and resources in blended learning instruction, (3) blended learning factors, and (4) creative problem solving factors.

Secondly, the assessment rubric was adapted from Creative Solution Diagnosis Scale (CSDS) (Cropley, Kaufman, & Cropley, 2011) to assess the participants' project. This instrument was approved by nine experts in educational field for selecting the appropriate indicators and three experts for validating the assessment rubric contents. The assessment rubrics included 14 indicators with five-level Likert scale was used to assess student projects. These indicators included: (1) performance, (2) appropriateness, (3) prescription, (4) prognosis, (5) reinitiation, (6) generation, (7) redirection, (8) pleasingness, (9) completeness, (10) gracefulness, (11) convincingness, (12) pathfinding, (13) germinality, and (14) foundationality.

Moreover, observation data was collected from one classroom as qualitative data. The researcher observed this classroom for 11 weeks. 24 learners from educational media class were observed regarding their creative thinking and problem solving skills in a blended learning environment during educational media creation. In addition, students' online participation and interaction in Moodle and Line were observed. After this class finished, the researcher conducted a follow-up interview with the class instructor and four learners through semi-structured interviews to clarify the learning context and experiences.

FINDINGS

The study revealed that the university instructors instructed not only in classroom, but also in online learning platform such as Moodle and social media. According to the process in blended instruction, the research result is described in three parts: 1) learning tools and resources in blended learning instruction 2) correlation between blended learning, creative problem solving, and creative problem solving abilities 3) structural equation model (SEM).

3.1 Learning tools and resources in blended learning instruction

Online tools and media that instructors used as supplemental learning tools were e-mail, blog, discussion board, and social networks such as Facebook, Twitter, Instagram, and Line application. In pre-service education program, Facebook was the most frequently used learner-instructor interaction tool, followed by the Line mobile application (see figure1). Similarly, the most frequently used learner-learner interaction tools were Facebook and Line application (see figure 2). Regarding learning resources, instructors used presentation for representing learning contents most frequently; whereas, e-book, video, pictures, and lecture voice were used as online learning resources equivalently (see figure 3). Learning resources were one important part in this subject because learners had to get the core principles and the best examples for understanding through a model or prototype. For example, the instructor in an observed class gave one opinion about instruction that “learners should perceive CAI design principle and receive the effective CAI samples”. As a result, the instructor used Moodle as learning management system (LMS) for self-studying through uploaded documents and presentation samples.

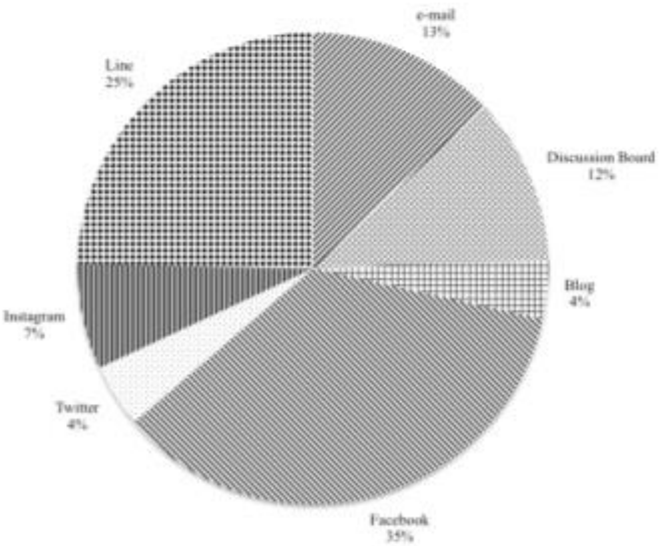

Figure 2. Online tools that students used for communicating with instructors

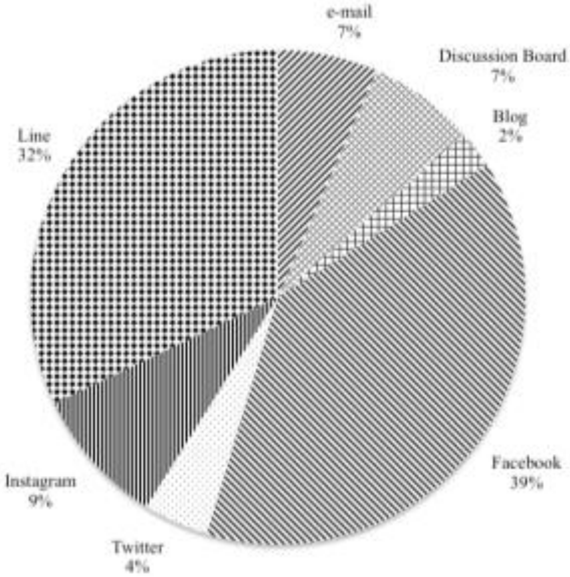

Figure 3. Online tools that students used for communicating with other learners

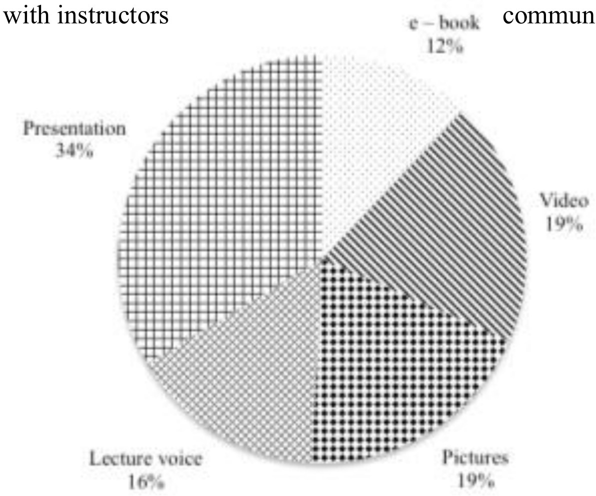

Figure 4. Online learning resources

3.2 Correlation between blended learning, creative problem solving, and creative problem solving abilities

As mentioned before, this research study collected learning context data from 545 pre-service teachers with a questionnaire. To examine the relation between creative problem solving and blended learning instruction factors the correlation in table 1 indicated creative problem solving process indicators. Likewise, the creative problem solving process indicators were all significantly correlated with creative problem solving skill indicators (Relevance & effectiveness: RLVEFT, Novelty: NOVLTY, Propulsion: PRPLSN, Elegance: ELEGNC, Genesis: GNESIS). Nevertheless, some indicators of blended learning instruction were significantly correlated with creative problem solving skill indicators. The indicator in creative problem solving process and blended learning instruction that highest correlated with creative problem solving ability was PREACT – GNESIS. It showed that the preparing for action step correlated genesis that referred to pathfinding, germinality, and foundationality of learners (adapted from (Cropley et al., 2011).

Table 1: correlation between blended learning, creative problem solving, and creative problem solving abilities

Variables	UNDCHA	GENIDEA	PREACT	PLNAPP	LRNACT	LRNRES	FEDBCK	INTINS	INTLRN	EVALUT	RLVEFT	NOVLTY	PRPLSN	ELEGNC	GNESIS
UNDCHA	1.000														
GENIDEA	0.677**	1.000													
PREACT	0.684**	0.687**	1.000												
PLNAPP	0.552**	0.500**	0.746**	1.000											
LRNACT	0.465**	0.415**	0.447**	0.396**	1.000										
LRNRES	0.429**	0.376**	0.408**	0.303**	0.644**	1.000									
FEDBCK	0.428**	0.385**	0.415**	0.297**	0.428**	0.479**	1.000								
INTINS	0.444**	0.437**	0.458**	0.329**	0.454**	0.514**	0.678**	1.000							
INTLRN	0.331**	0.301**	0.300**	0.264**	0.486**	0.514**	0.443**	0.507**	1.000						
EVALUT	0.356**	0.341**	0.345**	0.309**	0.427**	0.482**	0.459**	0.409**	0.582**	1.000					
RLVEFT	0.142**	0.125**	0.180**	0.173**	0.154**	0.062	0.078	0.090*	0.085*	0.099*	1.000				
NOVLTY	0.151**	0.132**	0.184**	0.155**	0.121**	0.051	0.106*	0.092*	0.079	0.147**	0.890**	1.000			
PRPLSN	0.149**	0.130**	0.180**	0.139**	0.117**	0.057	0.094*	0.102*	0.081	0.152**	0.877**	0.945**	1.000		
ELEGNC	0.211**	0.168**	0.212**	0.207**	0.184**	0.123**	0.147**	0.182**	0.151**	0.172**	0.827**	0.830**	0.836**	1.000	
GNESIS	0.180**	0.153**	0.216**	0.197**	0.199**	0.128**	0.137**	0.158**	0.128**	0.163**	0.835**	0.703**	0.832**	0.783**	1.000
Mean	3.792	3.789	3.793	3.839	4.163	4.121	3.650	3.741	4.151	3.936	3.745	3.464	3.201	3.835	3.413
S.D.	0.575	0.646	0.620	0.764	0.519	0.651	0.793	0.852	0.673	0.728	0.752	0.726	0.722	0.625	0.646

** p <.01, * p < .05

3.3 Structural equation model (SEM)

The hypothesized structural models were tested using the structural equation modeling analysis. The result demonstrated that the SEM fitted well with the data, suggesting adequate fit indices: $\chi^2 = 595.851$, df = 99, GFI = .880, AGFI = .835, RMSEA = .096. The standardized path coefficients and significance of relationships of the indicators in model were depicted in figure 4.

The blended learning instruction factor (BLNLRN) was a significant direct influence on creative problem solving ability (CPSABT) (β = .19, t = 2.791, SE = .07); whereas, the effect of creative problem solving process (CPSAPP) on creative problem solving ability was mediated by the blended learning instruction. According to needs in learning improvement, instructors chose the appropriate approaches for learners who would like to improve their learning and knowledge. The research result that was from the observed classroom that based on instruction in classroom could show the effect of blended learning instruction and creative problem solving ability in detail. Owing to utilizing Moodle as a learning management system (LMS), the learners could follow up and prepare before learning in class. The instructor determined online session in 30 percentages for engaging learning in classroom, and the traditional classroom in 70 percentages for activities because "*there were a few learning resources, learners should learn by themselves through weekly documents in LMS, and design the project in the computer room*". The documents as learning resources were one important part for learning readiness of learners because the learners had only 3 hours of f2f instruction per week; however, they could review prior knowledge and prepare for the following class through LMS. There was the instruction wrapped around online resources which were learning assignments, learning resources, additional documents, giving feedback, learning interaction, and assessment for engaging learning. Hence, the learning context in the observed class was described in these following factors.

In the traditional classroom, many learning strategies were selected to organize with learners. For instance, problem-based learning was one strategy that instructors applied in courses for encouraging learners' thinking in some cases. Instructors may apply techniques for encouraging thinking skills such as asking Wh-questions, brainstorming, or metaphor. The most important matter in problem-based learning was the challenges that would motivate and increase learners' learning through inspiring learners' ideas and suggesting the best solution. For example, learners might improve problem-solving skills through asking about the reason or cause of one topic might such as "why did you think it was important?" "What was the missing object in CAI (Computer assisted instruction)? What would you add to complete it?". Learning strategies would affect learning activities that instructors designed for improving creative thinking and solving problems skills. For instance, the instructor chose the problem-based learning

Figure 4: Structural equation model (SEM). Note: 'understanding the challenge': UNDCHA, 'generating ideas': GENIDEA, 'preparing for action': PREACT, and 'planning your approach': PLNAPP) were all significantly correlated with blended learning instruction indicators ('learning activities: LRNACT, learning resources: LRNRES, feedback: FEDBCK, learners – instructor interaction: INTINS, learners – learner interaction: INTLRN, evaluation: EVALUT

Secondly, instructors in many universities probably applied learning management systems (LMS) such as Moodle or Blackboard. Each LMS has its own features to encourage learning. For example, a discussion board that was in the LMS might encourage learner-learner interaction. Whereas learners might use social media such as Facebook or mobile applications such as Line to share ideas, information, pictures, or data sources that would be added in a semester project. These social media and applications were not only used as points of interaction between learners-learners and learners-instructor but also as an online database for collecting pictures, information, graphs, sound, and others.

Moreover, the instructor would assign learning tasks that included three topics as follows: 1) introduction, 2) global warming, and 3) CAI prototype through PowerPoint presentation. After one week, groups of learners would present their projects in front of the class; after that, there was some feedback from the instructor or learners for improving the next projects. In order to encourage the progress of learners, students were asked to present all learning tasks from the beginning of semester in order to improve through feedback. Feedback from instructors consisted of graphic design, creative ideas, and utilization. As a consequence, feedback from instructors and learners focused on adapting and improving the next project not only based on users' perspective (by learners) and profession's perspective (by instructor).

Types of interaction in this context were learners-learner interaction and learner-instructor interaction in both face-to-face and online sessions. Communication in classroom would based on asking some questions about learning topics for improving knowledge sharing through learners' experience or finding causes of something. In addition, comments in each assignment were interactions between learner-instructor through giving feedback and learners-learner through trying to find the solution and make the projects better. Furthermore, the instructor and learners used social media and mobile application as learning communication channels frequently. For example, the instructor created a discussion group on Line application for assignments, asking some academic questions, and making announcements, whereas learners created Line and Facebook groups for sharing pictures, documents, and some information. These social media tools were used for synchronous learning interaction since learners would ask some academic questions and get immediate feedback.

The instructor divided evaluation into 2 parts, summative evaluation and formative evaluation. In formative evaluation, learners would get comments and feedback after submitting each mini project. This aimed to enhance creating and designing skills and gave an opportunity for students to improve their projects. These comments and feedback provided important as guidelines for creating better projects. The summative evaluation focused on examining a computer assisted instruction (CAI) project, which was the semester project. The CAI project integrated creative experiences in each mini project.

In f2f, the instructor created an open classroom climate, one learner in an interview responded: "*the instructor gave us an opportunity to choose our topics freely*". Furthermore, the instructors gave the learners an opportunity to share opinions or ideas in class not only in classroom environment, but outside class also. For example, learners could share their ideas through social networks, mobile applications, or on a discussion board. In accordance with give students a sense of motivation to learn and work on their project, the learners had authority to select their own project topics and styles of presentation.

CONCLUSIONS

In the present, instructors in university are attempting to apply more strategies in classrooms such as project-based learning, problem-based learning, brain-based learning, and others. However, instruction might be organized in classroom and/or online platform which instructors could use learning management system (LMS) in online platforms. The purpose of this research study was to examine factors involved in the creative problem solving and blended learning context for improving creative problem solving performance and to investigate the correlation between blended learning and creative problem solving factors. The research result indicates that there was a correlation between the creative problem solving process and blended learning instruction; furthermore, blended learning instruction affected creative problem solving ability. Moreover, the study revealed that the instructors in higher education instructed not only in the classroom, but also in online platform by using LMS or social media to enhance learning. This kind of instruction was blended learning instruction that included various important factors as follows: 1) learning activities (Allan, 2007; Bahr et al., 2006; Bonk et al., 2006; Thorne, 2003) 2) learning resources (Alshwiah, 2009; Chen & Cheng, 2009; Y. M. Huang et al., 2008; Wilson & Smilanich, 2005) 3) feedback (Bahr et al., 2006; Nel & Wilkinson, 2006; Orhan, 2008; Thorne, 2007; Zhao & Yuan, 2010) 4) learner – instructor interaction (Allan, 2007; Bahr et al., 2006; Bonk et al., 2006; Thorne, 2003; Wilson & Smilanich, 2005) 5) learner – learner interaction (Allan, 2007; Bahr et al., 2006; Bonk et al., 2006; Thorne, 2003) and 6) evaluation (Bahr et al., 2006; Bonk et al., 2006; Orhan, 2008; Stacey & Gerbic, 2009; Thorne, 2003). However, instructors integrated learning strategies such as problem-based learning (Yang, 2015) and project-based learning (Trilling & Fadel, 2009) in learning activities. One kind of learning strategy that was important for improving 21st century skills was creative problem solving process (Trilling & Fadel, 2009). This process consisted of meaningful steps for improving creative thinking and problem-solving skills; the first step was "understanding the challenge" which instructors should motivate learners to think about the current problems and find related information to frame the challenge topic. The second step was "generating ideas" that were from group of learners who could share diverse opinions through brainstorming techniques. Next step was "preparing for action" that related to develop the solution and find the acceptance in the most suitable one. And the last one step was "planning your approach" that contained the detail assessment and designing plan for solving the problems (Treffinger et al., 2003). These steps were integrated in a course and found that learning activities was the most important factors in blended learning instruction.

The implication of these analyzed factors is that instructors should plan and design instruction in classrooms and online sessions through examining the indicators in blended learning and creative problem solving process. Firstly, the instructors should examine the indicators in blended learning instruction; after that, they should analyze the context in each indicator. For example the instructors should analyze the characteristics of learners such as prior knowledge, interest, and need for creating the appropriate learning activities that could meet the needs of learners (R. Huang, Ma, & Zhang, 2008). The instructor should determine learning objectives (Alshwiah, 2009; Wilson & Smilanich, 2005), content and learning resources (Y. M. Huang et al., 2008; Lim et al., 2007; Wilson & Smilanich, 2005), learning activities (Allan, 2007; Alshwiah, 2009; Bonk et al., 2006; Chen & Cheng, 2009; Kashefi et al., 2011; Nel & Wilkinson, 2006; Stacey & Gerbic, 2009), and criteria of evaluation (Allan, 2007). These indicators should be analyzed and organized in detail and applied creative problem solving process in developing learning steps. For example, learning activities were identified the procedure or action to understanding problems or challenges through checklist or role-play activities (Higgins, 1994); whereas the gathering data step was integrated in blended learning instruction through brainstorming (Higgins, 1994) in classroom or social network group (Perry-Smith & Shalley, 2003). Moreover, the instructors should focus on implication in practical area for improving learners' ability to solve the problems creatively in working life. After that the instructors should guide learners to evaluate their solutions for improving the innovative or new solving methods again.

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Factors Impacting The Promotion Of Instructional Design And In Formation Literacy Skill In Thai Teacher

Sumalee CHUACKAI
Faculty of Education, Bangkok
THAILAND
s.chuachai@gmail.com

Onjaree NATAKUATOONG
nonjaree@chula.ac.th

Wiyai SWENGNGAM
wichai.sw@hotmail.com

ABSTRACT

Information literacy is an essential tool for life-long learning. There have always been unceasing efforts to enhance teachers' ability to promote information literacy in students. However, success has rarely been made because the important factors in developing teachers' ability to design instruction for promoting students' information literacy, have not been clearly identified. Therefore, this research aimed at using a questionnaire to investigate teacher related factors which directly influence their ability to design instruction for promoting information literacy. The data were statistically analyzed by One-way ANOVA and Regression. It was found that teachers' age and working experiences influenced the level of their information literacy, while other factors did not influence the ability to design instruction for information literacy. In addition, the level of information literacy was predictive to the ability to design instruction. The findings contributed to the development of the training courses requiring the combination of information literacy and instructional design.

INTRODUCTION

Nowadays, the field of information technology has made substantial progresses. As a result, accessing the internet network systems and transferring massive information can be done with ease. These actions bring about massive amount of information, also known as "Information Explosion" (Sukanta, 2012) However, a lot of this information are incomplete, unreliable, self-contradictory, and bias. Therefore, information literacy, or the awareness of the information's selection, filtering and blocking, has become the required skills in present days. (Bellanca & Brandt, 2011) The American Library Association (1989, cited in Watts, 2008) Plattsburgh State Information and Computer Literacy Task Force (2001), and State University of New York (1997 cited in Eisenberg, 2004) all defined the definitions of information literacy as an awareness of information demand and scope , effective evaluation of information, an ability to utilize information and present it by using various methods, and the ethnical behaviors of users. (Chartered Institute of Library and Information Professional, 2006, cited in Farmer & Henri, 2008) People equipped with information literacy skills will be able to live peacefully in the society, to adapt themselves accordingly to the rapidly changing surroundings, and to solve problems effectively. (Arp, 1990 cited in (Atthawiboon, 2008.)

Information literacy is an essential skill. However, a study by Sourayaviset (2009) found that 43.8% of Thai elementary students were equipped with the 'low' level of information literacy skills and 5.2% is equipped with the 'lowest' level of information literacy skills. This showed that nearly 50% of Thai elementary school students' information literacy skills are needed to be promoted in order to avoid being deceived and to prevent any possible damages caused by broadcasted information (Wilhelm, 2006) Moreover, if students cannot analyze or synthesize this raw information, it will be useless in terms of learning (Gavin, 2008). Therefore, it is required to promote Thai elementary students' information literacy skills by combining the learning these particular skills with the learning of other important learning skills. (Tookpimai, 2013) The problem that hindered the information literacy promotion in Thai elementary students was that Thai teachers taught core subjects with no lesson plans or instructional designs that included the teaching of information literacy skills (Ratana-Ubol, 2550; Sourayaviset, 2009). The suitable way to effectively promote students' information literacy skills was to integrate knowledge related to information literacy into other subjects, instead of teaching information literacy skills as one separate subject as in the current practice in Thailand (Sourayaviset, 2009.) If teachers were able to design their classrooms to promote information literacy, they would also see all teaching processes as one big picture which helped ensure that the teachers would be able managing their classrooms according to the proposes set out in the lesson plans (Fakon, 2009.) Therefore, if it was possible that teachers were able to design their instruction in their own classes by including the teaching of information literacy skills, students would both acquire the subject knowledge and develop their information literacy at the same time.

However, there has been no studies on the factors influencing teachers' ability to design instruction that promote information literacy skills in students by integrating the learning of the skills into other subjects. Therefore, this study aimed at exploring teacher related factors including age, working experience, grade level of teaching, subject areas, and information literacy of the in-service teachers, which could possibly influence the ability to design instruction that integrate the teaching of information literacy skills into the teaching of other subjects. Results obtained from this study would could lead to the development of training courses on enhancing teachers' ability in designing instruction which promoted information literacy in in-service teachers in Thailand.

LITERATURE REVIEW

In order to strengthen the theoretical supports of this studies, a literature review was conduct and is presented below:

The ability towards instructional design

All educational institutes both in Thailand and other countries have long emphasized equipping every teacher with teaching skills, the most important of which was the ability in designing instruction. Instructional design could be defined as outlining or planning so that factors, such as classroom objectives, contents, activities, instructional media, and assessment, to be systematic and in line with one other and the teachers can see the teaching process clearly (Kemp, 1985; Reigeluth, 1999; Richey, Klein, & Tracey, 2011; Smith & Ragan, 2005) Teachers who were equipped with instructional design skills would be able to see all teaching processes as one big picture which ensured them of successfully managing their classrooms according to the plan. Moreover, these groups of teachers were able to prepare meaningful materials, proper tools, and other sources of information (Fakon, 2009.) Several models of instructional designs have been proposed. Gustafson and Branch decided to synthesize the models and summarize them into one simple model with 5 main components called ADDIE model (Richey et al., 2011).The model comprised of analysis, design, development, implementation and evaluation. In this study, these 5 components were employed in order to explore ability to design instruction for in-service teachers.

Information literacy

The concept of information literacy was first mentioned by Paul Zurkowsk (1974 cited in Eisenberg, 2004), President of the Information Industry. He proposed the ideas to promote information literacy to National Commission on Libraries and Information Science (NCLIS) by describing that persons who were skillful in using information technology resources to complement their traditional work were considered as persons with information literacy. These people learned various techniques and skills in putting information technology to use, which led to be able to solve problems. Information literacy nowadays has been considered as one of the most essential skills since there are a large amount of information circulating around. Persons should be able to evaluate and select information appropriate to their needs prior to making use of it.(Association of College & Research Libraries, 2000).

American Association of School Librarians - AASL and Association for Education Communications and Technology -AECT specified 3 standards concerning students' information literacy. Standard 1: Students with information literacy should be able to evaluate information efficiently and effectively. Standard 2: Students with information literacy should be able to evaluate information critically and competently. Standard 3: Students with information literacy should be able to use information accurately and creatively. Sachanon (2011) used the above standards to develop standards of information literacy for Thai students. There were 6 standards. Standard 1: Students should be aware of the importance of information in their learning and their lives. Standard 2: Students should be able to access information sources, to search, and to use various tools to reach desirable information. Standard 3: Students should be able to learn, to analyze, to evaluate and to select proper information. Standard 4: Students should be able to collect and synthesize the collected information systematically. Standard 5: Students should be able to learn and make use of information technology to create and creatively present their works. Standard 6: Students should be able to be moral, follow the laws and regulations, and socially responsible regarding the use of information technology.

Teachers' Demographic

The promotion of teachers' ability to design instructions required the exploration of teacher related factors, considered as potential factors influencing teachers' ability to design instructions. Seekeow (2008) cited that teachers' age and working experiences both directly and indirectly influenced their teaching behaviors specified in the education reform policy. Similarly, (Udom, 2011.) attempted to analyze causal factors influencing teachers' capacity according to the Thai Teacher Professional Standard (Learning Development Section). The researcher found that working experience, the period that teachers were assigned to work as in-service teachers, was one of the factors influencing teachers' development. In addition, the research by Chanthakorn (2008) showed that working experience of teachers was of the factors influence teachers' development according to the Thai Teacher Professional Standard. These teaching experiences could be categorized into length of teaching services, and the subjects, and grade levels that they taught.Therefore, this study proposed to compare information literacy ability and instructional design ability by teacher related factors

PURPOSE OF THE STUDY

This research has been proposed to explore factors leading to the development of training course to enhance Thailand in-service teachers' ability to design instruction by integrating the teaching of information literacy by comparing teachers' information literacy skills and instructional design skills with age, working experiences, subjects and grade level of teaching, and training received. In addition, the study also aimed to explore the relationship between teachers' information literacy skills and the ability to design instruction that in enhance students' information literacy.

Research Hypotheses

1. Differences in teacher related factors including age, working experiences, grade and subjects that they taught, would result in the differences in the level of information literacy when comparing the average scores between groups.
2. Differences in teacher related factors including age, working experiences, grade and subjects that they taught, would result in the differences in the level of the ability to design instruction that enhances students' information literacy skills when comparing the average scores between groups.
3. Teachers' information literacy ability are related to their ability to design instruction that enhances students' information literacy skills.

METHODOLOGY

This study is an exploratory research with sampling methods, research tools and procedures as follows:

Participants

Participants recruited for this study were 262 elementary in-service teachers. G*Power Program was employed to select the subjects, by specifying the moderate effect size at 0.25, and significant level at .05. together. Multi-stage Sampling was used by classifying the areas into 5 regions including North, Northeast, Middle, West, East and South. After that, 5 provinces in each region were randomly selected and 10 schools from each province were selected by using Systematic Random Sampling. Therefore, there were altogether 250 schools, which 5 participants in each school. There were 750 questionnaires distributed and 293 were returned which was equaled to 39%.

Instruments

Instruments employed in this research included questionnaire exploring the relationship between in-service teachers' ability to promote literacy skills and ability to design instruction. This particular questionnaire consisted of 3 sections as follows; 1 teachers' information, 2 teachers' information literacy ability and 3 teachers' ability to design instruction to promote students' information literacy.

In ensuring the technical adequacy of the research instruments, 5 experts reviewed the instruments. Those experts consisted of 2 experts in information literacy, experts in 2 instructional design and 1 expert in assessment. They evaluated all the content and construct validity, and scopes and relevancy of the items. After revising the questionnaires according to the experts' suggestions, researcher launched a pilot test with 30 elementary teachersม who were not in the subjects in the main data collection, to establish reliability by using Coefficient Alpha and found that in the second section (teachers' information literacy ability) had a reliability of 0.967, and in the third section (ability to design instructions to promote information literacy) had reliability of 0.961.

Collect data, along with an exploratory letter to certify that data obtained from questionnaire would remain confidential, and the questionnaire.

Data Collection

Researcher sent letters to the schools by post to ask for permission to after the schools granted their permission, the school distributed questionnaires to teachers who met the criteria identified in the questionnaire. Then, the school sent the questionnaire back to the researcher by mail.

Results

1. The comparison of the average scores on teachers' information literacy ability among different groups of teachers showed that the average scores on teachers' information literacy ability was significantly different at .001 when compared by age, working experiences and amount of training received. However, the average score on teachers' information ability was not significantly different when compared by grade levels and subjects that they taught.It is presented in the [Table 1].

Table 1 : The comparison of the average scores on teachers' information literacy ability among different groups of teachers.

	n	$\bar{x}$	source	Sum of Squares	df	Mean Squares	F	p
Age (Year)								
under 25	6	3.97	Between Groups	6.837	4	1.709	4.889	.001*
25 – 35	76	3.92	Within Groups	100.325	288	.305		
36 – 45	47	3.76	Total	107.161	293			
46 – 55	90	3.65						
over 56	74	3.53						
Total	293	3.71						
Teaching Experience(Year)								
under 5	49	3.97	Between Groups	9.155	4	2.289	36.703	.000*
5 – 10	51	3.90	Within Groups	98.006	288	.341		
10 – 15	26	3.79	Total	107.161	292			
15 – 20	29	3.72						
over 20	138	3.54						
Total	293	3.71						
Grade Level								
Grade. 1-3	105	3.70	Between Groups	.052	2	.034	.091	.931
Grade 4-6	163	3.73	Within Groups	104.426	290	.371		
Grade 1-6	25	3.69	total	104.478	292			
Total	293	3.71						
Subjects								
Thai Language	26	3.83	Between Groups	1.631	7	.133	.757	.264
Mathematics	24	3.85	Within Groups	35.085	114	.308		
Science	14	4.00	Total	36.716	121			
Art	3	3.90						
Physical Education	4	3.76						
Occupation and Technology	17	4.02						
Social Studies	18	3.65						
Foreign Language	16	3.91						
Total	122	3.86						
Training Experience								
5.1 Attended information literacy training courses	108	3.80	Between Groups	9.043	3	3.014	8.848	.000*
5.2 Attended teaching of information literacy courses	48	3.81	Within Groups	98.118	289	.341		
5.3 Attended information literacy and teaching of information literacy training courses	44	3.92	Total	107.161	292			
5.4 Never attended any information literacy training courses	98	3.46						
Total	293	3.71						

2. The average scores of teachers' instructional design ability were significantly different at 0.001 level when compared by the additional training they received and were significantly different a 0.05 level when compared by the level of teaching experiences. However, there were no significant differences between groups when compared by age of teachers, and grade levels and subject taught by teachers. [Table 2].

Table 2 : The comparison of the average scores on teachers' instructional design ability among different groups of teachers.

	n	$\bar{x}$	source	Sum of Squares	df	Mean Squares	F	p
Age (Year)								
Under 25	6	3.58	Between Groups	2.659	4	.668	1.880	.114
25 – 35	76	3.63	Within Groups	101.819	288	.354		
36 – 45	47	3.49	Total	104.478	292			
46 – 55	90	3.51						
Over 56	74	3.37						
Total	293	3.50						
Working Period (Year)								
Under 5	49	3.62	Between Groups	4.185	4	1.046	3.005	.019
5 – 10	51	3.66	Within Groups	100.292	288	.348		
10 – 15	26	3.55	Total	104.478	292			
15 – 20	29	3.54						
Over 20	138	3.38						
Total	293	3.50						
Grade Level								
Grade 1-3	105	3.49	Between Groups	.052	2	.026	.072	.930
Grade 4-6	163	3.51	Within Groups	104.426	290	.		
Grade 1-6	25	3.47	total	104.478	292			
Total	293	3.50						
Subject								
Thai Language	26	3.67	Between Groups	1.368	7	.195	.607	.749
Mathematics	24	3.65	Within Groups	36.690	114	.322		
Science	14	3.74	Total	38.058	121			
Art	3	3.40						
Physical Education	4	3.20						
Occupation and Technology	17	3.73						
Social Studies	18	3.57						
Foreign Language	16	3.62						
Total	122	3.64						
Training Experience								
5.1 Joined the information literacy training courses	108	3.60	Between Groups	11.225	3	3.742	11.596	.000*
5.2 Joined the teaching of information literacy courses	48	3.65	Within Groups	93.252	289	.323		
5.3 Joined the teaching of information literacy and information literacy training courses	44	3.69	Total	104.478	292			
5.4 Never joined the information literacy training courses	98	3.22						
Total	293	3.50						

3. The relationship between information literacy ability and the instructional design ability.
The Regression Analysis was employed entering all the variable into the analysis (Enter Method). The dependent variable in the study was the ability to design instruction that promote students' information literacy skills (dd). The independent variables was teachers' information literacy ability could be categorized as follows; 1) Awareness of the needs for information (IL1) 2) access of information (IL2) 3) evaluation of information (IL3) 4) collection, analysis and synthesis of information (IL4) 5) creative use of information (IL5) and 6) ethical use of information (IL6). The results showed that the information literacy ability strongly predicted the ability to design instruction to promote students' information literacy skills with Correlation Coefficients (R) of .789 and Coefficient of determination of .623. All the 6 variables could explain 63.3 percent of the variance in the ability to design instruction in order to promote students' information literacy with a Standard Error of the Estimate at .374. Among the 6 variables, there were only 2 variables which could significantly predict the ability to design instruction to students' information literacy at .01 (p = .000> .01). The variables were awareness of the needs for information (IL1) and collection, analysis and synthesis of information (IL4) as showed the table [Table 3].

Table 3: The relationship between information literacy ability and the instructional design ability.

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.622	.143		4.357	.000*
	IL1	.437	.055	.465	7.966	.000*
	IL2	.070	.052	.081	1.334	.183
	IL3	-.063	.058	-.076	-1.084	.279
	IL4	.276	.055	.366	5.053	.000*
	IL5	.065	.059	.077	1.093	.275
	IL6	.000	.047	.000	-.007	.994

a. Dependent Variable: dd

DISCUSSION

The promotion of teachers' instructional design skills can contribute to students' learning achievement. Therefore, if we need to improve students' information literacy skills, it is also important to improve teachers' ability to appropriately design instruction. To achieve the goal, it is necessary to explore teacher related factors which directly influence their ability to design instruction that integrate the teaching of information literacy skills. This research found that teachers' age, working experiences, grade levels and subjects that they taught had no influence on the teachers' ability to design instruction integrating the teaching information literacy skills. This is because the ability to design instruction is one of the most important skills for every teacher. It could be seen that many educational institutes both in Thailand and in other countries have specified that the ability to design appropriate instruction is one of the skills every teacher must be equipped with (Office of the Teacher Civil Service and Educational Personnel Commission, 2005) Especially, in Thailand, Professional Standard Bureau, Secretariat Office of the Teachers Council had officially announced that the ability to design desire instruction for certain groups of students is one of the most vital teachers' competencies in teacher professional standards. It is also one of the criteria to be considered in applying for teaching licenses. As a result of this, many institutes which produce teachers then need to promote their teachers' ability to design appropriate instruction. Moreover, in-service teachers also required training with this issue as much as possible in order to be ready for the renewal their teaching licenses. Therefore, no matter how long that they have worked as a teacher, how old is their age, what are they teaching or whom they are teaching for, they must be equipped with the ability to design appropriate instruction which promote information literacy.

Teachers' age, working experiences, subjects and grade levels that they taught had no effects on their ability to design appropriate instruction which promoted students' information literacy. However, this study also found that the teachers' information literacy skills had effects on their ability to design appropriate instruction which promoted students' information literacy. The reason being that the design of instruction required the analysis and selection of the content (Morrison, Kemp, & Ross, 2011, Richey et al., 2011) If the teachers reported that they had a 'high' information literacy level, it also meant that the teachers had the ability to analyze and carefully select contents to make the contents meaningful in their classrooms. Furthermore, the ability to design is also a process requiring decision making skills on how to manage and plan lessons which is most appropriate to students' needs (Reigeluth, 1999) Therefore, teachers with good information literacy could select methods of teaching which were most effective and appropriate to promote students' information literacy skills.

Therefore, we can conclude from the findings of this study that if we would like to promote teachers' ability to design instruction which integrates the teaching of information literacy skills, it is also important to promote information literacy skills in teachers. There are several ways to enhance the skills in teachers such as training courses or self-study program. In order to develop teachers' ability to design instruction, teacher's background (age, and teaching experiences) should not be the sole focus that needs to be consider since in this study it had no significant relationship with teachers' ability to design instruction which included the promotion of information literacy skills in students. However, in order to promote information literacy skills within teachers themselves, it may also be possible that teacher's background (age and teaching experiences) play an important role.

A study found that teachers aged lower than 25 years or teachers with less than 5 years of working experiences had higher information literacy skills than the other groups because one of the factors positively influence information literacy skills was the ability to skillfully access information from several sources (Paul Zurkowsk,1974 cited in Eisenberg, 2004) Teachers aged lower than 25 years or teachers with less than 5 years of working experience tended to frequently use technology which helped to promote their skills in using technological tools and in accessing information from various sources. Moreover, copyright violation has become a significant issue in Thailand. Therefore, teachers had been well-informed about the copyright issues and were encouraged to use information ethically. The findings of this study that subjects and grade levels that they taught had no impacts teachers' information literacy skills because information literacy was a specific issue and teachers, therefore, needed more trainings. Teachers who had been trained on information literacy and instructional design had higher score than those who had no additional training. This was clear that training courses did help develop teachers' information literacy skills and promoted their ability to design instruction.

According to the results of this study, the development of a training course for in-service teacher to promote their ability to design instruction which integrating the teaching of information literacy skills needs to be initiated. The group of teachers who needed to be urgently trained on the topic is the group of teachers aged from 46 years old or the group of teachers with at least 15 years working experiences because these groups were reported, in this study, to have 'low' ability to design instruction integrating the teaching of information literacy skills. Moreover, in terms of the contents and activities in the training course, information literacy skills must be taught to the teachers before instructional design. The training programs can be developed into 2 types of programs. The first program consists of two courses. The first course is designed to enhance information literacy skills and the second is the course to develop teachers' ability to design instruction integrating the teaching of information literacy skills. In-service teachers need to complete the first course prior to attending the second. However, for the teachers who are already equipped with good information literacy skills, they can be exempted from the first course and they can start the second one right away. This type of program would be more suitable for young teachers or teachers who had already taken a similar kind of course before. The second program is a single course which should be designed to enhance information literacy skills at the beginning of the course, and to enhance the classroom design skills afterwards in the same course. This particular course is appropriate for older teachers with more teaching experiences or teachers who have never participated in information literacy courses before. If the programs are designed to appropriately meet the needs of teachers, they will be able to designing instruction that can develop students' information literacy skills so that the students are able to successfully use their information literacy skills both in school and in life.

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Fatih Under Project Determination Of Scale Development Of Teachers 'Readiness Levels: Sakarya National Education Directorate Example

Metin ÇENGEL
cengel@sakarya.edu.tr

Ayşe ALKAN
ayshe_alkan@hotmail.com

ABSTRACT

Today, the very rapid changes in technology, in education as in all of life is inevitable in the transition process to the new orientation. It created the idea of the 2007-2008 year, application as the Opportunity to Increase and Technology Improvement Act, Fatih Project "was launched with the slogan November 2010, and 5 years completion of targeted projects, education and training opportunities to ensure equality and is a project put forward to improve information technology in our schools. Because of their assessment needs to be done to achieve success in many aspects of the project. This assessment of the most important areas in terms of projects, the most important stakeholders and practitioners are addressed in terms of teachers. This assessment of the most important areas in terms of projects, the most important stakeholders and practitioners are addressed in terms of teachers.

In this study, teachers' presence, ready for the project, qualifications and teachers of classes in information and communication technology (ICT) opinion on the use of this project satisfaction regarding the introduction of life and a scale was developed to identify projects of their ownership. The development of this scale Likert scale 12 in addition to the demographic question in the appropriate category 7 of 45 questions were asked. The scale of the responses received validity and reliability analyzes were performed.

Teachers were saving time by project, of course they save time for transmission so that different activities faster, less physically tired they have stated that the increase and diversification of sources. However, the teachers stated that the reduction in eye contact with students and classroom management becomes difficult because of the interest in tablet computers. In addition, teachers in the use of technology in schools increased and technology proficiency with the Fatih Project that took place between stakeholders that have expressed solidarity.

Keywords: Fatih project, Increasing Opportunities and Technology Improvement Act, teacher qualifications, teacher use of ICT, computer-aided education, information technologies, communication technologies

INTRODUCTION

Meet the needs of people throughout history, various tools to facilitate their work, has invented tools and techniques (Durmus and Arıduru, 2001). Today, access to information, knowledge utilization, and faster access to development opportunities thanks to the rapid development of information and communication technologies in teaching is provided. With the introduction of technology in the educational environment has emerged as a widely used educational technology and instructional technology concepts. Educational technology and instructional technology concepts are similar and often confused. Çilenti (1988) and Uşun (2004), education technology, manpower and manpower external sources, using the appropriate methods and techniques to the specific purpose of training individuals evaluating the results are expressed as the science that studies the transportation path.

Education technology, "what" and "why" questions, while teaching technology "how" tackles the question (Kaya, 2006; Lortoğl of 2008). Karademirci (2012), the teaching of information technology, in a systematic way to approach the technology being transferred to the students and also indicates the means used in this process. Place of teachers in integrating technology in education is undoubtedly great. Improve the quality of training of teachers to include this technology in learning and training programs are one important factor. In this regard, Mahiroğlu (2007), to determine the quality of education and teachers related to the system is being successful is that they have a responsibility.

Sakallı et al. (2013) technology, the most efficient transfer of information in the preparation of teaching activities is to provide the tools, applying is important, and students in achieving the goal of teachers using these tools, the information they have learned by experience indicates that it is more permanent. Tabancalı (2003) providing appropriate professional development for teachers of modern technology, when they adapt to changing conditions, it is that they become ready for change faced by students. Yıldız and Seferoğlu (2013) similarly in Information Technology (IT) teachers issued its ability to use a high level of education and potential benefits is noteworthy that in key positions.

The use of technology in education, the importance of teachers Callister and Dina (1992) stated as follows:

> "Technology is taking the place of the teacher efforts have been unsuccessful. Teaching the teachers instead of making another vehicle a short-term solution. Why? Because the technology leads to ignoring the basic fact. Machines, is only a tool, people make sense when they organize the effective use of these tools. In the classroom, the teacher is there to control that environment and what the nature. The tools used in the classroom, to create a rich learning environment, helping teachers. If the teacher does not know what the car would do, if misinterpreted, if afraid of him or use, tools to be used or will be used at all or very bad. "

Ministry of Education, which aims to take its place in the educational system technology (MEB) and carried out with the Ministry of Transport to Increase Opportunities and Technology Improvement Act (Fatih) project. Pre-school, interactive in all schools at secondary level to primary board and Internet network infrastructure with the Fatih project aimed to provide education and training opportunities to ensure equality and in teaching and learning of ICT tools to improve technology in schools is intended to be used actively. Fatih Project in Education: provision of hardware and software infrastructure, provision of educational e-content and managing the effective use of IT in the curriculum, in-service training of teachers, informed, secure, as ensuring a manageable and measurable bt use consists of five elements.

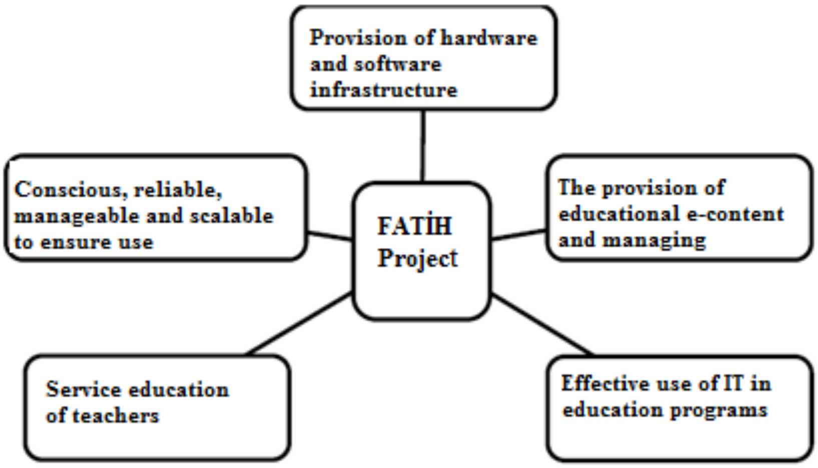


Figure 1.Fatih Project Elements

One of the elements that make up the Fatih Project in Education "Teachers In-Service Training" component. Fatih project with this component of the teacher in order to advance more efficient face to face and distance education through in-service training activities are planned. This training and education to create a rich learning environment, aims to ensure the active use of teachers in the classroom (Ministry of Education, 2012). Teachers' perceptions of the implementation of the Fatih project for the implementation of this project worth working on this issue because of the importance of progress has been made.

Purpose of the Study

The purpose of this study Sakarya MEM (Ministry of Education), depending on the official Anatolian High School Teachers "Fatih Project" to counter perceptions, perspectives and satisfaction of the project positively or negatively to determine what the factors affecting the validity and reliability analysis is made of the scale will be developed.

The importance of research

"Fatih Project" of teachers is one of the most important pillars for the success of the project is important to determine the angle of view of this project. determining vary depending on what the project ensuring ownership and satisfaction of teachers is one of the essential issues. Therefore, the future of the system is important in terms of teachers' attitudes towards this project

Statistical Methods for Research

The validity and reliability analysis on this scale study was conducted and confirmatory factor analysis. SPSS was used for factor analysis. Confirmatory factor analysis was utilized in the AMOS program.

Universe Research

The population of this research includes employees Sakarya National Education Directorate Teachers in High School. In this study, using data collection methods were applied to 418 teachers over the internet.

Research Survey

Because of this survey of teachers "Fatih Project" to their satisfaction and commitment of the teachers have been consulted about the factors which will affect positively or negatively. Data collection tool used in the study, the researchers examined the literature created by the teachers and the factors influencing satisfaction was assessed in five groups. Scale of 1 to 12 demographic questions have been asked in the department. The first factor to scale the content about 5 questions, 5 questions about the infrastructure on the second factor, 6 questions about the materials in the third factor, 7 questions about the Smart Board in the fourth factor, 8 questions about the Perceptions of the fifth factor was consulted by asking the teacher. 5 of 8 questions were also asked questions about ownership and about the satisfaction of teachers.

RESEARCH DATA

The data used in this study, Sakarya National Education Directorate of teachers working on the internet were obtained through a survey. Survey questionnaires were completed 2015-2016 academic year, 418 teachers over the internet. In this survey; Factors with questions about the demographic structure of the teachers answers to the questions asked in size; Agree Disagree completely from any of 5 the Likert scale was used.

Questions of Scale

Table 1. The questions used in the survey.

S1. Your gender
S2. Your Job Severance
S3. Graduated School
S4. Have you received computer training?
S5. Did you use the EBA(Education Information Network) in your class?
S6. Your smart device (tablet-phone-tablet PC) is there?
S7. Do you use social networks (Facebook, Twitter, etc.)?
S8. Have you participated in training at the Fatih project?
S9. Did you participate in the Secure Internet course?
S10. Fatih project with training on Do you think enough?
S11. How many your social network (facebook, Twett is ... and so on.)?
S12. Your branches.
Content1: EBA (Education Information Network), I can use content-related lesson.
Content2: I prepare my own content to use the Smart Board.
Content3: EBA content is appropriate to the level of my students.
Content4: I've seen a shortage in teaching content.
Content5: I can manage content associated with the class.
Infrastructure 1: Our school has adequate infrastructure for the Internet.
Infrastructure 2: Our school has adequate computer equipment.

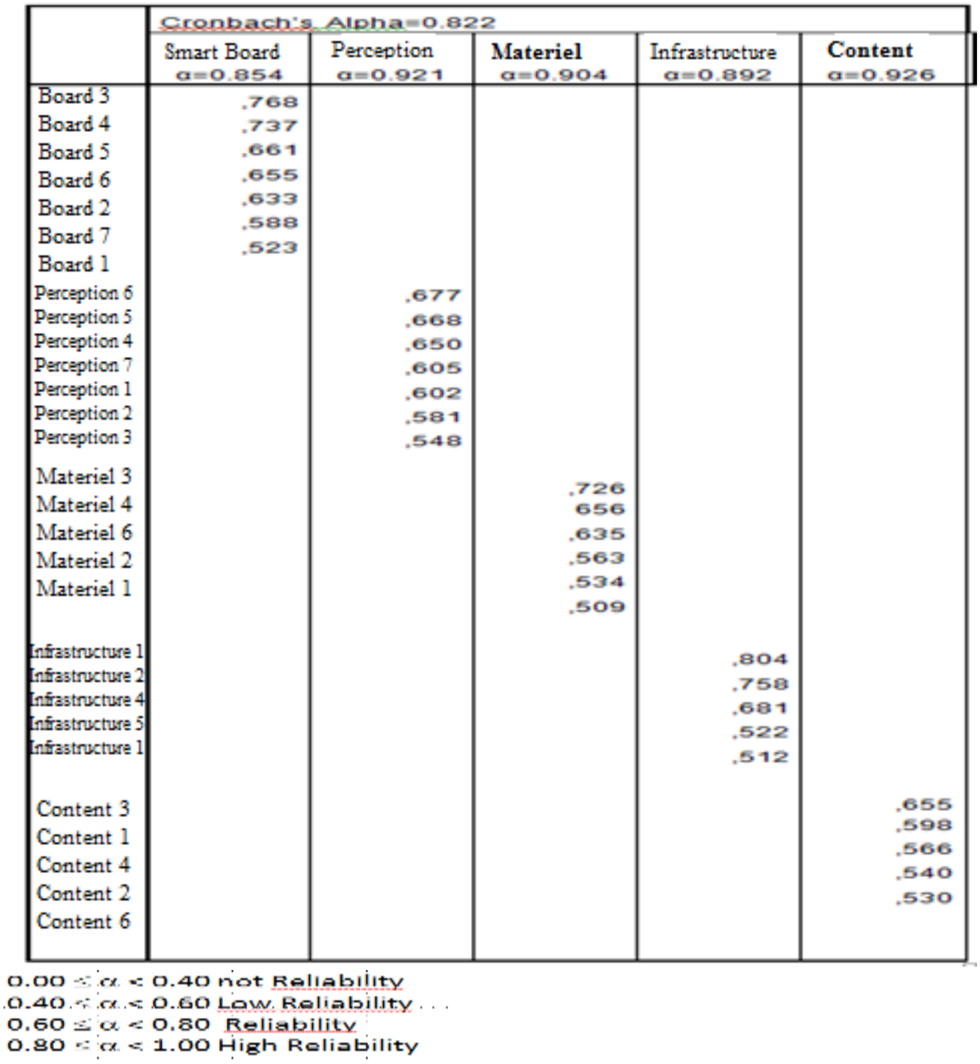
Infrastructure 3: Our school has enough internet speed.
Infrastructure 4: In our school, I think that the hardware works seamlessly with Fatih Project.
Infrastructure 5: I think that provides support for all kinds of infrastructure with Fatih Project management of the school.
Materiel 1: I use the program to prepare the course materials smoothly ..
Materiel 2: Materials can plan to meet students' learning needs identified.
Materiel 3: technology used my material is sufficient.
Materiel 4: it has enough on my course materials.
Materiel 5: Smart Board can prepare the materials to be used by me.
Materiel 6: Smart Board materials can also be used to find and open Internet by me.
Board 1: I can use the smart board and off course I have prepared in advance.
Board 2: what makes a smart board (the .yu extension) can record.
Board 3: I can use animation and simulation tools in the Smart board.
Board 4: Smart board can solve all the problems I encounter in myself.
Board 5: create a new file in the Smart board.
Board 6: Smart board could have used my students.
Board 7: I do instructor about using smart boards.
Perception 1: interactive whiteboard in Word, Excel, etc. I can open the files.
Perception 2: I can improve my teaching materials based on different concepts.
Perception 3: How do I know how to use the Internet safely.
Perception 4: I respect the copyright of the material that I found from the Internet.
Perception 5: You can select the active materials to make my students and I use.
Perception 6: I believe that I get from this system success in teaching.
Perception 7: I feel prepared to use this system.
Satisfaction 1: EBA platform (on the site) feel happy as long as I found myself.
Satisfaction 2: I noticed how time passes as long as I remain in the EBA website.
Satisfaction 3: I find the EBA Platform visually interesting.
Satisfaction 4: what I find very easy call in this platform.
Satisfaction 5: I find it very dynamic design of the site.
Satisfaction 6: find the best rate access this site.
Satisfaction 7: Smart lectures on the board makes me very happy.
Satisfaction 8: I think that the students in the Smart Board lessons listening increased motivation.
Ownership 1: I feel safe in the EBA website.
Ownership 2: I visit this site when outside the school.
Ownership 3: EBA 's (Education Information Network) I would advise teachers to use.
Ownership 4: After giving Smart Board in the course I have difficulty teaching in regular classes.
Ownership 5: First choice when looking for material on this site is my lesson

Scale of Analysis

Factor Analysis Scale

Fatih Project in the Explanatory factor analysis of this scale was developed for teacher satisfaction were obtained by making the SPSS data in the table below.

Table 2: Factor Analysis Scale



	Cronbach's Alpha=0.822				
	Smart Board α=0.854	Perception α=0.921	Materiel α=0.904	Infrastructure α=0.892	Content α=0.926
Board 3	,768				
Board 4	,737				
Board 5	,661				
Board 6	,655				
Board 2	,633				
Board 7	,588				
Board 1	,523				
Perception 6		,677			
Perception 5		,668			
Perception 4		,650			
Perception 7		,605			
Perception 1		,602			
Perception 2		,581			
Perception 3		,548			
Materiel 3			,726		
Materiel 4			656		
Materiel 6			,635		
Materiel 2			,563		
Materiel 1			,534		
			,509		
Infrastructure 1				,804	
Infrastructure 2				,758	
Infrastructure 4				,681	
Infrastructure 5				,522	
Infrastructure 1				,512	
Content 3					,655
Content 1					,598
Content 4					,566
Content 2					,540
Content 6					,530

0.00 ≤ α < 0.40 not Reliability
0.40 ≤ α < 0.60 Low Reliability
0.60 ≤ α < 0.80 Reliability
0.80 ≤ α < 1.00 High Reliability

Table 2 related factors and all Cronbach's alpha values are observed. These values appear to be within limits acceptable to the value specified above.

Table 3. Scale KMO

Kaiser-Meyer-OlkinMeasure of SamplingAdequacy.		,822
	Approx. Chi-Square	7841,496
Bartlett's Test of Sphericity	df	351
	Sig.	,002

Table 3 shows the table of the scale of the KMO value. Table Kaiser-Meyer-Olkin value was found to be suitable for factor analysis it is close to 1. Sigma <0.005 for being small is normally distributed data.

The Confirmatory Factor Analysis(DFA) Scale

Obtained through factor analysis program Amos and interpretation of the scale illustrated in the following sections were performed.

Content Factor for DFA

Content of the scale factor in the conceptual framework of confirmatory factor analysis results are shown in Figure 1. Figure 1 Contents 1 Contents 2 Contents 3 Contents Contents 4 and 5 are codes representing questions variables observed. Located in the analysis codes for each question are located above statements and Table1.

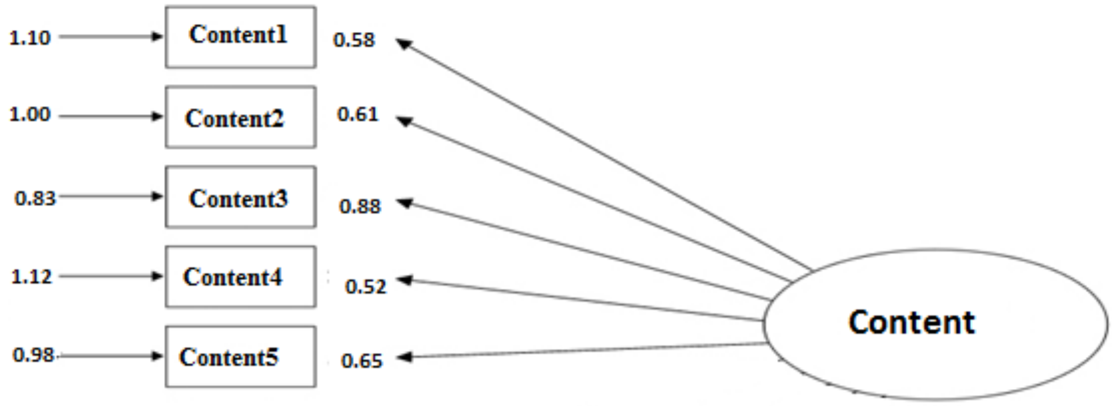


Figure 1. Content Factor DFA

DFA in Figure 1, the values on the right directional arrows to variables observed for the content factors, each of which are used to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 1, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Content Compliance Factor Indexes

Table 4. Content Compliance Factor Indexes

Content	**Compliance Indexes**					
	χ^2/df	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	129/5	,988	,963	,954	,977	,062

When the content of factors to fit indexes studied (Table 4), limits the desired results it is seen that the value in it. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Infrastructure Factor for DFA

Scale Infrastructure factor in the conceptual framework of the confirmatory factor analysis results are shown in Figure 2. Figure 2 Lower yapı1 Infrastructure 2, Sub yapı3, Old yapı4 and Infrastructure 5 questions are codes representing the observed variables. Located in the analysis of each statement and question codes are located in Table 1 above.

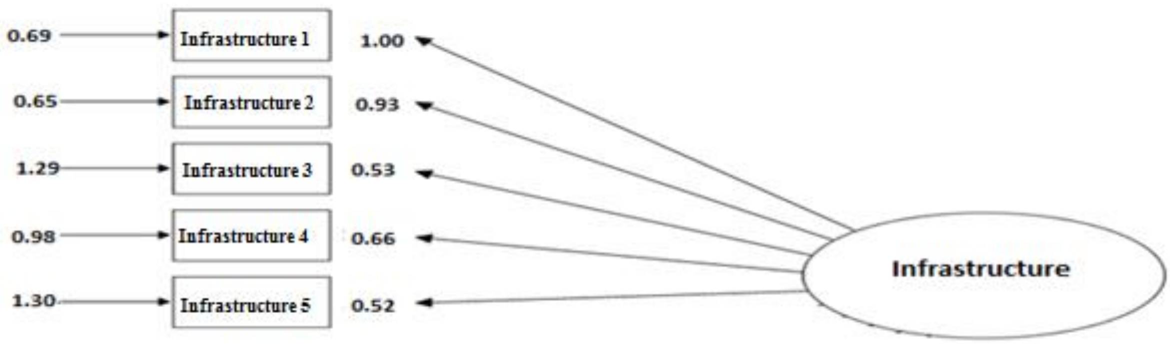


Figure 2. Infrastructure Factor DFA

DFA in Figure 2, Infrastructure factor in the observed variables directed towards the arrows value on, each utilized to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 2, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Infrastructure Adjustment Factor Indexes

Table 5. Infrastructure Adjustment Factor Indexes

	ComplianceIndexes					
infrastructure	**χ^2/df**	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	14/5	,987	,961	,962	,987	,064

When the infrastructure factor of fit indexes studied (Table 5), limits the desired results it is seen that the value in it. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Material Factor for DFA

Material factors in the conceptual framework of the scale confirmatory factor analysis results are shown in Figure 3. Figure 3: material 1, material 2, material 3, material 4, material 5 and material 6 questions are codes representing the observed variables. Located in the analysis of each statement and question codes are located in Table 1 above.

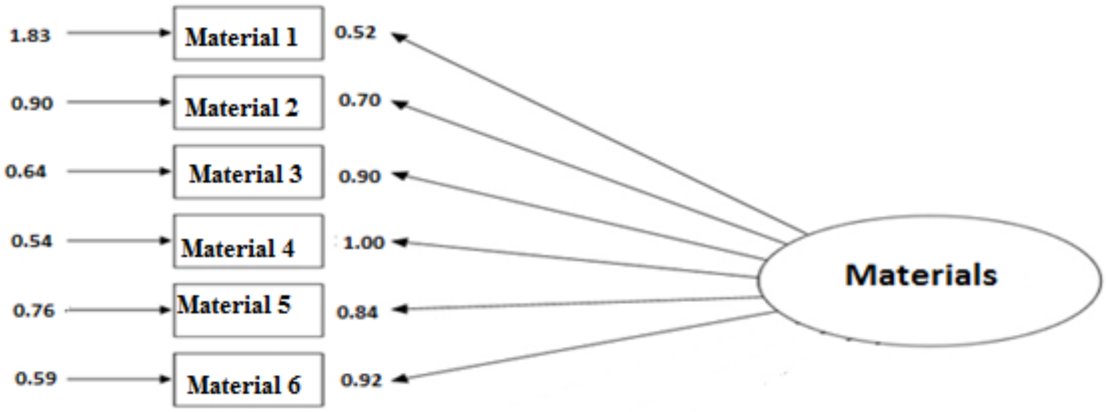


Figure 3. Material Factor DFA

DFA in Figure 3, the value on the right directional arrows to variables observed from the material factors, each nof which are used to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 3, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Material Index of Adjustment Factor

Table 6. Material Index of Adjustment Factor

Materials	**Compliance Indexes**					
	χ^2/df	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	14/5	,987	,961	,962	,987	,064

Considering fit indices of material factors (Table 6), limits the desired results it is seen that the value in it. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Smart Boards Factor for DFA

Scale factors in the conceptual framework of smart boards confirmatory factor analysis results are shown in Figure 4. Figure 4: Board 1, Board 2, Board 3, 4 Board, 5 Board, Board and Board 6 and Board 7 questions are codes representing the observed variables. Located in the analysis of each statement and question codes are located in Table 1 above.

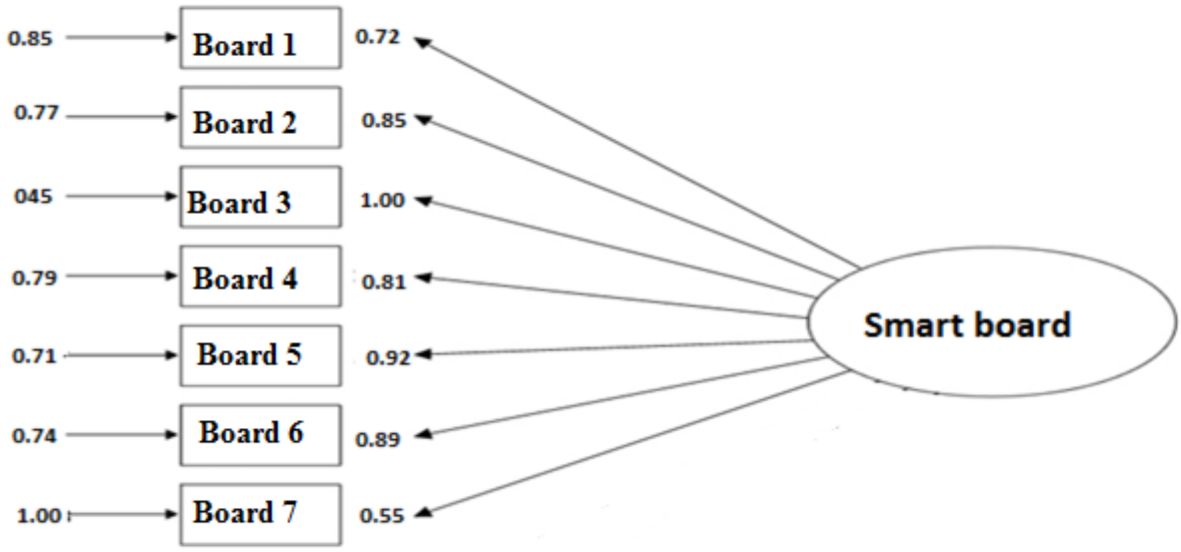


Figure 4. Smart board Factor DFA

DFA in Figure 4, is directed towards the variable observed from smart boards factors arrows value on, each utilized to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 4, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Smart Board Adjustment Factor Indexes

Table 7. Smart Board Adjustment Factor Indexes

Smart Board	Compliance Indexes					
	χ^2/df	GFI	AGFI	TLI	CFI	RMSEA
	57/7	,965	,929	,956	,970	,082

When Smart Boards of factors to fit indexes studied (Table 7), it is seen that the value of the search results within the desired limits. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Perception Factor for DFA

Scale factor in the perception of the conceptual framework confirmatory factor analysis results are shown in Figure 5. Figure 5: Perception 1, Perception 2, Perception 3, Perception 4, Perception 5, Perception 6 and Perception 7 questions are codes representing the observed variables. Located in the analysis of each statement and question codes are located in Table 1 above.

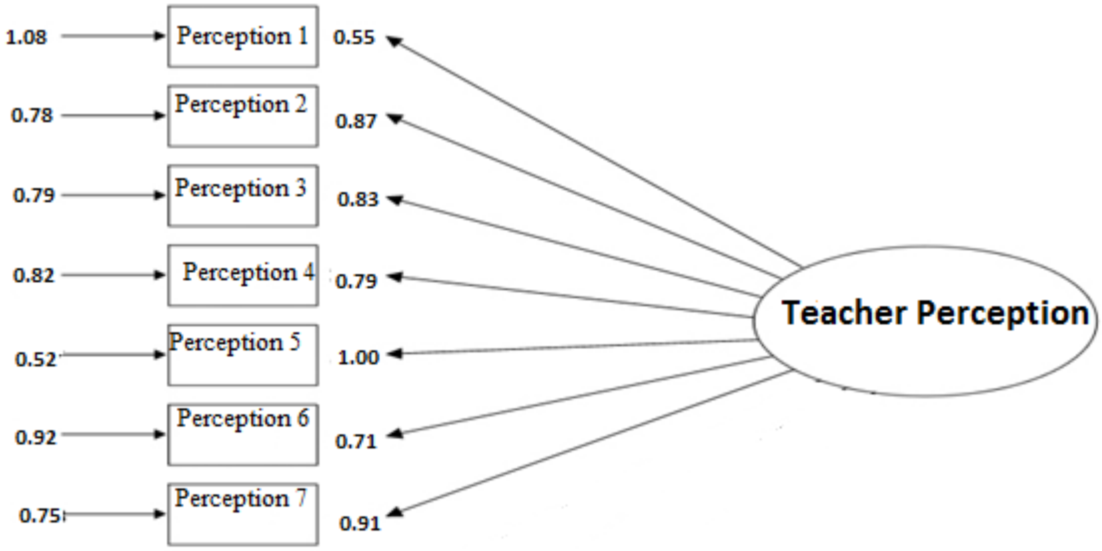


Figure 5. Perception Factor DFA

DFA in Figure 5, directed arrows value on the right to variables observed the perception factors, each of which are used to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 5, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Perception Index of Adjustment Factor

Table 8. Perception Index of Adjustment Factor

Perception	**Compliance Indexes**					
	χ^2/df	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	38/8	,973	,947	,967	,978	,064

When the fit indices of perception factors studied (Table 8), which limits the desired results it is seen that the value in it. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Ownership Factor for DFA

Claim it in the conceptual framework of the scale factor confirmatory factor analysis results are shown in Figure 6. Figure 6: Ownership 1, Ownership 2, Ownership 3, Ownership 4 and Ownership 5 questions are codes representing 5 observed variables. Located in the analysis of each statement and question codes are located in Table 1 above.

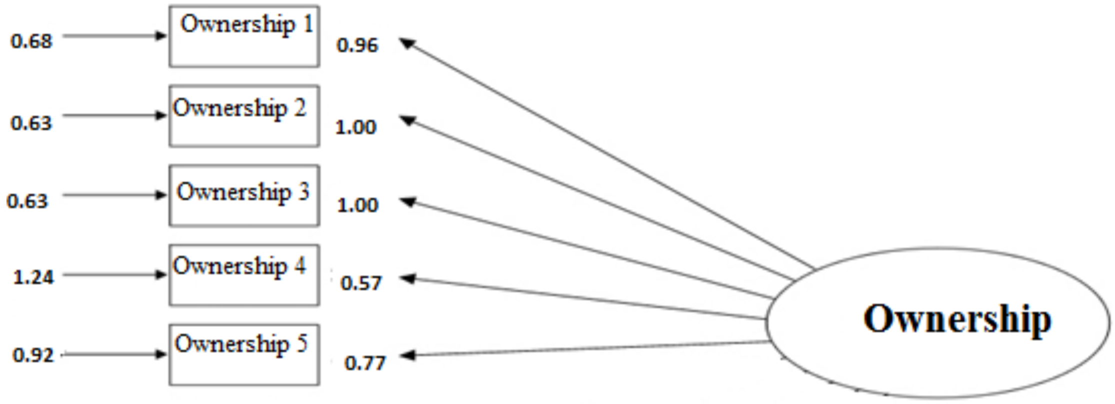


Figure 6. Ownership Factor DFA

Figure 6 in the DFA, directed towards the variable observed in Claim it factors arrows value on, each utilized to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. Situated in Figure 6, the error of the observed value of a variable (1-R ^ 2sonuç) are seen on the error value of each of the observed variables, oriented towards the arrows.

Appropriation Adjustment Factor Indexes

Table 9. Appropriation Adjustment Factor Indexes

Adopt	**ComplianceIndexes**					
	χ²/df	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	70/5	,993	,979	,988	,994	,035

When ownership factor of fit indexes studied (Table 9), limits the desired results it is seen that the value in it. Looking at Table 0.9 <GFI, AGF, the TLI is observed that in CFI accepted limits 0.1> RMSEA of the factors is found within acceptable limits, it was decided that there was no need to remove any problems.

Satisfaction Factor for DFA

Satisfaction Scale factor in the conceptual framework of the confirmatory factor analysis results are shown in Figure 7. Figure 7: Satisfaction 1, Satisfaction 2, Satisfaction 3, Satisfaction 4, Satisfaction 5, Satisfaction 6, Satisfaction 7, and Satisfaction 8 are codes questions Satisfaction representing variables observed. Located in the analysis of each statement and question codes are located in Table 1 above.

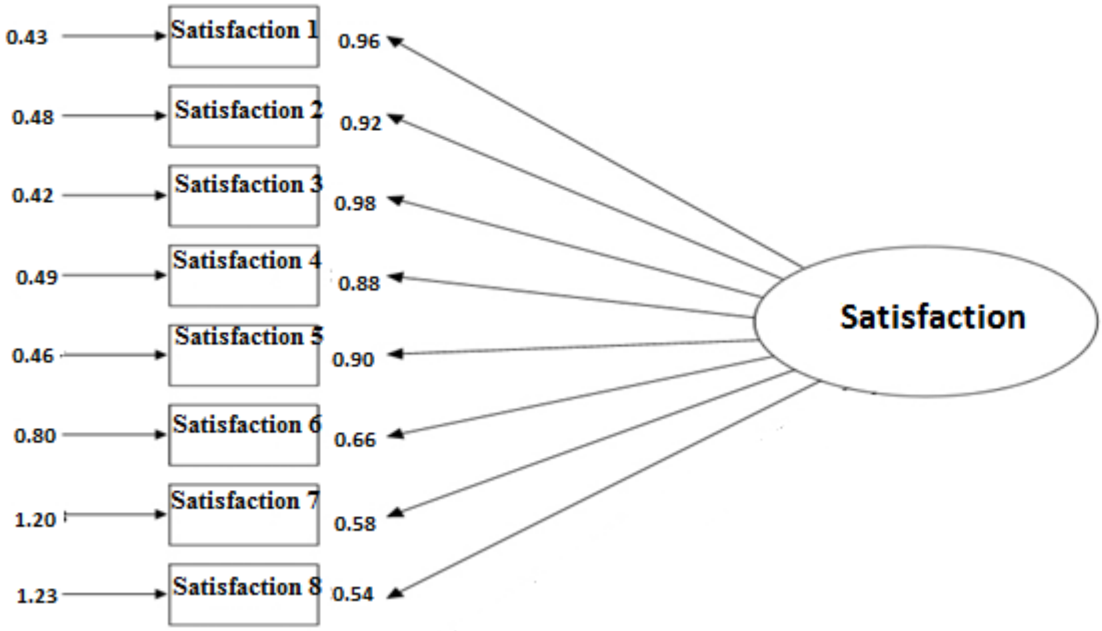


Figure 7. Satisfaction Factor DFA

Figure 7 DFA, directed towards the variable observed Satisfaction factors arrows value on, each utilized to explain the factors observed variables of the standard regression coefficients (confirmatory factor analysis loads) shows. in figure 7, the error of the observed variable value (1-R ^ 2sonuç) are seen on the error value of being directed to each observed variable arrows.

Satisfaction Factor Index of Compliance

Table 10. Satisfaction Index of Adjustment Factor

Stasfaction	**ComplianceIndexes**					
	χ^2/df	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	27/8	,795	,772	,822	,894	,27

When the satisfaction factor of fit indexes studied (Table 10), it seems to yield results within the limits of the desired value.
Satisfaction 8 observed variable of error values, it is seen that a high proportion of covariance values with each other and other variables. In this context, it was decided to remove from the analysis of this variable.

DFA (1. modification to the satisfaction factor)

Due to the low values observed in Table 10, Figure 8 made in satisfaction factor (Modification 1) obtained as a result of each expression codes and values are shown.

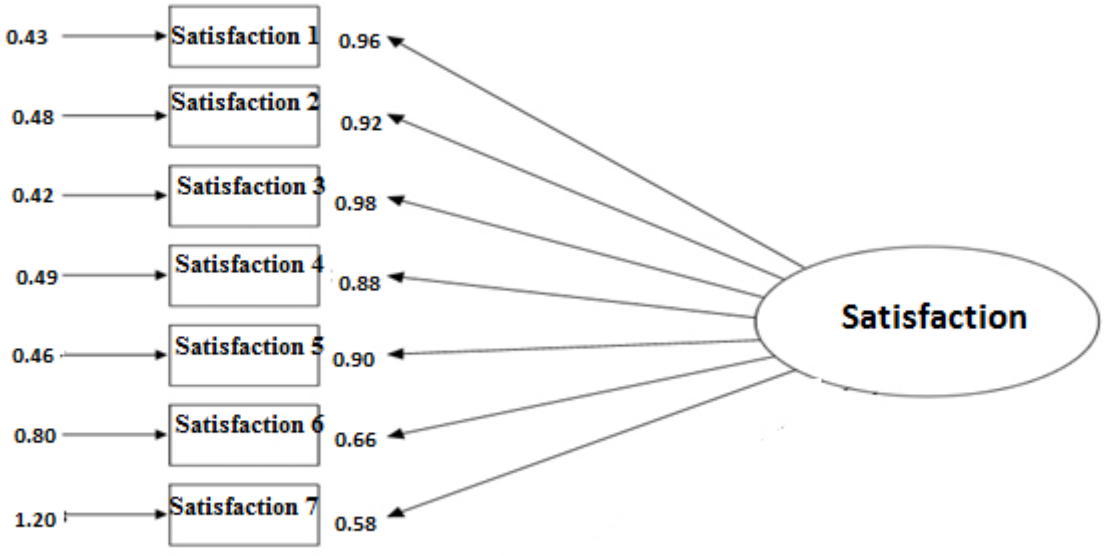


Figure 8. Satisfaction Factor DFA (1. modification)

Satisfaction Factor (1.modification) Compliance Indexes

Table 11. Satisfaction Factor (1. modification) Compliance Indexes

	Compliance Indexes					
Stasfaction	**χ²/df**	**GFI**	**AGFI**	**TLI**	**CFI**	**RMSEA**
	32/7	,901	,898	,905	,926	,098

Required changes resulting fit indices of factor after performing, as shown in Table 11, were observed to be in the desired range. The relationship between variables is shown in Figure 8.

RESULTS AND RECOMMENDATIONS

In this research, a scale has been developed to determine the point of view of teachers to "Fatih project" in the beginning and the end of academic year of 2015-2016, who works in Anatolian high schools in Sakarya. Kayaduman (2011), As concerns the accomplishment of this project, it is important to investigate their competence and existing states of teachers as a part of this project. Adıgüzel (2007), no matter how much an effort be made for the proliferation of this project, the works relating to scaling the attitudes of teachers and of students show that the fact that smart whiteboards are not put in the classes do not serve the object of this project.

Teachers' expectations from this project, and the determination of on what grounds their pleasures, counter-anxieties and their appropriation of this project show alterations, and mutual questions constitute the parts of this projects. To ensure that the scale developed at the end of the investigation be used effectively for later investigations, 55 questions have been prepared under 8 titles (Demographical 12), Content (5), Infrastructure(5), Material (6), Smart board (7), Teacher's perception (7), Ownership (5), Satisfaction (8).

In the scale developed at the end of the investigation, it is determined that the evaluations obtained from tests done for reliability and validity as for literature are acceptable. In the confirmatory factor analysis done, because the evaluation (of displeasure) is the lowest in a factor, the modification that is made by extracting the question from the actor, whose evaluation is the lowest one.

Cronbach's alpha values of all of the factors and Scale (Content A = 0.926, Infrastructure α = 0.892, α = 0.904 Reading, Perception α = 0.921, α = 0.854 and Smart Boards all sizes α = 0.822) It is the desired limits.KMO values (SamplingAdequacy=0.822, Chi-Square=7841.496, df=351, Sig.=0.002) Acceptable limits were observed. Confirmatory Factor Analysis (DFA) results. (GFI, AGFI, TLI, CFI, RMSEA) with modifications made in all of the factors are within the required limits.

RECOMMENDATIONS

As a result, developed and tested to become a tool that can be used in further studies of this scale it has emerged as a result.
Teachers who are practitioners of the Fatih project, this project should be adopted and applied at the appropriate time should be given in-service training to improve satisfaction levels.
Work should be done in a quick way to eliminate the shortage of software used in the use of smart boards
Psychological motivation, efforts should be made to enable teachers and students to be positive in terms of his approach to the project.
To provide content of the Fatih EBA project, teachers must have an economic incentive system to enable content developers can participate in.
The EBA material developer tools more effectively to ensure the use by teachers must be given the training of these vehicles.

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Fourth Grade Students' Metaphoric Perceptions About Mathematics And Music

Deniz TUNCER
Art, Design and Architecture Faculty
Istanbul Medeniyet University, Turkey
deniz.tuncer@medeniyet.edu.tr

Nihan SAHINKAYA
Educational Sciences Faculty
Istanbul Medeniyet University,Turkey
nihan.sahinkaya@medeniyet.edu.tr

ABSTRACT

The aim of this study is to explore fourth grade students' perceptions about the concept of "mathematics" and "music" through the use of metaphors. The participants for this study included 158 fourth grade students enrolled in a public primary school in the spring semester of 2015-2016. To collect data, each participant was asked to complete the prompt "if math/music was a color (a type of game and a season), it would be.... Because..." This data was collected in one lesson hour by researchers. Phenomenological design was used in this study. The content analysis technique was used to analyze the data.

Key words: metaphor, music, mathematics, fourth grade students

INTRODUCTION

Examining the perception of the students plays an important role in revealing their thoughts. When the students' perceptions are known, it allows them to get a chance to evaluate and change their misperceptions. Modell (2009) mentioned that metaphor is not simply a figure of speech and it can be thought as the currency of the emotional mind. According to Lakoff and Johnson, 1980 *"Metaphor is principally a way of conceiving of one thing in terms of another, and its primary function is understanding.* One of the instruments used to discover the perceptions of the individual is metaphors (Şahinkaya and Yıldırım, 2016). Metaphors are good mirrors, and also they can be used as powerful and educative tools for reflection of the personal images and help us to make sense of our world (Perry and Cooper, 2001).

In related literature, there are several studies on metaphorical perceptions of pre-service teachers, high school students, elementary students towards mathematics and music (Babacan, 2014; Schinck, Neale, Pugalee, and Cifarelli, 2008; Güveli, İpek, Atasoy & Güveli, 2011; Reeder, Utley & Cassel, 2009; Güler, Akgün, Öçal and Doruk, 2012; Sahinkaya & Yıldırım, 2016; Sengül & Katrancı, 2012). Although there are many metaphorical perception researches, studies examined on primary students' perceptions are less.

The main purpose of this study is to explore fourth grade students' perceptions about the concept of "mathematics" and "music" through the use of metaphors. The research questions are;
1- What are the metaphors about mathematics of fourth grade students'?
    a) If it's a color, what are the metaphors and categories?
    b) If it's a game, what are the metaphors and categories?
    c) If it's a season, what are the metaphors and categories?
2- What are the metaphors about music of fourth grade students'?
    a) If it's a color, what are the metaphors and categories?
    b) If it's a game, what are the metaphors and categories?
    c) If it's a season, what are the metaphors and categories?
3-What are the similarities and differences between metaphors and categories about mathematics and music?

THE STUDY

Phenomenological model was used in this qualitative study. 158 fourth grade students enrolled in a public primary school in the spring semester of 2015-2016. Data was collected in two days, one lesson hour by researchers. To collect data, each participant was asked to complete the prompt "if math/music was a color (a type of game and a season), it would be.... Because...” Collected data were analyzed and some of them were eliminated in terms of (1) the subject of the metaphor, (2) the source of the metaphor and (3) the relationship between the source and the subject of the metaphor (Saban, 2004). For validity, each prompt was asked by experts. In order to test the reliability, all the points given by the researchers were analyzed using the formula reliability=agreement/ (agreement+disagreement) x100 (Miles & Huberman, 1994). The agreement between the two researchers was calculated as 85-90%. The metaphors and categories obtained from the data were presented in the frequency-distribution tables.

FINDINGS

Fourth grade students’ metaphoric perceptions related to mathematics are categorized under the headings of the color, game and season. These data are shown at Table 1, Table 2, Table 3 and Table 4.

Table 1. Fourth grade student’s metaphors to the question “if math was a color (a type of game and a season), it would be.... Because...”

COLOR			**GAME**			**SEASON**		
Metaphor	**f**	**%**	**Metaphor**	**f**	**%**	**Metaphor**	**F**	**%**
Blue	**32**	**31.7**	**Hide and Seek**	**35**	**26.7**	**Winter**	**72**	**54.5**
Red	26	25.7	Memory Games	16	12.2	Summer	34	25.8
Yellow	14	13.9	Puzzle	14	10.6	Autumn	16	12.1
White	8	7.9	Blindfolded	11	8.3	**Spring**	**10**	**7.6**
Green	6	5.9	Chess	10	7.6			
Black	4	3.9	Football	7	5.4			
Brown	3	2.9	Dodge ball	6	4.6			
Turquoise	3	2.9	Computer Games	6	4.6			
Pink	2	1.9	Jumping Ropes	5	3.8			
Grey	2	1.9	Sudoku	5	3.8			
All colors	**1**	**0.9**	**Maze**	**4**	**3.1**			
			Knowledge Games	**4**	**3.1**			
			Hopscotch	**4**	**3.1**			
			To play tag	**4**	**3.1**			
TOTAL	**101**	**100**		**131**	**100**		**132**	**100**

Table 1 show that; 101, 131 and 132 metaphors are created by students within three titles. Under the title of color, metaphors about mathematics of fourth grade students’, the most widely used color is “blue” and the least one is “all colors”. Under the title of game, the most widely used game is “hide and seek”, and the least are “maze”, “knowledge games”, and “hopscotch” and “to play tag”. Under the title of season, the most used season is “winter” and the least one is “spring”.

Table 2. Categories and Metaphors belong to the "color" (Math)

CATEGORY	METAPHOR (f)
Existence	**Blue (6), Green (2), White (2), Yellow (2)**
Energetic	**Blue (2), Red (10)**
Affection	**Blue (2), Green (4), Turquoise (3), Yellow (2)**
Informative	**White (2), Yellow (8)**
Boring	Black (2), Brown (3), Grey (2), Red (2)
Relaxing	Blue (8)
Joyous	All Colors (1), Blue (2), Pink (2), Red (2)
Guiding	Red (2), White (2), Yellow (2)
Gender	Blue (6)
Difficulty	Black (2), Red (2)
Important	Blue (2), Red (2)
Appealing	Red (3)
Freedom	Blue (2)
Eternal	Blue (2)
Integration	White (2)
Intelligence	Red (2)
Thoughtful	**Red (1)**

According to Table 2, metaphors which belongs the color were listed under 17 categories according to their common features. Most of the metaphors are centered under the heading of "existence", "energetic", "affection" and "informative". "Thoughtful" category is formed only one metaphor.

Table. 3 Categories and Metaphors belong to the "game" (Math)

CATEGORY	METAPHOR
Problem Solving	**Memory Games (2), Hide and Seek (15), Sudoku (3), Puzzle (5), Blindfolded (4), Football (1), Maze (4), Computer Games (2)**
Joyous	**Hide and Seek (8), Dodge ball (3), Puzzle (2), Blindfolded (3), Football (3), Jumping Ropes (3)**
Intelligence	Memory Games (13), Puzzle (3), Chess (6)
Difficulty	Hide and Seek (4), Sudoku (2), Dodge ball (3), Blindfolded (4), Jumping Ropes (2)
Strategic	Chess (3), Computer Games (4)
Significant	Hide and Seek (4), Knowledge Games (4)
Tiring	To play tag (4)
Continuing	Hopscotch (4)
Rules	Football (3)
Knowledge	Puzzle (3)
Affection	**Hide and Seek (2)**
Process	**Hide and Seek (2)**
Complicated	**Memory Games (1), Puzzle (1)**

Table 3 shows that, metaphors were listed 13 categories. Most of the metaphors are centered under the heading of "problem solving" and "joyous". "Affection", "process" and "complicated" categories are formed two metaphors.

Table 4. Categories and Metaphors belong to the “season” (Math)

CATEGORY	METAPHOR
Difficulty	**Summer (9), Autumn (6), Winter (48)**
Joyous	**Summer (16), Winter (10)**
Affection	Spring (6), Summer (4), Winter (6)
Existence	Autumn (6), Winter (4)
Process	Spring (2), Autumn (3), Winter (2)
Relaxing	Spring (2), Summer (2)
Boring	Summer (2), Winter (2)
Informative	**Autumn (1)**
Tiring	**Summer (1)**

According to Table 4, 9 categories were listed. Most of the metaphors are centered under the heading of “difficulty” and “joyous”. “Informative” and “tiring” categories are formed only one metaphor. Some interesting metaphor examples related to mathematics are given at Table 5.

Table 5. Some examples of metaphors related to mathematics

COLOR	**Blue…** “Mathematics is an ever-lasting adventure like blue, it represents perpetuity.”
	Yellow… “They shine like yellow ray of light, they lead us, and Mathematics leads us like yellow ray of light.”
GAME	**Jumping robes…** “Solving Mathematical problems is fun like jumping ropes.”
	Footballs match… “Mathematics is like football game. They both contain tactics.”
SEASON	**Spring…** “Flowers blossom slowly in spring and Mathematics is being learnt slowly.”
	Winter… “Mathematics is like winter, you should keep calm and use all the right information and wait for the sun to rise up.”

Fourth grade students’ metaphoric perceptions related to music are categorized under the headings of the color, game and season. These data obtained from students are shown at Table 6, Table 7, Table 8 and Table 9.

Table 6. Fourth grade student's metaphors to the question "if music was a color, a type of game and a season, it would be.... Because..."

COLOR			GAME			SEASON		
Metaphor	**f**	**%**	**Metaphor**	**f**	**%**	**Metaphor**	**f**	**%**
Yellow	**44**	**30**	**To play tag**	**38**	**27.5**	**Summer**	**56**	**39.7**
Blue	**18**	**12.2**	**Hide and Seek**	**19**	**14**	Spring	40	28.4
Pink	15	10.2	Grab a rag	15	10.9	Autumn	19	13.5
All Colors	14	9.5	Dodge ball	13	9.5	Winter	14	9.9
White	14	9.5	Dance	8	5.8	**All Seasons**	**12**	**8.5**
Green	11	7.5	Singing above the ground	8	5.8			
Red	8	5.5	Karaoke	4	2.9			
Black	8	5.5	Computer Games	4	2.9			
Purple	6	4.1	Blindfolded	4	2.9			
Orange	3	2	Singing chair	4	2.9			
Rainbow	2	1.3	Make-up Song	4	2.9			
Silver	2	1.3	Playing house	3	2.2			
Turquoise	**1**	**0.7**	**Hopscotch**	**2**	**1.4**			
Colorless	**1**	**0.7**	**Swimming**	**2**	**1.4**			
			Sudoku	**2**	**1.4**			
			Basketball	**2**	**1.4**			
			Memory Games	**2**	**1.4**			
			Chinese whispers	**2**	**1.4**			
			Fish net	**2**	**1.4**			
TOTAL	**147**	**100**		**138**	**100**		**141**	**100**

According to Table 6; 147,138 and 141 metaphors are created by students within three titles. Under the title of color, metaphors about music of fourth grade students', the most widely used colors are "yellow" and "blue" and the least are "turquoise" and "colorless". Under the title of game, the most widely used games are "to play tag" and "hide and seek", and the least are "hopscotch", "swimming", "sudoku", "basketball", "memory games", "Chinese whispers" and "fish net". Under the season title of season, the most used season is summer and the least one all seasons.

Table 7. Categories and Metaphors belong to the "color" (Music)

CATEGORY	METAPHOR
Joyous	**Purple (6), White (2), Green (2), Blue (4), Red (2), Yellow (10), All Colors (2), Pink (6), Colorless (1), Turquoise (1)**
Peaceful	**Orange (1), White (4), Green (4), Blue (4), Red (4), Yellow (8), All Colors (4), Pink (6)**
Nature	White (4), Green (2), Blue (2), Yellow (6), Black (8), All Colors (4)
Relaxing	White (2), Green (2), Blue (6), Yellow (8), Rainbow (2)
Lively	Green (1), Blue (2), Yellow (8), All Colors (2), Pink (1)
Affection	Orange (2), Yellow (4), All Colors (2), Pink (2)
Spiritual	**White (2), Red (2), Silver (2)**

According to Table 7, metaphors which belongs the color were listed 7 categories according to their common features. Most of the metaphors are centered under the heading of "joyous" and "peaceful". "Spiritual" category is formed only six metaphors.

Table.8 Categories and Metaphors belong to the "game" (Music)

CATEGORY	METAPHOR
Joyous	**Dance (2), Karaoke (2), Hide and Seek (19), Dodge ball (9), Blindfolded (2), Hopscotch (2), Grab a rag (12), To play tag (8), Make-up Song (4), Singing chair (4), Fish net (2), Singing above the ground (2)**
Process	Grab a rag (1), To play tag (20)
Aural	Swimming (2), To play tag (4), Playing house (3), Singing above the ground (6), Chinese whispers (2), Grab a rag (2)
Lively	Dodge ball (2), Blindfolded (2), Computer Games (4)
Dance	Dance (6), Karaoke (2)
Continuing	To paly tag (6)
Inner Hearing	**Basketball (2)**
Intelligence	**Memory Games (2)**
Difficulty	**Sudoku (2)**
Affection	**Dodge ball (2)**

According to Table 8, ten categories were listed most used metaphors are "joyous". "Inner hearing", "intelligence", "difficulty" and "affection" categories are formed only two metaphors.

Table 9. Categories and Metaphors belong to the "season" (Music)

CATEGORY	METAPHOR
Nature	**Spring (18), Summer (10), Autumn (11), Winter (6), All Seasons (5)**
Joyous	**Spring (8), Summer (19), Autumn (4)**
Relaxing	Spring (5), Summer (10), Autumn (4)
Happy	Spring (5), Summer (6), All Seasons (7)
Existence	Summer (5), Winter (4)
Affection	Summer (3), Winter (4)
Lively	Summer (3)
Sensitive	**Spring (2)**
Inspiring	**Spring (2)**

Table 9 shows that, 9 categories were listed. Most used metaphors are centered under the heading of "nature" and "joyous". "Sensitive" and "inspiring" categories are formed only two metaphors. Some interesting metaphor examples related to music are given at Table 10.

Table 10. Some examples of metaphors related to music

COLOR	**Yellow…** "Music is yellow like sun because it ignites ones' senses"
	All colors… "Each note represents different color, and thus music should consist of all colors."
GAME	**Hide and Seek…** "We should know the following melody just like a game of hide and seek"
	Tag… "Notes in Music come together and follow each another is like a game of tag."
SEASON	**Autumn…** "Notes fly just like leaves in Autumn."
	Summer… "Music just like summer warms people."

The similarities and differences between metaphors and categories about mathematics and music were examined and listed at Table 11. The most used metaphors and categories were written bold and italic.

Table 11. Similarities and differences between metaphors and categories about mathematics and music

	MATH		MUSIC	
	Metaphor	**Category**	**Metaphor**	**Category**
Color	***Blue*** All colors	***Existence, Energetic*** ***Affection, Informative*** Thoughtful	***Yellow, Blue*** Colorless, Turquoise	***Joyous, Peaceful*** Spiritual
Game	***Hide and Seek*** Maze, Knowledge Games, Hopscotch To play tag	***Problem Solving, Joyous*** Affection, Process Complicated	***To play tag, Hide and Seek*** Hopscotch, Swimming Sudoku, Basketball Memory Games	***Joyous*** Inner Hearing, Intelligence, Difficulty, Affection
Season	***Winter*** Spring	***Difficulty, Joyous*** Informative, Tiring	***Summer*** All seasons	***Nature, Joyous*** Sensitive, Inspiring

Table 11 shows that, under the title of color, the most used metaphor in both disciplines is “blue”. Metaphors related to mathematics are mostly listed in the categories of “existence”, “energetic”, “affection”, “informative”. However; in music, metaphors are grouped under “joyous” and “peaceful” categories. “Hide and seek” is mostly common answered metaphor for both, and, “to play tag” is also another preferred metaphor in music for the game. “Joyous” is also the common category for mathematics and music for game. Additionally, mathematics has “problem solving” category. Under the title season, the most used metaphor is “winter” for mathematics, “summer” for music. “Joyous” is also the common category for mathematics and music for season. Another listed category is “difficulty” in mathematics and “nature” in music.

CONCLUSIONS

The most preferred metaphors in colors is “blue” and in games is “hide and seek". In addition “winter”, “summer”, “yellow” and “to play tag” are among the most preferred metaphors. “Joyous” category stands out in both disciplines.

Students grasp music better than mathematics when categories are considered. For those who consider mathematics informative perceive music fun and to be seen in nature. Similar study hasn’t been encountered with and observed. And therefore various studies have been analyzed in numerous samples for example the study performed amongst teacher candidates by Güveli, İpek, Atasoy and Güveli (2011) shows that hide and seek metaphor is commonly used in mathematics and also teacher candidates consider mathematics difficult which parallel the thesis presented with the study. Babacan (2014), Umuzdaş and Umuzdaş (2013) and Sözbir Acay and Çakmak Çamlıbel (2016)’s study is very similar to this study as music is considered as enjoyable.

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From Moocs To Toocs Small_Sized Learning For Everyone

Willi BERNHARD
Swiss Distance University of Applied Sciences
Switzerland
willi.bernhard@ffhs.ch

Nicole BITTEL
Swiss Distance University of Applied Sciences
Switzerland
nicole.bittel@ffhs.ch

ABSTRACT

Massive Open Online Courses (MOOCs) recently demonstrate that e-learning often fails to support interactivity and collaboration. In the worst case scenario, learners are left alone on their own. This may also explain the high dropout rate on such courses (Holton 2012).

However, since knowledge workers in the post-modern society are forced to develop "fluid intelligence" as the ability to re-learn, apply and adapt knowledge (Petrova et al. 2015), learning is expected to include all kinds of knowledge activities such as using, creating, sharing etc. Based on Bettoni & Schneider's knowledge wheel (2002), the authors therefore design Tiny Open Online Courses (TOOCs) as a new didactic concept of e-learning. Considering that, learners have to invest only little time for a TOOC and they do not have to travel or to bring in any prior knowledge, more learners are expected to complete their courses successfully.

INTRODUCTION: MOOCS VERSUS TOOCS

Many e-learning formats ignore the fact that learners in virtual settings have special and different needs. E-learning is often misunderstood as learning by *reading* (books or articles) and posting task solutions in a forum from time to time. However, learners in online settings need more respectively different support. E-learning ideally takes place in interactive learning communities, both in synchronous and asynchronous formats. It needs supportive experts who continuously and actively lead this community of learners. In other words, e-learning should avoid to leave learners abandoned. In this context, take-holders should become aware of the high motivation and discipline students have to bring in online courses. Thus, more important is to offer learning content, which is of interest for students and to keep the duration of a course as short and focused as possible. Herein, MOOCs often fail with the result of high drop-out rates.

In this paper, an alternative format of MOOCs is presented and discussed. Tiny Open Online Courses (TOOCs) take into account the learner's personal interests and give him the freedom to choose among short-term courses on different aspects and topics. In an interactive synchronous learning setting, students discuss, collaborate and directly apply what they (want to) know.

To this end, we explain in a first chapter the core characteristics of the TOOCs concept before we share our first experiences with real-time TOOCs under the joint umbrella of VIS (virtual & interactive sessions). Finally, we close with an outlook on future TOOCs in various modes and a brief summary.

TYPICAL CHARACTERISTICS OF A TOOC

Realizing that MOOCs often lack of interactivity and collaboration, followed by a high drop-out rate, the authors of this paper developed an alternative e-learning model called TOOCs. TOOCs stand for Tiny Open Online Courses, focusing on the learners' personal needs and interests.

TOOCs:

- create an *interactive* learning setting with knowledge in all its variations. Different form many e-learning formats, which leave learners on their own (asking them to read books or articles and to write texts), TOOCs bring learners and experts together. By creating a learning community, TOOCs offer a wide range of interactive learning activities such as collaboration, projects, experiments, discussions, games, stories etc.). Learners directly test and apply what they have learnt and share and discuss their insight in the community.

- are *short-term courses* with a clear beginning and end. Learners normally do not have the time to run a course of several weeks. Further, in most cases, learners will not be interested in all learning contents provided in a course. TOOCs are addressing these facts by offering short courses, which are limited to a single virtual learning event of a few hours. TOOCs cover a specific aspect of a topic and thus address more likely the learner's attention and increase therefore his or her learning motivation. This way, the authors hope to tackle the high drop-out rate found in MOOCs (Figure 1).

- are self-contained. TOOCs do not rely on each other; they cover a specific aspect within a topic. At the end of each TOOC learners are expected to know this aspect in its various dimensions and to be able to transfer it into practice. With the concept of TOOCs, learners get the freedom to put together their own course portfolio. Similar to a mosaic, they connect these different learning pieces.

- offer learning elements *for everyone* who is interested in the given learning content. Learners of all areas and backgrounds are free to choose the TOOCs they like with respect to their needs, passions and interests. Learners decide on their own, which learning offers might be of interest for them, regarding what they want and need to know in their professional or private lives. Example: If someone wants to know how to blanch an egg, (s)he doesn't need to run a full cooking course. TOOCs are able to take into account these selective, personal passions and interests of potential learners. They are open to everyone. There are no restrictions or limitations except for the numbers of participants (to ensure a close connection high interactivity).

	MOOC	TOOC
- Duration	weeks	< 2 hours
- Participants	massive	< 20
- Dropout	high	very low
- Interactivity	rather low	high
- online-mode	async	sync, async, mixed
- Content	plenty	little

Figure 1: Characteristics of TOOCs compared to MOOCs

EXAMPLE OF A TOOC SERIE

In a first pilot, we have organised a set of real-time TOOCs under the joint umbrella of VIS (virtual & interactive sessions) on the topic of storytelling in higher education (www.ffhs.ch/vis). During five online sessions in March 2016, up to 20 participants could learn how to apply different narrative methods in class. Each session lasted about 2 hours, including collaboration and exchange among participants.

Figure 2: Example of a serie of five TOOC-courses about storytelling

As an example, the course "Collaborative Gamebooks" (Figure 2) is taken here for further explanation. For this course no previous knowledge is necessary, neither storytelling nor Gamebooks. After the 2-hour online course, learners experienced what a gamebook is and how it works in classroom and in e-learning settings. They have also seen the didactical model behind and they created their own Gamebook in group-work. For the creation of the Gamebook, they worked with an online-software not known before. At the end of the TOOC-course, every participant is able to create and use Gamebooks for learning purposes.

All VIS TOOC-courses were made with the web-conference software Adobe-Connect (Figure 3).

Figure 3: Adobe-Connect learning environment for the VIS online-TOOCs

Adobe-Connect allow teachers to interact with participants in several ways. Participants can see and hear the teacher, they can also speak and draw to all other participants, if the teacher (or moderator) allows it. Participants also have a chat-function, where they can write messages to the whole group or to a specific person. Other windows give access to links for further information provided by documents or web-pages. A main window is also reserved for the teacher for the presentation of learning material, examples and other demonstrations.

Transfer of knowledge through the teacher is only one part of a TOOC, another important part for the participants is solving tasks in group work. For this reason, Adobe-Connect allows the configuration of working-groups (Figure 4). In group-mode, all participants are member of one group. Every group has its own environment with chat, speak, information and documentation possibilities. Like in a real classroom, the teacher can jump from group to group for assistance or just for information reasons. Also, every group can ask for teachers-help at any time and the teacher can join specific groups or send messages to all groups (for example: for letting them know about the time left for specific tasks until next meeting of all participants).

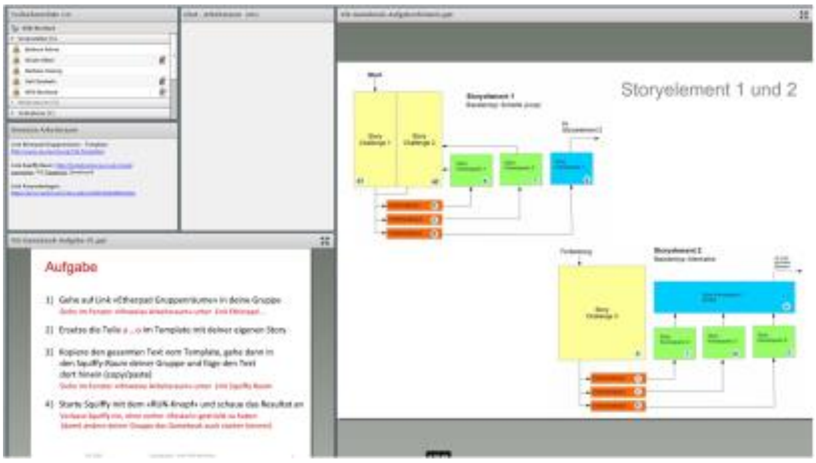

Figure 4: Adobe-Connect learning environment for working in group-mode

The feedbacks on the first implementation of a TOOC were consistently positive. The first round of the workshops were immediately booked out (the number of places were limited to 10) so that all workshops were offered a second time. Finally, 10 fully booked sessions on storytelling were run in March 2016. Participants especially liked the interactive format of these sessions. They found it “inspiring”, “new”, “innovative” and “application-oriented”. Participants felt well-supported and guided by the experts and facilitators. Each single participant was actively contributing in discussions, collaborative tasks etc. and there was no participant dropping out of the sessions. Considering that every session was lasting only 90-120 minutes, learners had to invest only little time. Further, they did not have to travel or to bring in any prior knowledge. This helped to keep their motivation high.

Our lesson learnt: e-learning has to provide an added value, participants cannot find that just by reading a book on their own and by getting in touch with classmates and teachers from time to time in a forum. Here, interaction seems to be a key to success: e-learning has to create a lively learning community of interested and passionate learners in order to keep them motivated. Learning content must be of interest and the didactic format has to be fast and self-contained to allow learners to agilely create their own learning portfolio.

OUTLOOK AND FUTURE DEVELOPMENTS

Currently we continue to develop the concept by adding asynchronous courses as well as mixed-mode options for synchronous/asynchronous participation. As the pilot-serie of TOOCs was successful and free of charge, future courses may be offered for little money.

A mixed mode TOOC course can be build by splitting a synchronous TOOC course into two parts, a self learning part and group work part. The self learning part allows you to experience the rough basics of a theme where the synchronous part gives you the possibility to learn and practice with others in group-work.

Another possibility of a mixed mode course could be, to start with a synchronous part and to continue the course with a specific part, for which each participant or each group has to create a solution on its own. For this case, a learning community can be build, which can help and learn in asynchronous mode like in forum-discussions.

SUMMARY

Tiny Open Online Courses (TOOCs) are highly interactive online-courses, its short duration makes it easy for a small group of participants to follow and to complete the course in one piece. Sharing practical knowledge can be focused with learning communities and group workshops in synchronous or asynchronous mode.

Unlike a conventional school curriculum, It’s the learner who chooses what TOOC he wants to join. Therefore, the learner can choose based on his own gaps and interests, according to his needs.

TOOCs don’t have to be free of charge. Because they are short in time, a small charge is acceptable and could cover the expenses for such a course well. A variety of TOOCs could also allow a school to provide individual diplomas based on leaner-selected compilations.

TOOCs foster a new kind of learning, which is more based on the promotion of individual learning-needs and not on the compulsive completion of prescribed courses. TOOCs also contribute for lifelong learning, which sooner or later always must be initiated by the learner itself.

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Fuzzy Detecting The Effect Of Mobile Game-Based Learning For University Students

Yu-Lan HUANG
Doctoral Program of Educational Leadership and Technology Management,
Tamkang University, Taiwan
mich5858@gmail.com

Dian-Fu CHANG
Graduate Institute of Educational Policy and Leadership,
Tamkang University, Taiwan
140626@mail.tku.edu.tw

ABSTRACT

This study aims to establish the relationship between university students' motivation and how they actually practice when learning English vocabulary using apps downloaded onto mobile devices. The focus group, comprising 30 freshman students at Yuan Ze University, Taiwan, participated in this empirical study during the first semester of 2015 academic year. The data were collected from the questionnaires and analyzed by fuzzy nonparametric tests, including the Wilcoxon Sign Rank Test, the Wilcoxon Rank-Sum Test, and the Kruskal-Wallis Test. The findings show how the focus group learned English vocabulary with the new model. First, we found the participants were willing to use smart phone apps for academic purposes. Secondly, the gender and faculty did not demonstrate differences in terms of how much time spent and learning effect on these two games. Finally, this study reveals that the more time students spent on playing English vocabulary games, the better progress in their English learning.

Keywords: apps, mobile-learning, game-based learning, fuzzy nonparametric test

INTRODUCTION

Most universities and colleges in Taiwan require their students to attain certain level of English before graduation, usually the equivalent of CEFR A1 or B2 (the Common European Framework of Reference for Languages), as assessed by English proficiency tests. This has presented a challenge to non-English major students whose English ability ranks below average. In addition, many students find that they have difficulty learning English or understanding the content of English textbooks due to their limited vocabulary. An adequate vocabulary is essential when acquiring a language as it helps students to understand the content and as well as express themselves (Cameron, 2001). Various studies have displayed the importance of vocabulary learning, for example, Wilkins stated that "…while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (1972, pp. 111–112). Lewis points out that "Lexis is the core or heart of language" (1993, p. 89), and that any serious learner of a language would understand the importance of building an adequate vocabulary. Schmitt (2010) pointed out that "Learners carry around dictionaries and not grammar books" (p. 4). Harmon, Wood and Kiser (2009) and Lines (2005) indicated that increasing vocabulary is an important aspect of learners' language development. Therefore, in this study, the students focused on extending their English vocabulary as well as improving their overall understanding of English.

People born after 1980 have been characterized as "digital natives" (Prensky, 2001a) or the "net generation" (Tapscott, 1998) because of their familiarity with and reliance on information and communication technology (ICT). The current university students in Taiwan are digital natives, they are used to receiving information by using their mobile devices rather than through structured learning environments. This shift of learning styles offers great opportunities for learners to develop a predisposition for lifelong education or independent learning. In this study, two game-based educational apps were installed on participants' smart phones to develop their English vocabulary learning. The testing design includes fuzzy questionnaire to determine student's motivation, time spent by using the apps. This study will answer the following questions: (1) Why were the students willing to learn English vocabulary through apps? (2) Were they using the apps mainly for their own interest or for academic purposes? (3) Over a period of ten days, did the students' English vocabulary improve? (4) Did men spend more time than that of women on playing the games? (5) Did students from the College of Engineering spend more time on learning through apps than those from the College of Humanities and Social Sciences?

LITERATURE REVIEW

Mobile learning leads to learner autonomy

Mobile learning refers to "the use of mobile or wireless devices for the purpose of learning while on the move" (Park, 2011, p.79). Thanks to on-going improvements in the design of mobile devices, these technologies have gradually come to be essential in everyday life (Evans-Cowley 2010). University students today seem to constantly have their mobile devices at hand. It is easy to assume that many of them only use their devices for personal use and social networking purposes (McQuiggan, Sabourin & Kosturko, 2015) and rarely for learning (Farley et al., 2015). If students were to use their device productively for individual learning, the benefits would be enormous. One of the most significant advantages of mobile learning is that it can be used to encourage autonomy, especially in learning language (Robert Godwin-Jones, 2011).

Over the past decades, the concept of learner autonomy, which was first proposed by Henri Holec (1981) for the Council of Europe in the late 1970s, has gained momentum in the ESL/EFL field. Learner autonomy refers to students' ability to take charge of their own learning in terms of setting realistic goals and working towards attaining them (Holec, 1981; Dickinson, 1987; Holec, 1988; Little, 1991; Dam, 1995; Smith, 2000; Benson, 2001; Palfreyman & Smith, 2003; Lamb & Reinders, 2006; Benson, 2007; Little, 2007; Lamb & Reinders, 2007; Barfield &Brown, 2007; Murphy, 2008; Burkert & Schwienhorst, 2008; Little, 2009). Our EFL students are usually somewhat introverted and concerned about privacy. Therefore, the use of virtual worlds such as apps for mobile devices to encourage knowledge acquisition is a viable learning alternative (Nowlan, 2008). In this study, the participants were encouraged to learn English vocabulary independently by using two games apps installed on their smart phones. The learning outcomes and length of time they spent playing the games were analyzed.

Game-based learning

According to game-based learning model, there are three knowledge structures: declarative, procedural and conditional knowledge. The process of learning a foreign language is usually considered to be procedural. The concept behind the use of language games is that they can be used in a targeted and challenging way to encourage the player to use the foreign language being learned. The games encourage the repetition of grammar structures and vocabulary in an enjoyable way (Macedonia, 2005). Because acquiring a foreign language takes effort and time, games can help students to stay motivated and involved in learning the language, as well as create a useful and meaningful learning environment (Wright, Betteridge & Buck by 2005).

Game-based learning and how digital educational games can facilitate students' learning attracted the attention of many researchers in the field of educational technology (Hwang & Wu, 2012; Gee, 2007; Oblinger, 2004; Prensky, 2001; Squire & Jenkins, 2003). Many studies on game-based learning have focused on evaluating learning achievement, learners' motivation, gaming satisfaction and gaming experience, e.g., flow experience (Hou & Li, 2014). It has been found that flow experience affects learning achievement, either directly or indirectly (e.g. Choi, Kim& Kim, 2007; Ho & Kuo, 2010, Schuler 2007). Researchers have defined games as "an immersive, voluntary and enjoyable activity in which a challenging goal is pursued according to agreed-upon rules. The games can be designed a safe platform for players to take chances to develop the knowledge and skills to succeed" (Kinzie & Joseph, 2008, p. 644). Combining games with educational goals would increase students' motivation and create more interactive learning opportunities (Prensky, 2001).

Despite educational games being mainly designed for K-12, some university educators are beginning to implement this form of technology, and it is increasingly becoming an important tool for training students to become doctors, educators, or even businesspeople (Chiong & Shuler, 2010). For instance, Paul Howard-Jones at Bristol University in the UK has adopted TWIG (Teaching with Immersive Gaming) in his teaching and believes that mobile devices should not be banned in the classroom. He practices what he preaches in several of his graduate-level courses in the field of neuroscience (Howard-Jones & Fenton, 2012). In addition, video games have been used by Bryan Bergeron, a researcher in Health Science and Technology at Harvard University. He has developed several games related to health care that are used by students at Harvard and at other medical schools in the United States. Bergeron (2006) points out that educational games cut costs while getting students excited about learning, thus improving learning outcomes. According to Bergeron's method, the results of this study indicate that the students actually spent the anticipated time when they were immersed in challenging games and flow experience.

METHODS

Questionnaire with fuzzy set theory

After research on the Fuzzy Graphic Rating Scale (FGRS (Hesketh et al., 1988), Costaset et al. (1994) selected

100 university students as a sample for their research and found that FGRS suits human psychology. Herrera et al. (2000) presented the steps of linguistic decision analysis using linguistic information. They indicated that there are certain degrees of possibility by which to express linguistics based on fuzzy numbers. However, there should be reconsideration if the response produces an identical fuzzy number. Liu and Song (2001) developed one type of measurement with similar linguistics in terms of semantic proximity. Based on the concept of similarity of linguistics, they presented a formula of the degree of fuzzy association. Carlssonand Fuller (2000a and b), Chiang et al. (2000), and Herrera, Herrera-Viedmaand Martinez (2000) have discussed many concepts about the computation of fuzzy linguistics. These concepts warrant further publication.

Traditional surveys require respondents to choose fixed answers to questions in the survey. However, this method does not take into consideration normal human indecisiveness. For instance, when people are offered five options including "very satisfactory," "satisfactory," "normal," "unsatisfactory" and "very unsatisfactory," the nature of the question may actually demand greater flexibility in the answer and choosing only one option could be difficult. Based on previous research, we can make the following inferences: (1) The traditional methods used for statistical analysis and measurement of public opinion are incomplete and limited. Based on the way of humans make decisions (often on the basis of fuzzy logic), the measurement of opinion using fuzzy numbers should be seriously considered and discussed. (2) In recent years, the measurement of attitudes and feelings followed the fuzzy set theory has become increasingly important. If people use the membership function to express the degree of their feelings based on their own choices, the answer will be closer to their authentic thinking. Therefore, collecting in formation according to the fuzzy model would be reasonable to support this study.

The nature of fuzzy answering

Replies to sampling surveys are often vague, unreliable or incomplete. The information itself can be grouped into two types: continuous and discrete. In this section we will give brief definitions of fuzzy data. Continuous fuzzy data can be classified into several types: interval, triangular, trapezoid numbers and exponential. The logic of interval analysis is one of certain containment. For example, the sum of two intervals certainly contains the sums of all pairs of real numbers, one from each of the intervals. We draw the definitions of interval arithmetic, based on simple properties of the order relation $\leq$ on the real line.

Trapezoid data can be seen as the generalized form for the interval and triangular form. A fuzzy number $A=[a,b,c,d]$, defined on the universe set U of real number R with its vertex $a \leq b \leq c \leq d$, is said to be a trapezoidal fuzzy number if its membership function is given by (Nguyen and Wu, 2006):

$$u_F(x)=\begin{cases} \dfrac{x-a}{b-a} & , \quad a \leq x \leq b \\ 1 & , \quad b \leq x \leq c \\ \dfrac{d-x}{d-c} & , \quad c \leq x \leq d \\ 0 & , \quad \text{otherwise} \end{cases}$$

When $b=c$, we say A is triangular data; if $a=b,\ c=d$, we say A is interval-valued data.

If people can express the degree of their feelings by using membership functions, the answer presented will be closer to authentic human thought and thus we obtain the concealed entrance to more data.

Measurement with fuzzy data

A trapezoid fuzzy set can be viewed as a continuous fuzzy set that gives further information about events which can be interpreted from various perspectives. When a sample of trapezoid data is presented, we are interested in scaling its value on the real line. In some practical applications, however, instead of the original class of all linear rescaling, it is reasonable to consider a more general class of non-linear transformations between scales. For example, the energy of an earthquake can be described both in the usual energy units and on the logarithmic (Richter) scale. Similarly, the power of a signal and/or of a sound can be measured in watts as well as a logarithmic scale.

When we consider the reasonable and meaningful conditions for mapping trapezoid data into areal line, we need to identify two conditions: the transformation data should be (1) finite-dimensional, and (2) the dependence on these parameters should be a smooth way (differentiable). In mathematical terms, this means that our transformation group is a Lie Group. Once such a transformation is selected, instead of the original trapezoid data, we have a new value: y = f(x). In the ideal situation, this new quantity (y) is normally distributed. In practice, a normal distribution for y may be a good first approximation. When selecting the transformation, we must take into account that due to the possibility of rescaling, the numerical values of the quantity x are not uniquely determined.

Definition 3.1 Scaling for an interval fuzzy number on R
Let $A=[a,b]$ be a trapezoid fuzzy number on U with its centroid $(cx,cy)=(\frac{\int xu_A(x)dx}{\int u_A(x)dx},\frac{\int \frac{1}{2}(u_A(x))^2dx}{\int u_A(x)dx})$. Then the defuzzification value of $A=[a,b,c,d]$ is defined as

$$RA=cx+\frac{\|A\|}{2\ln(e+\|A\|)};$$

Where $\|A\|$ is the area of the trapezoid.

Note that for convenience we will write $\|A\|=\frac{a+b+c+d}{4}$, if A is a trapezoid; $\|A\|=\frac{a+b+c}{3}$, if A is a triangle; $\|A\|=\frac{b+c}{2}$, if A is an interval.

Example 3.1 Let $A_1=[2,2,3,3]$, A_2 =[1,1,4,4], $A_3=[1,2.5,2.5,4]$, $A_4=[1,2.5,2.5,8]$, $A_5=[1,2,3,4]$, $A_6=[1,2,3,8]$ be the fuzzy data. According to definition 3.1 we illustrate the defuzzification values on the following Table 1.

Table 1: Defuzzification for fuzzy data

Fuzzy data	**cx**	$\frac{\|A\|}{2\ln(e+\|A\|)}$	**RA**
$A_1=[2,2,3,3]$	2.5	0.42	2.92
A_2=**[1,1,4,4]**	2.5	0.89	3.39
$A_3=[1,2.5,2.5,4]$	2.5	0.55	3.15
$A_4=[1,2.5,2.5,8]$	3.83	0.99	4.82
$A_5=[1,2,3,4]$	2.5	0.68	3.18
$A_6=[1,2,3,8]$	3.79	1.07	4.86

Some studies provided functions in the measurement system. In this section, we will propose a well-defined distance for trapezoid data.

Definition 3.2 Let $A_i=[a_i,b_i]$ is a sequence of interval fuzzy number on U with its centroid $(cx,cy)=(\frac{\int xu_A(x)dx}{\int u_A(x)dx},\frac{\int \frac{1}{2}(u_A(x))^2dx}{\int u_A(x)dx})$. Then the distance between the trapezoid fuzzy number A_i and A_j is defined as

$$d(A_i,A_j)=|cx_i-cx_j|+\left|\frac{\|A_i\|}{2\ln(e+\|A_i\|)}-\frac{\|A_j\|}{2\ln(e+\|A_j\|)}\right|$$

Example3.2 Let the fuzzy data be $A_1=[2,2,3,3]$, A_2 =[1,1,4,4], $A_3=[1,2.5,2.5,4]$, $A_4=[1,2.5,2.5,8]$, $A_5=[1,2,3,4]$, $A_6=[1,2,3,8]$. According to definition 3.2, we presented their distances on Table 2

Table 2: Distance for fuzzy data

$d(A_i, A_j)$	$A_1 = [2,2,3,3]$	$A_2 = [1,1,4,4]$	$A_3 = [1,2.5,2.5,4]$	$A_4 = [1,2.5,2.5,8]$	$A_5 = [1,2,3,4]$	$A_6 = [1,2,3,8]$
$A_1 = [2,2,3,3]$	0	0.47	0.13	1.90	0.31	1.68
A_2 =**[1,1,4,4]**		0	0.34	1.43	0.21	1.47
$A_3 = [1,2.5,2.5,4]$			0	1.77	0.13	1.81
$A_4 = [1,2.5,2.5,8]$				0	1.64	0.12
$A_5 = [1,2,3,4]$					0	1.68
$A_6 = [1,2,3,8]$						0

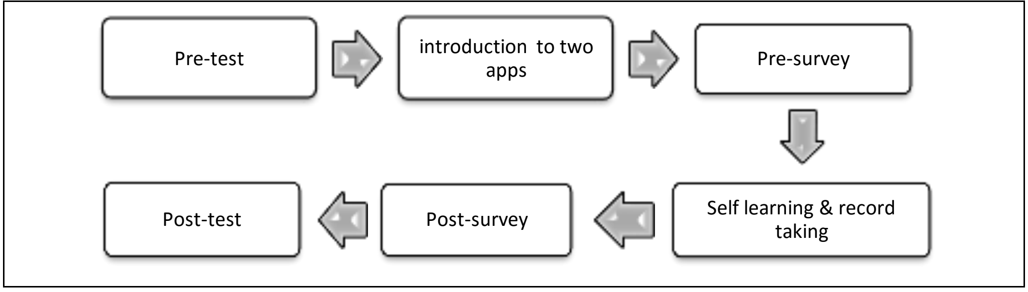
The distance signifies the gap between observed data and expected value; a smaller distance indicates that the observed data is a better fit for the expected values. To obtain a clear picture of the distance between ideal and actual data we need the following definition about efficiency, for which the value will be a standardized constraint on 0 and 1. We use exponential transformation f(x) that transforms the distance of fuzzy data set of possible values of x into (0,1). A natural symmetry requirement explains the selection of exponential function as an appropriate transformation of all-positive quantities.

Empirical study

In this study, we evaluated the relationship between estimated time and actual time on mobile learning by university students. The empirical study was conducted by surveying a sample of freshman students at Yuan Ze University in Taiwan. To determine improvement, the gap between motivation and satisfaction when learning English vocabulary using mobile apps was studied by means of fuzzy statistical analysis.

Figure 1 shows the process of the experimental design used in this paper, which adopted a ten-day experiment with thirty participants. The data collected included a pre-test given before the experiment and a post-test given after the experiment. When the two tests were compared, it was found that the students had improved. The two surveys given in the study were conducted and analyzed by using fuzzy correlation coefficients.

Figure 1: The procedure followed in this empirical study



Participants

The participant group for this experiment comprised thirty freshman students, majoring in three faculties at Yuan Ze University, Taiwan. There were fifteen female students and fifteen male students. Their English levels ranged between five and eleven out of fifteen, based on the University Entrance Exam. The distribution of their English level, gender and college are shown in Table 3 and Table 4. Twelve of the students had previous experience in learning English with apps, while the remaining eighteen had had no related learning experience.

Table 3: The distribution of the participants' English levels and gender

Level Gender	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**L11**	**Total**
Male	1	1	1	2	5	3	2	15
Female	2		0	1	2	7	3	15
Total	3	1	1	3	7	10	5	30

(L1 refers to level 1; L2 refers to level 2, etc.)

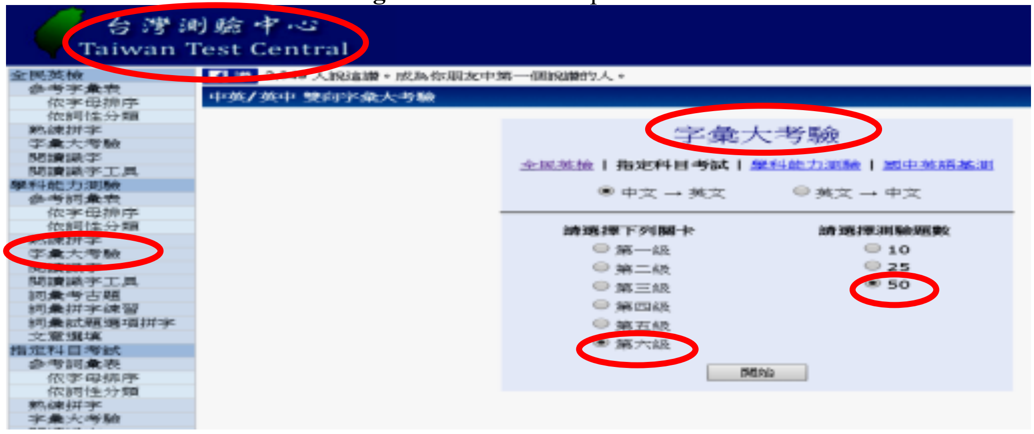
Table 4: The distribution of college and gender

College Gender	College of Engineering	College of Informatics	College of Humanities and Social Sciences	Total
Male	6	8	1	15
Female	5	3	7	15
Total	11	11	8	30

Pre-test and Post-test

Before and after they were given the game apps for learning purposes, every participant took an online test to evaluate his/her English vocabulary knowledge. The test comprised fifty questions selected randomly from the level 6 vocabulary bank of the Appointed Subject Test offered by Taiwan Test Central (see Figure 2). Level 6 is the equivalent of the GEPT intermediate level or CEFR B1. The correlation coefficient between students' English levels and the results of the pre-test was 0.618, which proved that the test was reliable. In other words, the higher the students' English level, the higher their scores on this test, and vice versa.

Figure 2: Pre-test and post-test



Pre-questionnaires

Straight after taking the pre-test, students were introduced to two app games for learning English, and were required to upload them onto their smart phones. They had to play each game for twenty minutes. For the second step, the students had to estimate how much time they would need to spend playing these two games to learn the English vocabulary during the next ten days. Their predicted estimation was given as a period of time: one to two hours, two to three hours, or four to five hours, for example, rather than asking the students to predict a specific time. The students also gave feedback on reasons why they would like to learn English vocabulary by playing apps games.

Post-questionnaire

In the first part of the post-questionnaire, the participants had to report how much time they had spent playing these two games during the previous ten days. The second part of this survey asked questions about their degree of satisfaction. It consisted of seven items on a five-point Likert scale, where 5 represented "strongly agree" and 1 represented "strongly disagree."

Two applications

There are three components in the model of memory: sensory, working and long-term memory. The ultimate aim of learning is for the material to be stored in long-term memory. When students played the vocabulary games, they received auditory and visual input, thus stimulating the sensory memory. With ongoing repetition, the information would be acquired, rehearsed and saved in their working memory. This process of how our memory works can be applied to the use of the two apps (see Figure 3); connections are formed between the students' first language and English and meaningful learning takes place. The app Hastars (left in Figure 3) requires learners to choose the correct Chinese translation for the English word shown on the screen within five seconds. The game ends if students choose the wrong answers three times. The questions incorrectly answered are repeated from time to time to prevent the students making the same mistake. The second app, Memorizing Vocabulary by Sliding a Finger (right in Figure 3), is also a bilingual vocabulary game. Students can either skip the words if they already know the meanings or review the definitions that are new to them. As there are no time constraints, students can enjoy playing the game as well as enjoy learning until they have completed the mission. The focus group was free to play either of these games since they were very similar.

Figure 3: The design apps of Hastars and Memorizing vocabulary

FINDINGS

Leaning motivation: both male and female students learned for academic purposes

In the pre-questionnaire, we found that sixty-three percent of the participants were willing to learn English using apps for academic purposes and thirty-seven percent for personal reasons. The detailed information is shown in Table 5.

Table 5: The Reasons why the participants use the educational apps

Categories	Reasons for using	
Academic purposes	Vocabulary development	27%
	English Proficiency Test Preparation	26%
Personal reasons	Personal Interest	10%
	Convenience	12%
	Pleasure and Fun	11%
	Self-confidence	9%
	Killing Time	5%

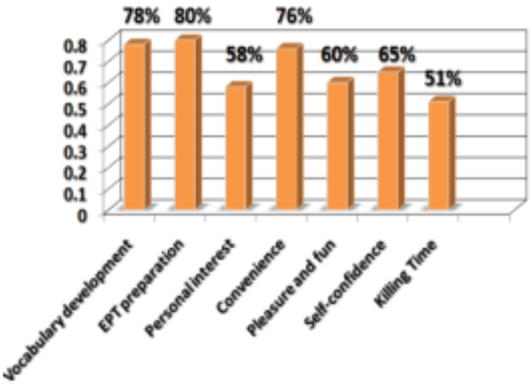
In this survey, the Wilcoxon Signed-Rank Test was used to evaluate differences between male and female students' motivation when using apps for learning (see Table 6). The null hypothesis (H_0) was: female students' motivation=male students' motivation, whereas the alternative hypothesis was female students' motivation ≠ male students' motivation. The results showed p-value > Z, so we accept the null hypothesis. There was no difference between males and females.

Table 6: Differences between male and female students' motivation

Purposes of using apps	Overall	Female	Male
For academic purposes	0.63	0.61	0.65
Interest and Convenience	0.37	0.39	0.34
Correlation coefficient for academic purposes between female and male students		p-value = 0.703 > $Z_{0.05}$ = 0.305	
Correlation coefficient for interest and convenience between female and male students		p-value = 0.850 > $Z_{0.05}$ = 0.305	

For the post-questionnaire, we evaluated students' satisfaction with their learning experience. The results are shown in Figure 4.

Figure 4: Learning satisfaction

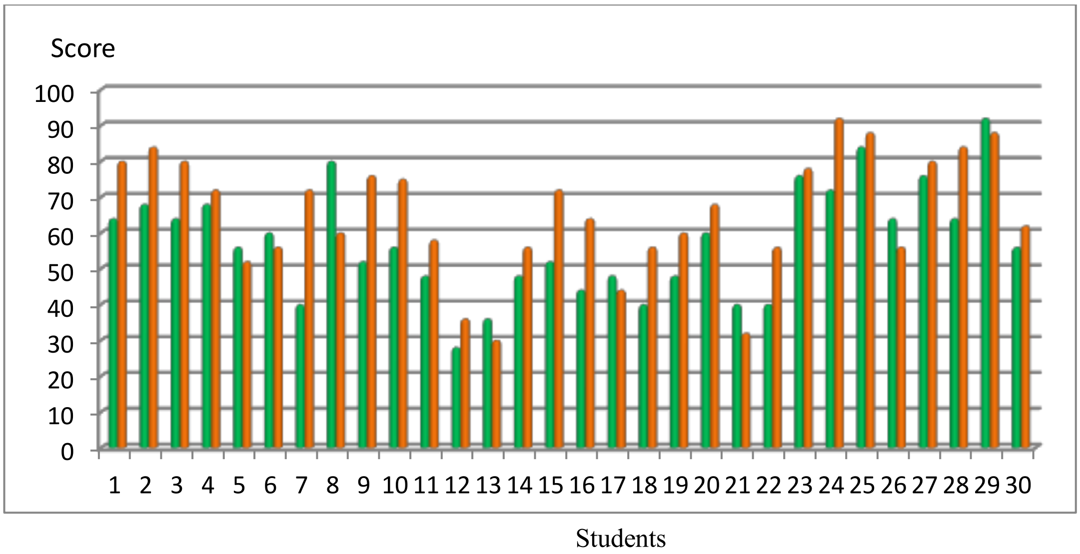


The satisfaction scores were between seventy-six percent and eighty percent, indicating that students were satisfied with their academic leaning as well as the convenience of learning using their smart phones. In terms of learning motivation for personal reasons, the satisfaction score was fifty percent. In summary, most of the students found learning English vocabulary with apps to be a good experience. Other than the academic results, their self-confidence was boosted, and they had fun and found learning to be a pleasurable experience.

Students' outcomes

The students' results after playing the two games for ten days are shown in Figure 5. Most students did better than that of pre-test. Green bars refer to the results of the pre-test while orange bars refer to the results of the post-test.

Figure 5: Compare students' outcomes between pre-test and post test



The differences between the pre-test and post-test results show students' progress in English vocabulary acquisition. The data were computed by using a nonparametric Wilcoxon sign rank test, and the result reveals the post-test was higher than that of the pre-test ($Z = \frac{T-E(T)}{\sigma T}$, $p < .001$).

To determine the differences in progress between male and female students (see Table 7), we used the Wilcoxon Rank-Sum Test. The comparison reveals that the p-value > .05. Therefore, we accept H_0. This indicates that there is no significant difference between male and female students' improvement.

H_0: Female students' progress = male students' progress
H_1: Female students' progress ≠ male students' progress

Table 7: Testing students' progress by gender

Type of testing	**Values collected from students' progress of English learning**														
Gender	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Progress	16	16	-4	-20	19	8	-8	16	2	20	4	-8	4	20	6
Signed-Rank	21	21	6.5	1	24	15	2.5	21	9	26.5	11	2.5	11	26.5	13
Gender	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Progress	16	4	-4	32	24	10	8	-6	8	20	20	-4	16	12	-4
Signed-Rank	21	11	6.5	30	29	17	15	4	15	26.5	26.5	6.5	21	18	6.5

$$Z = \frac{T - \frac{n(N+1)}{2}}{\sqrt{\frac{mn(N+1)}{12}}} = \frac{212 - \frac{15(30+1)}{2}}{\sqrt{\frac{15x15x(30+1)}{12}}} = -0.85, \qquad p > \ .05$$

In this study, the participants were from three faculties: the College of Engineering, the College of Informatics, and the College of Humanities and Social Science. In order to find out whether students from different faculties would show different progress, we used the Kruskal-Wallis test to identify the relationships between these faculties. The results reveal that there is no significant difference in the progress made by students in the three faculties.

Another question to be answered was whether students who spent more time playing the games showed greater improvement in English vocabulary acquisition than those who played less time. According to the Pearson correlation coefficient, the result was 0.393, which means the relationship between the degree of students' improvement and the time spent on the games is positively related. However, the correlation coefficient of 0.393 indicates the strength of the relationship between these two variables is only moderate. This result may confirm that language learning is a long-term process; although students did manage to increase their English vocabulary within a ten-period, it requires further effort to maintain their own learning.

Estimated playing time vs. actual practice

The difference between the students' estimated playing time and actual practice time was tested with the Wilcoxon Sign Rank Test. The test is significant at 0.47 (n=30, p> .05), hence we accept the null hypothesis: the time students estimated they had spent playing these two apps was the same as the actual time. The students were from three faculties: College of Engineering, College of Informatics and College of Humanities and Social Science. Would the students from different faculties differ in the actual time that they spent playing games? For instance, did students from the College of Engineering or Informatics spend more time than the students from Humanities and Social Studies? We used the Kruskal-Wallis Test to determine the relationships between these factors: K= 0.86 > .05; therefore we accepted the null hypothesis: students' registration in a specific faculty did not affect the length of time they spent playing the games (see Table 8).

H_0: The students spent the same time on the games
H_1: The students spent different time on the games

Table 8: The length of time spent on playing the games the by different participants

Faculty	**Evaluating by students' time spent on apps using**											
Engineering	16	16	16	4	-4	-4	32	-20	24	19	10		
	21	21	21	11	6.5	6.5	30	1	29	24	17	R1=	188
Informatics	8	-6	8	20	20	-4	16	12	8	-8	16		
	15	4	15	26.5	26.5	6.5	21	18	15	2.5	21	R2=	171
Humanities	2	20	4	-8	4	20	-4	6					
	9	26.5	11	2.5	11	26.5	6.5	13				R3=	106

$$K = \frac{12}{N(N+1)} \sum_{i=1}^{k} \frac{R_i^2}{n_1} - 3(N+1) = \frac{12}{30(30+1)}\left[\frac{188^2}{11} + \frac{171^2}{11} + \frac{106^2}{8}\right] - 3(30+1) = 0.86 > .05$$

Moreover, the relationship between students' English levels and their time spent playing these two games was defined by the Spearman correlation coefficient of 0.11, which indicates that the amount of time the students spent on learning English vocabulary had nothing to do with their English levels. These two factors have no direct connection. From this result, we ascertained that despite students' various English levels, they were willing to spend time on educational games because of the pleasure they derived from the activity and their flow experience.

CONCLUSION AND SUGGESTIONS

The key contributions of this study are: (1) The mobile game-based learning method is workable and acceptable for both female and male students in university level. Students have showed the similar motivation and satisfaction no matter what they were playing the games for academic or personal purposes. When university English instructors design their programs, the mobile game-based learning would be an optimal approach for both male and female students. (2) Participants from these diverse three faculties seemed to accept the concept of game-based learning and enjoyed using their mobile devices for academic purpose. The students in College of Management, College of Electrical and Communication Engineering at Yuan Zu University have demonstrated their attitude to mobile game learning with fuzzy questionnaires. It is expected that if students enjoy learning with apps, other subjects and courses may adopt the idea of mobile game-based learning to enhancing engagement and motivation. (3) This study found that the students' estimation of the time they would spend on playing games correlated closely with the actual time spent playing the games for their English vocabulary development, but the correlation between time spent and improvement was only low to moderate, possibly due to the duration of this project: learning a foreign language takes a long time and the project may have been too short to yield reliable results. The correlation coefficient may have been different had the project lasted longer.

Finally, there are thousands of good apps and new educational apps for language learning are constantly being developed. Language teachers could benefit from collecting some good apps and implementing the technology teaching model into learning activities to boost students' learning motivation and engagement for a meaningful learning environment.

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Galileo Galilei's Location, Shape And Size Of Dante's Inferno: An Artistic And Educational Project

Paola MAGNAGHI- DELFINO
Politecnico di Milano
paola.magnaghi@polimi.it

Tullia NORANDO
Politecnico di Milano
tullia.norando@polimi.it

ABSTRACT

The authors are engaged in interdisciplinary research initiatives of the **FDS** Laboratory (**F**ormation, **D**idactics, **S**cience Communication) of the Mathematics Department of the Politecnico di Milano. Among all the projects we did, the authors present four educational projects, that were carried out with teachers and pupils of secondary schools or University students. Its illustrate the variety of topics proposed, in relation to the skills of students that were addressed.

The first project *Galileo Galilei's Location, Shape and Size of Dante's Inferno: an Artistic and Educational Project* was proposed to a group of students of Graphic Art course in the Accademia di Belle Arti di Brera.

We proposed the second project *The Flying Island of Laputa* to students of a secondary school focusing on Humanities and Foreign Languages to enhance their skills in Physics.

The third project *The Marptolemaic System* was proposed to students of the last year of a secondary school focusing on Science to increase interest in Astronomy.

The last project *Analysis of the Chemists Network in Monza* was proposed to the students of the last year of the secondary school focusing on Science and deals with social application of Mathematics to problems concerning both logistics and city planning.

INTRODUCTION

We believe that Mathematics plays a very important role from a cultural point of view in the modern world and that the students, by means of these projects, could realize that Mathematics is also a powerful tool, rather than being a closed discipline. Mathematical concepts connect new ideas to other ideas learned previously or in other educational experiences, helping to learn concepts used in other disciplines. Therefore, from 2002 the **FDS** Laboratory offers interdisciplinary educational projects to motivated students of the high schools.

In particular, we offered projects to contribute to contamination between scientific thoughts and artistic insights or with social content or dedicated to history of scientific theories.

The students involved in the projects followed some lectures at **FDS** Laboratory, then they worked in their classrooms and then presented their works in national and international competitions.

Here we present four significant projects chosen among that we proposed in recent years. Some of these works were chosen to represent Italy at International Young Scientists' contests.

We proposed the artistic and educational project *Galileo Galilei's Location, Shape and Size of Dante's Inferno: an Artistic and Educational Project* to a group of students of Accademia di Belle Arti di Brera.

In the artistic activities, drawing is the cognitive analysis of the object and of the space that contains it, providing the basis for a lather reworking of poetry with different art tools. We highlighted the double value of artistic creation building a complex path, where the multiple values of the drawing and its expressive results stand out.

It is evident that good drawing is needed to draw good geometrical figures. Exactness of a figure, its shape and size, can be measured using mathematical tools so the mathematical knowledge is applied in drawing and painting, for instance with symmetry, making right ratio and proportion.

Our project *Galileo Galilei's Location, Shape and Size of Dante's Inferno: an Artistic and Educational Project* is seen as an opportunity for scientific and artistic thought to share their points of view, starting from an interesting historical background namely the debates on the structure of Dante's *Inferno* which involved Galileo Galilei.

The work plan was divided in two parts: the mathematical laboratory and the artistic work.

The students followed lessons about the cultural environment and the mathematical aspects of the topic, shown below.

In 1588 in the lectures at the Accademia Fiorentina, Galileo examined the opposed opinions concerning the structure of the *Inferno* proposed by Antonio di Tuccio Manetti and Alessandro Vellutello.

The two arguments are identical as regards the general appearance of the *Inferno*, but are considerably different regarding the shape and the size.

In his lectures Galileo combined a clear exposition of Mathematics with his deep knowledge of Dante's *Commedia* and emphasized that the geometry of Manetti's plan is based on evidence from the poem.

Manetti's *Inferno* is a cone-shaped region in the Earth, with the vertex in the center of the Earth and the base on the surface, centered on Jerusalem. The rotation of the circular sector, which has radius identical to the terrestrial radius, generated the cone. Manetti used the straight lines which we pulled up from the center of the Earth, the one to Jerusalem, the other to the opposite extreme, or, as we might say, to the edge of the mouth of the *Inferno* (when it arrives up to the surface of the Earth). The arc, which is drawn from one to the other, is of 1700 Florentine miles. The reason of this choice is that the distance from Jerusalem to Cuma was believed to be exactly 1700 miles. Therefore, the circular sector has the angle at the vertex of 60°.

The *Inferno* does not occupy the whole spherical sector but only the part of the cone that is, under Jerusalem, at the depth of 1/8 of the terrestrial radius.

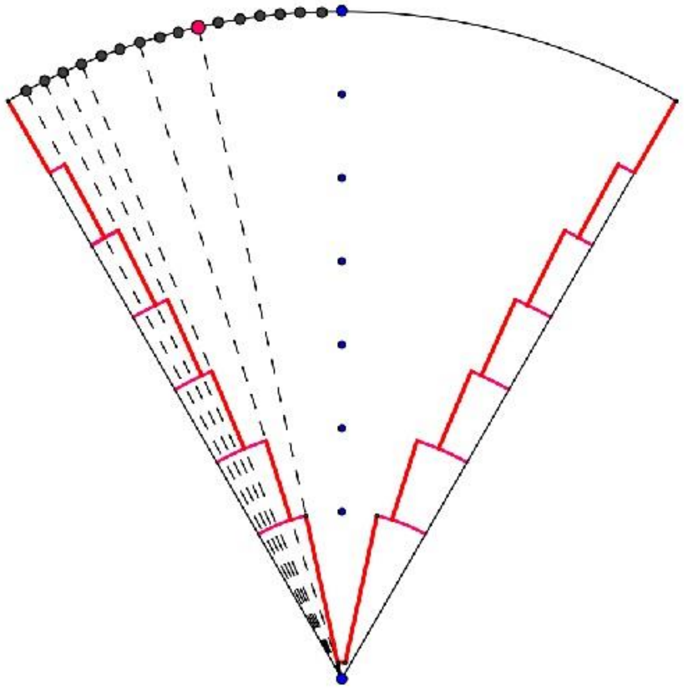
The funnel is made of nine circles. The first circle is the widest; progressively, the ninth circle is the smallest. This ninth circle surrounds Lucifer. The various levels of Manetti's Inferno are regularly spaced, in fact the first six levels are equidistant with 1/8 the radius of the Earth between each level and the next.

In order to deduce the widths of the first six levels, Manetti divided the length of the arc on the surface from Cuma to Jerusalem into two parts: 1000 miles + 700 miles. In the first 1000 miles he marked 10 spaces, each one of 100 miles, beginning from the mouth; from these partitions he deduced the widths of the first six levels. The reason of this partition into two parts is that in the Middle Ages geography the distance from Cuma to the island of Crete was considered exactly 1000 miles. When Dante arrived to the sixth level of Hell, he is located exactly below the Mount Ida, where was the statue of *Veglio di Creta* (Grand Old Man) which is the mythical origin of the infernal rivers (*Inferno*, XIV, 103-120).

Galileo did not care about these details, but in the Girolamo Benivieni's book (Benivieni, 1897) we read this explanation about the Dante's path: Dante covers only a tenth of each ring and so completes the circle after ten rings (*Inferno* XIV, 121 – 129). Manetti supposed that this spiral drawing correspond to the Dante's path

We can sketch the Manetti's plan as in the following drawing [Figure 1]

Figure 1: Manetti's plan



The seventh level contains the whole of *Malebolge*, which is depth of the Geryon's ravine, and the eighth and last level embraces the four spheres of ice including Lucifer. The first six distances from one level to the other are equal to one another, but it is not possible for the distances from the seventh and the eighth levels from the Earth's center to be the same as well, because of some verses of Dante's poem. Indeed Dante says that the ninth *bolgia* turns through 22 miles, and, in consequence, the diameter must be 7 miles.
Manetti thus supposed that the radii of the *bolge* were in aritmetic progression and Galileo concluded that the distance of *Malebolge* from the Earth's center is 81 3/22 miles via Thales similarity theorem and the Geryon's ravine is 730 5/22 depth.
Manetti calculated the size of Lucifer from the verses of the *Divina Commedia*: Dante says that he makes a greater comparison with a Giant than a Giant makes with one arm of Lucifer. If therefore Manetti knew the size of Dante and that of the Giant, he would be able to find the size of Lucifer. One knows that Dante was a man of average stature, which means three *braccia*; then Manetti concluded that Lucifer was 2000 *braccia* height.

After these lessons about the cultural environment and the mathematical aspects of the topic (Angelini, 2014), the students went into the concept of the mathematical perspective and the use of proportion and similarity in order to render mathematically the precise positions of *Inferno*'s rings. They studied the *Inferno*'s architecture, the Manetti's plan and estimated the sizes, the widths, the lengths of the eight levels and finally the height of Lucifer.

Each student created a "technical drawing" that is a scaled drawing of Dante's *Inferno*, based on Galileo's calculations, using different types of paper and free-chosen drawing techniques. The choice of different colouring techniques and papers made possible that every drawing could give emotions strongly different, despite being equal in ratio and proportion. Some students chose to work with warm watercolour tones, giving to the *Inferno* an atmosphere of energy and warmth, other of them chose cold chromatic tones and used pen and ink. Therefore there was the same *Inferno*, in shape and measure, but much different in impressions and feelings.

After, each student drew a "creative artwork" aroused from his artistic vision and inspired to the *Commedia*'s verses, unrestrained by the scientific portrayal. They were free to choose the artistic techniques, supports and dimensions of their works. They realized drawings, paintings, original engravings and various dimensions woodcuts, rich in colour and sign and all tightly related to the author's reflections. In some of their works the original model is still visible but in others is unrecovered. In both cases, all of these artworks tell us a story: the amazing transition from measure to dream.

The students' graphic works were gathered, accompanied by short sentences associated with the selected quotes of *Inferno* and displayed on the exhibition at Politecnico di Milano (May 2012). Furthermore the works were exhibited at the Museo Dantesco of Ravenna (September 2013) and at the Bergamo Science Festival (XI Edition, October 2013).

THE FLYING ISLAND OF LAPUTA

In 1726, Jonathan Swift published *Travels into Several Remote Nations of the World. In Four Parts. By Lemuel Gulliver, First a Surgeon, and then a Captain of Several Ships*, (Swift, 2005) commonly known as *Gulliver's Travels*, a prose satire that became popular and nowadays is a classic of the English literature. Many of the scientific ideas that Swift expounded in this book are ridiculous exaggerations of ideas and experiments that he might have read in the Philosophical Transactions of the Royal Society. The way the flying island moves is largely an adaptation of William Gilbert's theory of magnetism (Gilbert, 1991). The island, with its bottom made of a metal called *adamant*, resembles the *terella* and the giant balanced loadstone, which is in its bowels, is an example of the Gilbert's *dipping needle*. Because certain mineral in the earth magnetically repels the loadstone and the adamantine base of the island, the island of Laputa is able to fly and its movement are controlled by tipping the stone on way or another. In the book, Swift give us accurate data about the Laputa's physical aspect, so we propose to students of a secondary school focusing on Humanities and Foreign Languages to answer the question if Laputa can fly because of the magnetic force between the islands of Laputa and Balnibarbi.

The students read the original book of Jonathan Swift and documents about the scientific and social background in which Swift lived. Then they analyzed the scientific reasons suggested by Swift:
- Both magnetism and gravity can affect objects at a distance. Both get weaker as the objects get farther apart. Newton proved in Principia (1713) that the gravity's force is conforming to the law of the inverse square of the distance, but Newton's approach failed with magnetism. The great minds of the age were unable to solve the problem. This situation continued until the end of the eighteenth century when Coulomb placed magnetism upon a different path that stimulated the development of mathematical models based on the Newtonian theory at the beginning of the nineteenth century.

- Unlike gravity, which occurs between objects, magnetism depends on specific properties of objects. Magnetism can either pull the two objects together or push them apart, depending on which way the magnets point. Most materials feel very little magnetic force; others create forces strong enough to be felt. The adamant is maybe a diamagnetic material, so it is repelled by the applied magnetic field. Diamagnetic materials were first discovered by Seybold Justinus Brugmans in 1778, but in eighteen century the studies of electrical and magnetic phenomena became a popular craze and the gentlemen crowded the salons where popularizers of the science did experiments for entertain the aristocrats. So Swift might have noticed the diamond's diamagnetic properties. We do not know where the adamant of Swift is but it is possible that he believed in some medieval legends that conferred to the adamant particular magnetic properties.

The students examined the notion about magnetism after Gulliver's travels and in particular:

- Quantitative studies of magnetic phenomena initiated in the eighteenth century by Charles Coulomb, established the inverse square law of force and state that the attractive force between two magnetized objects is directly proportional to the product of their individual fields and inversely proportional to the square of the distance between them.
- Since 1829, scientists have been able to accurately measure the Earth's magnetic field and today the measure of the magnetic field is between 0.3 and 0.6 Gauss (3×10^{-5} - 6×10^{-5} Tesla).
- A theorem due to Earnshaw proves that it is not possible to achieve static levitation using any combination of fixed magnets and electric charges. Static levitation means stable suspension of an object against gravity. There are, however, a few ways to levitate by getting around the assumptions of the theorem. It is possible to levitate diamagnetic materials that magnetise in the opposite sense to a magnetic field in which they are placed. Diamagnetic materials are commonplace and can also be levitated in a magnetic field if it is strong enough. Water droplets and even frogs have been levitated in this way at a magnetics laboratory in the Netherlands (Physics World, April 1997). Therefore this can only be done using the strongest magnetic fields that technology has produced (Berry, 1997).

The students calculated the weight of the Laputa's island based on the measures of Gulliver and some approximated conditions about the layer of the Earth in which there are "minerals in their usual order". Swift certainly understood the study about the English subsoil by John Stacey, published in Philosophical Transaction in 1719. In addition, they suppose that the Laputa's shape is quite a disk and they obtained [Table 1]

Laputa	Yard	m	m^2	m^3
Diameter	7837	7166		
High	300	274,32		
Area			11250,62	
Volume				3086270

Table 1: Laputa's dimensions

Laputa's high = adamant's base + soil + minerals = (182,88 + 3,66 + 87,78) m
[Table 2]

	volume	specific weight	Kg
adamant	2057513	3550	7304171150
soil	41177,268	1750	72060213
stone	41177,268	1062	43730255
total weight			7419961618

Table 2: Laputa's weight

Then Laputa can levitate if the magnetic field generated by Balnibarbi is able to act against gravity and to suspend Laputa over Balnibarbi for almost 3 meters.

Whether an object will or will not levitate in a magnetic field B is defined by the balance between the magnetic force $F = M \nabla B$ and gravity $mg = \rho V g$ where ρ is the material density, V is the volume and $g = 9.8 m/s^2$.
The magnetic moment is $M = (\chi/\mu_0) V B$ so that $F = (\chi/\mu_0) B V \nabla B = (\chi/2\mu_0) V \nabla B^2$. Therefore, the vertical field gradient ∇B^2 required for levitation has to be larger than $2\mu_0 \rho g / \chi$.
Molecular susceptibilities χ are typically 10^{-5} for diamagnetic materials and, since ρ is 2404 kg/m^3, and $\mu_0 \sim 10^{-6}$, their magnetic levitation requires field gradients ~ 4800 T^2/m.
Taking $l = 3m$ and $\nabla B^2 \sim B^2/l$ as estimate, we find that a field of the order of 120T is needed to cause levitation of Laputa.
It is another open question, namely if it is really possible the way Laputa moves and the way it does not move. Unfortunately the answer is no for both questions (Berry,1997 and Merton,1996).

The students conclude that it impossible that the Swift’s island floats in the sky for three good reasons: Laputa is too heavy, Laputa flies too high and Laputians did not have tools to provide that stability conditions of the fly were satisfied.

THE MARPTOLEMAIC SYSTEM

The third project we present is “The Marptolemaic System”, that we proposed in 2009.

The General Assembly of the United Nations proclaimed 2009 the International Year of Astronomy (IYA2009) because it was the fourth centenary of the publication of Kepler's first two laws of planetary motion in the *Astronomia Nova* and the first astronomical observations with the telescope by Galileo in Padua.

We proposed this project in collaboration with researchers of the National Institute for Astrophysics (INAF) to a group of students of the last year of the high school.

The purpose was to replicate the Ptolemy’s geocentric model, supposing that the astronomer was a scholar of other planet in the solar system. The students chose Mars and called the astronomer Marptolemy. The reasons for interest in Mars are mainly two: the first is that this planet has similar physical characteristics to the Earth and the second is that its orbital eccentricity is 0.0935 so it is greater than that of every other planet except Mercury, and this causes a large difference between the aphelion and perihelion distances.

The eccentricity of the Earth's orbit is currently about 0.0167; the Earth's orbit is nearly circular and for this reason, Ptolemy had no doubt to assign the circular orbit to the Sun.

The students used some freeware software of mathematical calculation and astronomical simulation to obtain astronomical data as if they lived on Mars.

They restricted their study to the Sun and the interior planets: Mercury, Venus and Earth and to the two Martian satellites: Phobos and Deimos. They did observations by means *Celestia*, a freeware software, every ten days starting from 1 January 2009 until 27 December 2010.

The students described the orbits around Mars and orbital velocities of the Sun, Earth, Mercury and Venus. They obtained that the revolution’s period of the Sun around Mars was about 1.96 years, while actually the period of revolution of Mars around the Sun is of 1.88 years.

Therefore, they found that the motion of the Sun relative to Mars was not uniform circular motion. They calculated the average angular velocity and found 0.51 degrees / day, while actually is 0.52 degrees / days.

They obtained that the revolution’s period of the Earth around Mars was of about 736 days and that the angular velocity decreased sharply up to take on negative values from 17/12/2009 to 03/02/2010. It means that there is a retrograde phenomenon and that the motion is not uniform circular motion around Mars.

The revolution’s period of Venus around Mars was between 696 and 706 days. In addition, for Venus we had a retrograde phenomenon and the motion is not uniform circular motion around Mars.

Mercury revolved around Mars in a period between 706 and 716 days and they observed a retrograde phenomenon, so the motion was not uniform circular motion around Mars. The students noted that the retrograde motion regularly repeated every 98 days; and it had a duration of about 20 days. [Figure 2], [Figure 3], [Figure 4], [Figure 5]

Figure 2: Sun’s positions

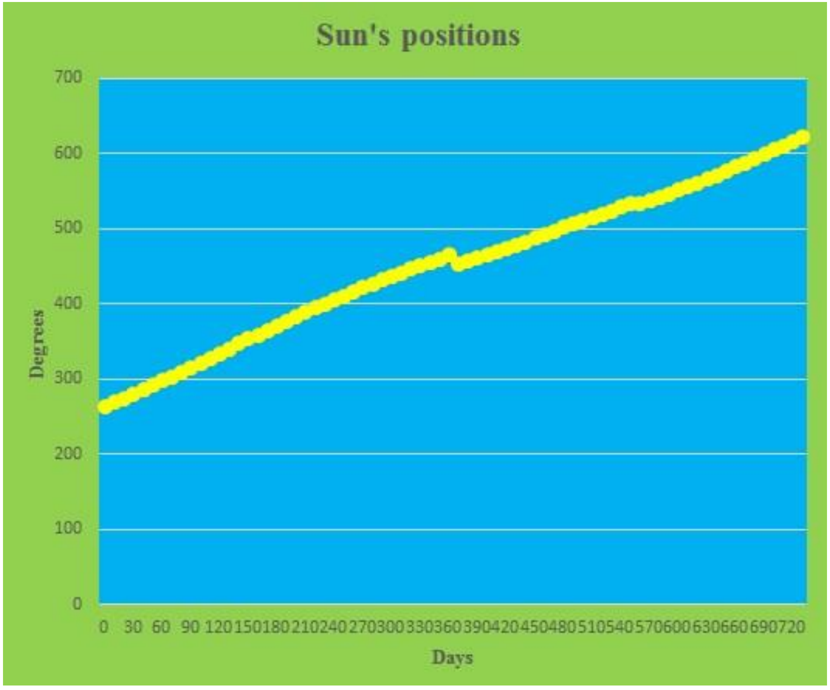


Figure 3: Earth's positions

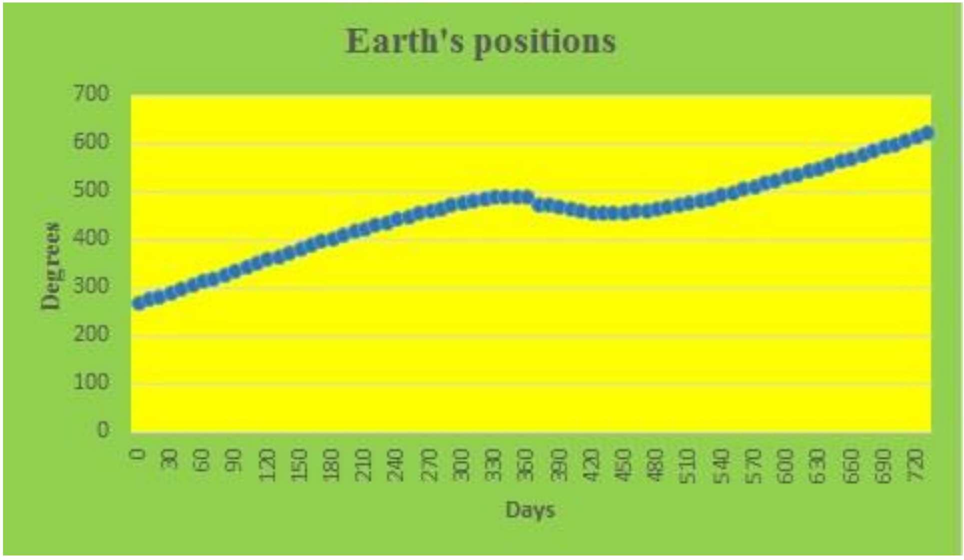


Figure 4: Venus positions

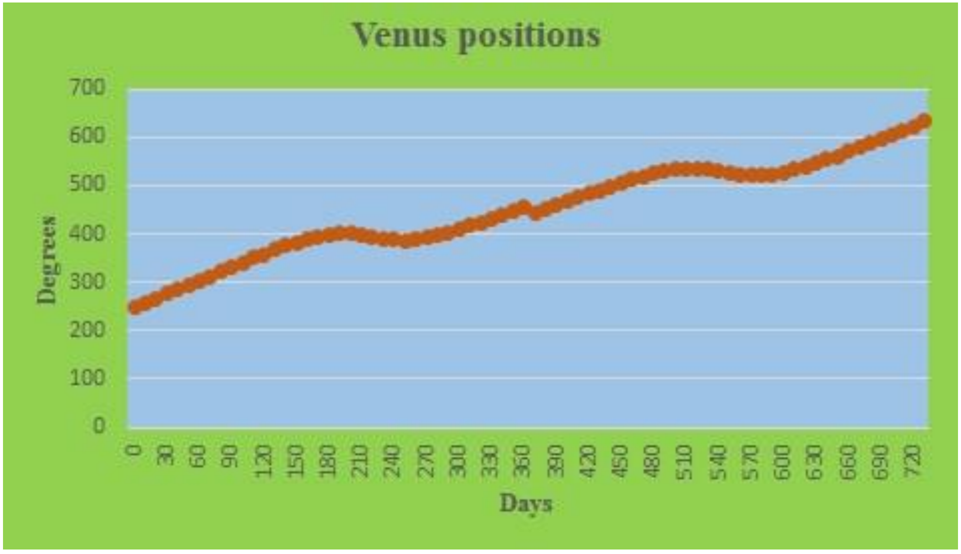
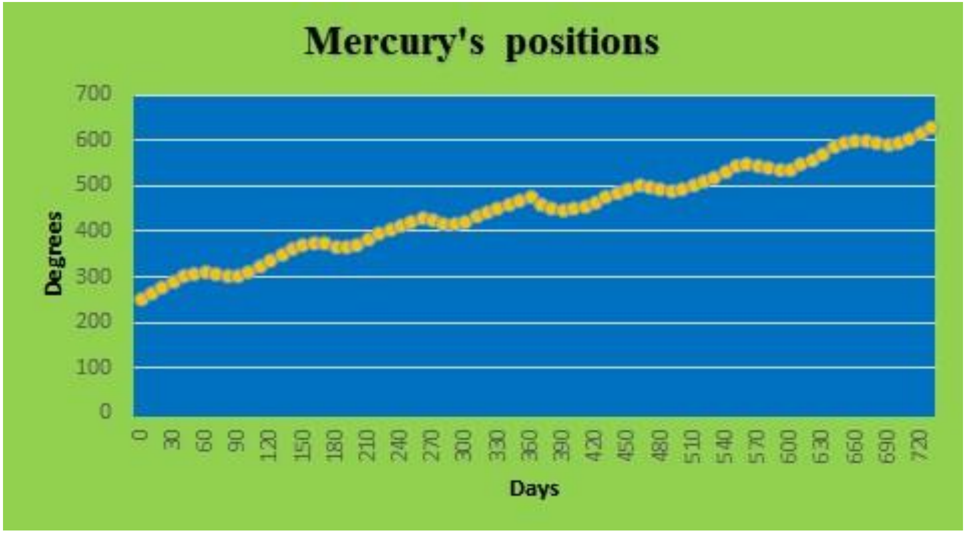


Figure 5: Mercury's positions



In conclusion, the students could describe the Marptolemaic System by two different ways:
- The first one is a repetition of the Ptolemaic theory, introducing the epicycloids explaining the orbits for any planet
- The second one is the assumption that the orbits of the planets are elliptic or composition of circles and ellipses

In the second case, the orbit of the Sun is an ellipse and one can describe the orbit of other planets assuming that its path revolve on a circumference, which center rotates on the solar elliptical orbit. The students called this curve *epiclyssoid.*
This work achieved the prize for the best astronomy's project in the Italian Selection of Young Scientists International Contest. [Figure 6]

Figure 6: Students' desk in the Contest Hall

ANALYSIS OF THE CHEMIST NETWORK IN MONZA

We presented this project to a group of students of a high school in Monza, a town near Milan.
The aim of this project was to rationalising the location of the chemist in Monza in order to improve the quality of the service and to find the best condition for profit.
In order to develop a model with which to compare the results of the analysis, it was necessary to find three kinds of information: the average age and the distribution of the population, the layout of the city and the list of the public and private chemists.
First, the students collected the maps of the city, the demographic data and fixed the GPS coordinates of each chemist. They decided to find for each point of the city the nearest chemist and then to estimate the basin of attraction of each store based on the parameters they established.
It is a classic problem of minimum path applied to a planar region for which is essential the accurate estimation of the distances.
Initially the students considered the opportunity of using the so-called Manhattan geometry, different from the Euclidean one, because the distance between two points is defined as the sum of the horizontal and vertical shift. This kind of geometry seemed very profitable in taking into account the real length of the streets. Even though

this metric was very useful, they were obliged to discard it because it could not be applied without complicated approximation to a city like Monza, which developed around a circular town centre maintaining an annular structure. Therefore, they decided to use the Euclidean metric, since nearly all roads have a radial pattern from the center: move away in a straight line, roughly outlining the circumferences.

In the simulations, the students used the partition of the plan known as *Voronoi diagram system* in order to divide the city of Monza in regions consisting of all and only the closest points to a given chemist (Aurenhammer, 1991).

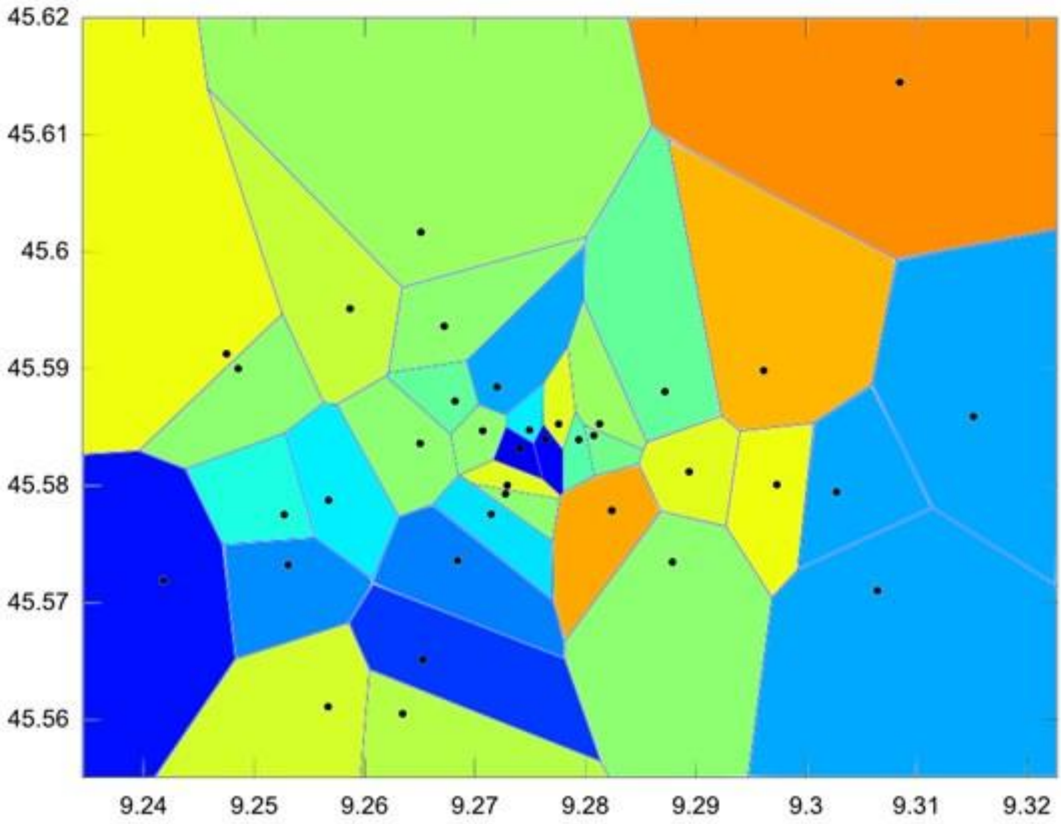
Then they evaluated the average number of customers of each service.

The result of the processing with the computer is represented by three maps that show the extension of the basins of attraction of each chemist and the share of the population through color gradient that goes gradually from dark blue to green and finally to bright red.

They considered faults in the network according to two factors: uniformity and tendency to red. The dramatic difference in colour between two contiguous regions means an uneven distribution of the customers and the colour is so much warmer as the chemist is crowded.

The first map is the result obtained by the inclusion in the Voronoi diagram of all thirty-seven pharmacies of the city. We can note that many stores abound in customers: dark blue prevails in the centre, light blue in the suburban areas and green in all the remaining regions. Only the areas in the uptown have been coloured in yellow and orange. [Figure 7]

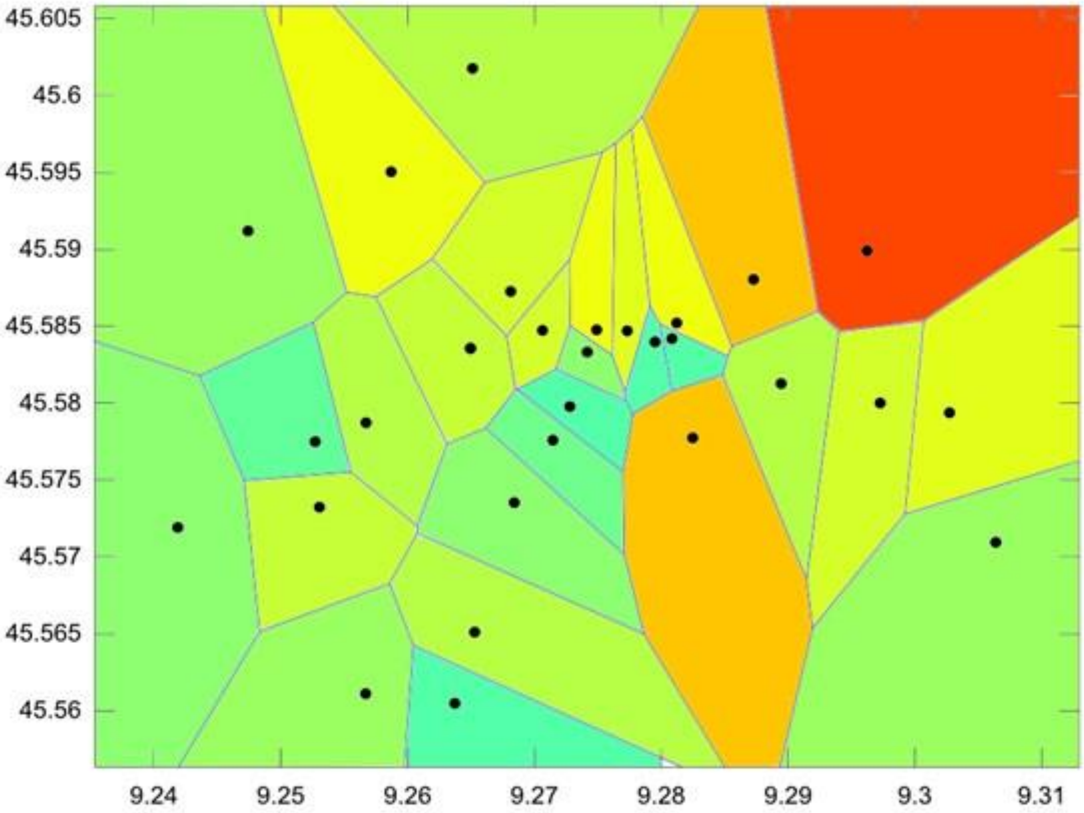
Figure 7: 37 chemists



The second and thirty map represents the simulations that the students carried out taking into account respectively twenty-nine and then twenty-one chemists as generators points, in order to see in which way would probably change the situation for the chemists, if suddenly some exercises were to shut.

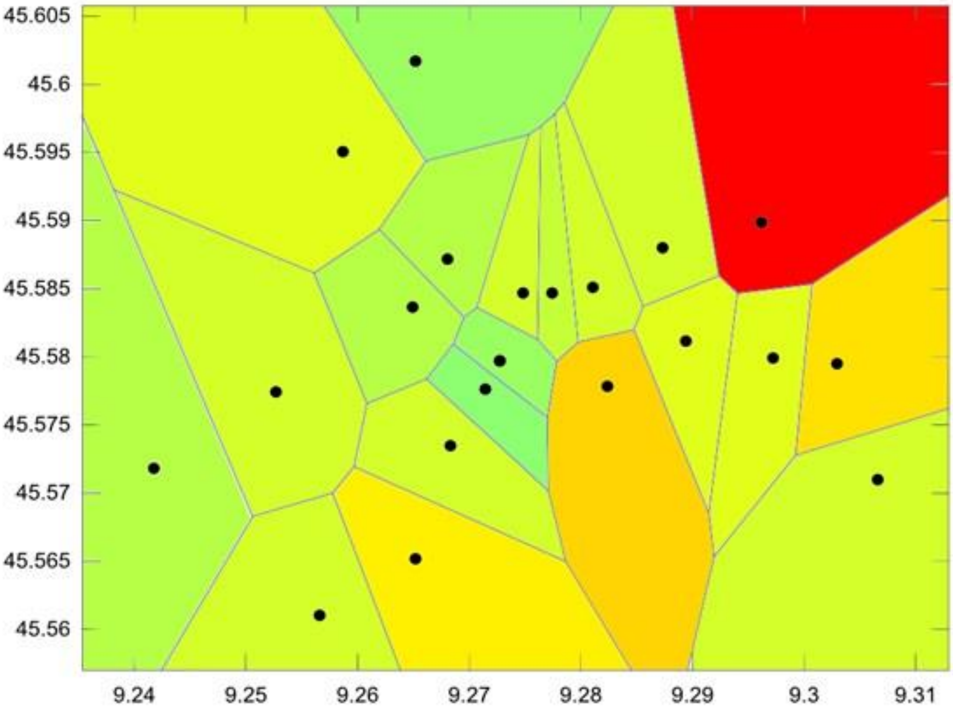
In the second map, we can see that the colours reached a warmer hue and Voronoi regions have further enlarged due to the closure of some chemists and to the increase in the number of customers. [Figure 8]

Figure 8: 29 chemists



In the third map, we can note that the regions reached the uniform colouring, thus the customers' distribution is the most homogeneous and rational. In this simulation only the region in the northeast part of the city is extremely overload, as its intense red shows. [Figure 9]

Figure 9: 21 chemists



First, the students used the Fortune Algorithm for the simulation, then they decided to implement a new programme capable of doing the simulation loading the data from an external file; with this software, they could introduce weighted Voronoi diagrams, take into account the road network and automatically create the colours of the regions with higher precision.

Thanks to its simplicity and extreme versatility, this project can be applied to many different fields in which a rational exploitation of the land and its resources is necessary to grant an ordered and sustainable development to a constantly growing society.

This work achieved the third prize in the European Union Contest for Young Scientists (Lisbon 2010).

CONCLUSIONS

The conventional belief has always been that students interested in scientific thought should develop strong math skills. However, it might actually be the other way around. Teachers think that activities in art or in history of science can help students build math skills and make math learning more fun.

FDS give both projects to enhance the mathematical knowledge and projects to build a solid math foundation. Here we have presented examples of the first type of projects, but anyway the aim of our works is to help students visualize the mathematical abstract concepts and its contributions to the cultural heritage.

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Generating Online Course In Distance Learning The Importance Of Design Process

Kübra YÜZÜNCÜYIL
Communication Design and Media
Sakarya University, Turkey
kubrayuzuncuyil@sakarya.edu.tr

ABSTRACT

With development of information and communication technologies, the speed of accessing information has been rising. Knowledge acquisition is facilitated by online learning environments. Online learning platforms let individuals to have education without time and space constraints. Via these platforms, individuals become capable to organize information due to their needs. Briefly saying, they can control their way of learning. Hence, knowledge become a concept which is not transferred by instructor to learner but vertically permeates among them. Hence instructors need to be innovative in teaching process. Herein, web based distance education programs become prominent.

With the vast spread of web based learning tools, distance education has been integrated into the schedule of many institutions. On the other hand, this fast growing rate also generates controversy. Scholars claims that online learning platforms are not capable enough to serve the qualification and credibility of face to face education. However there are many studies that shows a well-designed distance education course can promote to a high level of student satisfaction. To minimize any possible problem and to provide the best learning and electronic study environments, a well organized and qualified course opening process is the most important factor.

In this study firstly, the connection with distance education and web technologies are explained. Moreover, the importance of design process of the online content is emphasized. In the light of the literature, online course content generation in distance education will be discussed. Finally an effective design is suggested.

INTRODUCTION

With the rise of internet, the notion of space from the material world is extended to the virtual. Internet reached the power to spread all over the world within 30 years after the invention date 1969(Dijk,1999,p.18). By the time 2001, according to Internet World Stats web page (2016), nearly every other person was able to access. Implicitly, internet is a notion that links people all around the world. It was defined as a metaphor for the social life as fluid (Dijk,1999,pp18-35).Moreover, the fast grow rate of Web 2.0 technologies, Wi-Fi routers and 3G mobile systems let data to be transformed in high speed rates, to be shared interactively. This transformation redefines the way we think, communicate and learn. It also triggers structural changings in learning methods (Bilgiç& Tüzün,2015,p.470).

In today’s digital based society, physical time and space constraints lost their significance for communication. By this content, education has become an activity that may emerges beyond time and distance. Technology become a primary focus for the most effective means of conducting an activity. In this vain, online learning is not a new theoretical approach but its application in distance education requires special consideration in order to maximize effectiveness. The challenge both educators and learner is learn how to facilitate new tools. According to Conrad and Donaldson (2011, p. 16) explain this challenge in this way:

> “An instructor can clearly detect when students are engaged in an effective classroom activity. Both energy and sound levels are higher and students are reluctant to change to another task. The snergy between collaborative partners is exciting to observe as the discussion grows animated and connections are established. The big question is how do create this exhilarating learning environment when you lack verbal and visual cues.”

LITERATURE REVIEW

Van Dijk(1999) in his study entitled by “ Network Society” explains the reason why this passing thirty years is called Information Age. The reason is that data was produced much more than it was in five thousand years (Dijk,1999,pp18-23). In the information society, practicing technology tools without time and space limitation offers low cost and student centered education. This opportunity triggers active learning and makes data to reach large masses and be shared. In digital era, enhancing content development tools makes education gradually cheaper and increase learning speed.

Especially in today's information society, individuals who have to follow updated knowledge embrace life-long learning principle. The structure of web based distance education lets modern individuals to take the control over variables like time, space and speed of learning. In addition to this, it creates different opportunities for both audiences and lecturers. West and West (2009) claims that audiences are free to choose the lecturer according to related skills and lecturers are free to reach wider audience. This flexibility and self-selectable features increase web based education areas popularity.

"Learners in the twenty first century have been Web consumers for much of their lives and are now demanding online instruction that supports participation and interaction. They want learning experiences that are social and that will connect them their peers." West &West (2009,p2)

Moreover, Conrad and Donaldson (2011) claims that in today's society, interactivity shapes learning. Online learner must quickly establish comfort with the technology and a higher level of self-direction other than traditional methods. If this comfort level is not reached the learner will walk away from the course in frustration (Conrad and Donaldson, 2011, p. 16).

By taking into consideration population grow rate, without physical conditions constrains, buildings, equipment education become easier. Hence, the importance of e-learning is increasing day by day. Likewise, distance education system are now redefining by digital codes. According to Bilgiç and Tüzün (2105) express that web based distance education embrace collaborative learning process in which the teacher and student are partners in constructing knowledge and answering essential questions. This strategic approach includes setting goal, establishing timelines and creating an assessing authentic products. (Bilgiç& Tüzün,2015,p.471).

It is true that variety of programs and digital quantity is increasing. On the other hand, there are studies that show distance education do not reach the intended success. To reach a significantly success in distance education, first step to consider is opening process of the related program.

According to Meyer(2002) claims that content design plays a key role in increasing the effectiveness of an online course. It makes online learner motivated and successfully interact. Moreover it an effective design helps individuals to collaborate in an online environment and make them eventually engaged in independent knowledge building. He points out the importance of design as following :

"It is perhaps as clear a term for the interrelationship between technology and instructional design as I have found. In other words, it is not the technology that has an effect, it is the way it is used" (Meyer, 2002, p.6).

Online platforms offer a wealth of opportunities for interaction. Yet many times they are employed in a non-interactive mode that tends to focus on creating an online lecture (Meyer, 2002, pp 4-8). A lecture is mainly responsible for knowledge transmission. If its primary strategy becomes using online environment, the course becomes only a digital correspondence course. It triggers online learner to be isolated and leads a high dropout rate (Meyer, 2002, p.16-45).

To prevent this possible drop-out date and increase interactivity, online distance course content need to be organized. (Kearsley,2000,p.78)emphasized that:

"The most important role of the instructor in online classes is to ensure a high degree of interactivity and participation. This means designing and conducting learning activities that result in engagement with the subject matter and with fellow students. "

Web based distance learning is considered as an alternative way of learning. Newman (2003, pp.20-34)emphasized that there are several factors that need to be considered for a course to be represented in online distance education form. These factors can be listed as

1. Student's attention
2. Substructure of the related course
3. Attention of lecturer
4. Interface design
5. Technical infrastructure
6. Possible costs

In other words, plan and design are two elements to develop program. True decisions in planning and designing progress makes evaluation, distribution and maintaining steps easier to follow.

Moreover, Odacıoğlu (2012) forms a control list that is consisted of six steps in the process of e learning program.

1. Preparation to program design
2. Determination of student's attributes
3. Creation of content
4. Designing the program
5. Developing program
6. Pilot study

Furthermore, Türkoğlu (2002) listed the steps that should be followed in developing web based education program.

1. Determination of aims
2. Research of literature
3. Collaboration of related academics with experts
4. Generating Course Content
5. Generating HTML / Design of Web Page
6. Addition the sources of students
7. Providing related database and software
8. Control of accessing the Web page
9. Collecting Feedback from students
10. Testing
11. Updating the web page continuously (Türkoğlu,2002)

What is more, Pina (2008) points out that most of higher education boards first have difficulties to satisfy the demands of web based program. Due to this reason, they primarily open the course and then start to plan it. This situation is the basic reason which entails failures and inefficacy in e-learning areas. E-learning should be considered as an innovation process and it should be evaluated in organizational structure(Pina,2008, pp.24-35).

In addition to this Bilgiç and Tüzün (2015) listed basic categories that should be considered in opening a distance education program.

1. Institutional Mission and Vision
2. Standarts for Opening the Program
3. Application Process
4. Preparation of Program Opening

Bilgiç and Tüzün (2015) revealed that first criteria of evaluation centers for opening distance education program is construction management. Firstly, it should be analyzed if there is qualified technical substructure. Materials that are needed for web based programs, availability of learning management systems and server structures should be checked(Bilgiç and Tüzün, 2015, p.470-491).

Moreover, it is also important to analyze student potential that shows enough demand for the program. Hence, the volume of the students is important factor in opening a distance education program. (Bilgiç and Tüzün, 2015, p.470-491) As it is known, web based programs need qualified technical support like computers, video conference system, content development. All of these technical issues increase the cost. It is emphasized that, if this analyze is not conducted effectively, institutions may get in financial difficulties(Bilgiç and Tüzün, 2015, p.470-491).

Furthermore, the third criteria is related with skills of lecturers(Bilgiç and Tüzün, 2015, p.470-491).Lecturers may have difficulties to adopt themselves while transferring their educational skills from in-class training to web based platforms. In many studies that are related distance education, it is accepted that characteristics of lecturers affect the success of e learning. Hence, in the light of the literature it can be said that generating content and its design is one of the most important step in online education.

DISCUSSION

It can clearly be seen that education process should not be started immediately after a distance education program is opened. Institutions should not employ trial and error method during learning process to detect inefficiencies. Web based distance learning is developing as a platform which has different needs than traditional in-class tuition. In this regard, different strategies, different pedagogies, integration of technological developments to education process needs to be performed. In the light of the literature, it can be revealed that content development is one of the most peculiar step to increase effectiveness of online distance education.

In the light of literature, it is revealed that templates need to be constructed with collaboration of related experts. These templates need to include the subtitles of introduction of course, learning outcomes, summary of the courses, multimedia equipments, evaluation questions. These steps may form an ideal generating online course process. To achieve the intended success design and development process are conducted carefully.

Firstly, the important steps for designing of online distance education should be revealed. Interface should be readable. The design should make users to feel comfortable. Related messages should be placed where they can quickly catch the attention. Item direction needs to be easy to follow. To achieve this, interface should separated into particular parts. Table 1 offers a detailed design.

Table 1

1.Table Of Contents	2.Course Guide	3. Progress	4.Discussion	5.Course Book	6.Instructor
Title of the chapter	Current news about the course	General graph that show students perception towards to course.	Find Discussion	Units	Courses
Content of the chapter	Updating Information	The graph that shows the students'progress in content of unit	New Message	Tools	Membership
Related reading material	Introduction of Units	The graph that shows the students'progress in related material	Inbox	Add Material	Statics
Unit evaluation exam	Conditions	The graph that shows the students'progress in evaluation	Outbox	Download	Grading Configuration

Secondly, content development comes after an effective interface design.

- Courses should be prepared as they include one semester period. All topics of the class need to be determined in order to create interactivity between instructor and learner. After that, titles and subtitles should be explained. Finally context matches should be reviwed.
- Courses may include all multimedia items such as pictures, shapes, graphics, tables, sounds, videos, animations, plays and etc. Course book may be in the form of Pdf, ePub and iBook.
- Evaluation questions need to be in various forms. They can be multiple choice, short answer questions, match questions, fill in the blank questions, drag and drop questions or labyrinth question forms.
- Mid-term and final exams should be open 7/24 hours in two weeks. Each students have the right to take the exam only one time. Exam duration should be limited. Exam questions should be mixed and represent each students in different form.
- Grades should be given in two steps in such a way that mid-term evaluation and final evaluation. Mid-term evaluation is consisted of downloading and reading book (10%), watching videos(10%), participating in discussions (10%) and mid-term exam grade (70%). Final evaluation grade is also consisted of downloading and reading the related parts(%10), watching videos (20%) and final grade(70%). Final grade may be formed with 40% of mid-term evaluation and 60% of final evaluation.

CONCLUSION

In today's society, distance learning is defined in terms of digital codes. Technology is now integrated into the equation of distance learning. Hence, new approaches should be developed to understand this new integration. Online courses need to be analyzed in terms of various categories before they are represented in the form distance education. Students' attention, instructors' attention and skills, technical substructure and course structure should be checked before any attempt. Otherwise, intended success can't be attained.

Furthermore, to engage online learner into distance learning process there are two main steps entitled by design and content development. An effective interface design makes the online learner follow easier to related steps. In addition to this, it makes students feel comfortable with technology. A powerful design shapes the process of learning. Particular items become more readable and gives message directly to students. In order to increase interactivity between instructor and students, digital platforms should be utilized effectively.

Likewise, content development is another important category. Courses need to be represented in innovative approaches. Course book may include multimedia items which quickly catches the attention of learners. In addition to this, they may be converted into different forms such as ibook and ePub. Grading may also be conducted in an innovative way. Mid-term and final evaluation may be shaped in the light students process and attention.

Studies about web based distance education claims that it will be the only education system of the world in future. Hence, development process of it deserves a careful consideration. Studies were more conducted to support technological sustainability in distance education. However, there is no study that show empirical results that measure students' gratification about related platforms. This study suggests a design which may increase the interactivity of online platforms and a content development process to engage online learner. Future studies may put it into practice and collect feedback to enhance the process.

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Guided Group Project Approach For An Engineering Technology Course: Performance And Learning Outcomes

Chee-Ming CHAN
Universiti Tun Hussein Onn Malaysia, Malaysia
chan@uthm.edu.my

Alina SHAMSUDDIN
Universiti Tun Hussein Onn Malaysia, Malaysia

Azeanita SURATKON
Universiti Tun Hussein Onn Malaysia, Malaysia

ABSTRACT

In differentiating the Engineering and Engineering Technology curriculum, emphasis has almost always been placed on the hands-on and practical problem-solving aspect, of which the latter tips the balance on field implementation expertise. It is, however, difficult in the best of times to differentiate the programmes when the technical contents are of the same nature and the resulting syllabus very similar, if not entirely the same! Working within the outcome-based education framework, one could argue that the actual impact and lasting impression of learning take shape and place with the activities incorporated within a course. It follows that two seemingly similar course contents, if delivered and learned in a different approach and manner, would produce very different results or outcomes in the students. Therefore, intuitively, the intended learning outcome, if supported by tailor-made activities, could be realised effectively with relevant and appropriate assessments. This paper describes an endeavour to ensure attainment of a learning outcome in an Engineering Technology course, i.e. Soil Mechanics and Foundations, via guided group project approach. In groups of 4-5, students were to organize comprehensive design and execution procedures for a related technical problem. Choosing only one, the problems given were wide-ranging and current, including landslides, resue of landfills, deep excavations and foundations in problematic soils. Students were entitled to refer to an actual case study to reassess the problem for a new, innovative solution, or to create an assumed case with the incorporated problems to solve. The project was carried out progressively throughout the 14-week semester, with incremental level of learning and understanding according to the course chapters. Regular meetings with the lecturer, interviews with experts and extensive literature review help steer the students towards producing a creative and innovative yet practical, feasible and contemporary solution. Assessment was based on the technical report, oral presentation as well as visual representation of the design, by a group of panelists from various fields of civil and environmental engineering background. Analysis was performed on the assessed components, targeted learning outcome in conjunction with students' perception of the exercise. All in all the exercise demostrated that guided group activity as this can be expedient in attaining the targeted learning outcome, with emphasis on the practical side of trouble-shooting and innovative solutions, simultaneously highlighting and differentiating from those of an engineering course more inclined for a theoretical approach.

INTRODUCTION

Engineering technology education at university level was introduced in the country some half a decade ago, with an apparent divergence from traditional engineering education where emphasis on practice outweighs that of theory. This is not to say that engineering technology students are not taught the regular tenets of engineering sciences, but the engineering theoretical background is overlain with practical and on-site solutions, further interwoven within the programme and syllabus as well as learning and teaching approaches. It would seem that exposure to real-world teamworking scenarios in handling field problems suits the intended learning outcomes of such hands-on emphasis. In other words, students are guided to engage in student-centred, self-directed and collaborative learning for seeking practical solutions to real-world issues and problems (Brundiers & Wiek, 2011). It is important in such endeavours that students actively participate in the learning process to construct their own knowledge from the learning activities (Blumenfeld et al., 1991). In addition, Hmelo-Silver (2004) explained that the basis of problem-based learning is having problems introduced in class as stimulus for learning, and that the approach is characterized by a much self-study type of learning through problem-solving sessions in small group facilitated by a teacher. Merrill (2012) further elaborated that the unique instructional method is most effective in the context of solving real-world problems by engaging the application of existing knowledge and the activation of new knowledge. Marwan (2015) also found students' heightened interest and engagement in the learning process of an English class incorporated with computer technology.

As examined in the sustainability programme for undergraduates, Brown et al. (2010) highlighted that the problems assigned to students rarely come with ready answers or solutions, but are rather complex without simple, straightforward solutions, i.e. termed 'wicked' problems. It requires high level cognition and problem-solving skills, unlike the basic knowledge recall at lower thinking levels (Chung et al., 2009). The students' enquiry and learning process often lead to other related and complicated problems, which challenge them to conduct in-depth investigations of the existing solutions in terms of feasibility compared to their proposed ideas. This absorbing cycle of learning enables students to forge deeper understanding with improved critical judgments of the topic (Thomas, 2009), and is particularly well received among STEM (science, technology, engineering & mathematics) educators too (Drane et al., 2005). Students are duly given the opportunity to delve into the pseudo-professional world by identifying, analyzing and formulating feasible solutions to a given set of problems within a team, hence honing their professional skills at an early stage of their tertiary education (Yasin & Rahman, 2011).

Learning as a group or team was reportedly developed by Dr. Larry Michaelsen over 2 decades ago for the business school (Parmelee et al., 2012). Formation of the teams can be based on a good gender and experience mix (Thomas & Bowen, 2011), though it is not uncommon to carry over the same group membership from previous engagements (Okubo et al., 2012). Whichever approach is adopted, it is important to remind students of the necessity to embrace differences and exercise tolerance when opinions differ in a group, which likens to real-life working environment for engineering technologists especially. Nonetheless this is not denying the fact that the collaborative efficacy is influenced by team relations and leadership (Fu & Pow, 2011), and teacher interventions when needs arise (Kuiper et al., 2009). Small groups are also expedient in bolstering collaborative learning as students tend to feel more secure and comfortable in a familiar setting with less competition (McLean et al., 2006). This amiable and conducive learning environment is known to produce better performance and learning outcomes among students (Saleh et al., 2007).

The present study adopted the peer-led, problem-oriented learning approach in small group formations (Sperry& Tedford, 2008) for the students' project component in a core civil engineering technology course of Soil Mechanics and Foundations. In groups of 5 or 6 for a class of 31 students, the project was conducted over the 14-week semester with mandatory fortnightly brief meetings with the instructor. Details of the course and project are given below.

THE COURSE AND PROJECT

The Soil Mechanics and Foundation course (BNP20903), is a compulsory core course in the civil engineering technology programme offered at the University. With an approximately equal mix of both genders, the 31 students enrolled in the programme were the pioneer batch, with entry qualification of either diploma, matriculation certificate or Malaysian Higher School Certificate (STPM). The course consists of 5 topics, namely (1) site characterization and earthwork operations, (2) soil's response to loading, (3) design considerations of geo-structures, (4) problematic soils: pre-treatment, (5) geo-environmental concerns and technology. Each topic was delivered in 2-3 weeks, with 2 hours of lecture and 3 hours of labwork per week over the 14-week semester. The project was part of the problem-based semester-long tasks assigned to the students per group. It addressed the course learning outcome of having students 'organize comprehensive design and execution procedures for geotechnical as well as geo-environmental solutions with practical considerations'.

The project was assigned at the beginning of the semester, where students were briefed of the requirements and tasks at hand. The project titles were different for each group (determined by drawing lots among the group leaders):

P1 Climate change and landslides: Is there a relationship?
P2 Climate change and flooding: Are they related?
P3 Solving the geotechnical problem of heaving soils.
P4 Mitigating deep excavation risk to a nearby building.
P5 Saving a building from risk of liquefaction.

The project titles were designed to encourage exploration of information beyond the lecture and syllabus, where students were expected to conduct extensive literature search and review, sieve through the information and data gathered, discuss and debate the compiled information to reach an answer or solution agreed by all in the group. The scope of study engage students in active search for the relationship between the course contents and other influencing factors and conditions, such as environmental and construction issues. Each group would conduct data collection and analysis, prepare a written technical report and a model or visual aid for demonstration of their findings and solutions, with a mini exhibition-style presentation at the end of the semester. Regular meetings with the facilitator (course lecturer in this case) was organized every fortnightly, though students usually had brief 2-3 minutes' discourse or quick question sessions with the instructor during lecture breaks each week. The assessment during the mini exhibition was carried out by 3 panelists from the civil and environmental engineering background, using a pre-determined assessment rubric. The components of assessment include (1) technical content- 55 %: soundness of solution, technological reasoning, creativity and practicality of solution, cost-effectiveness; (2) model / video / visual aids- 30 %: technical contents, creativity or uniqueness, clarity of presentation; (3) presentation- 15 %: coordination and teamwork, delivery and flow, question and answer session.

Analysis and discourse of the groups' performance in the project are presented in the following sections in conjunction with the learning outcomes. The end-of-project survey also provided information on the students' perception of their individual learning curve experience pertaining to the project. In addition, an examination of the soft skills cultivation was conducted based on the survey response. This was an enhanced aspect of the project where students were exposed to skill sets not normally found in conventional lecture sessions, with the hope that the inherent skills among the students could be further developed, and the new skills learned for future advancement.

THE STUDY: RESULTS AND DISCUSSIONS

Project Outputs

The students have shown noteworthy outputs in the Project. Take for example the solution proposed for the landslides triggered by climatic change (P1). The comprehensive technical report showed analysis of the rainfall records for the recent past decades with relation to the landslide occurrence, severity and damages incurred. Once the relationship was established, the technical solution put forward was a combination of the slope stabilization techniques commonly implemented in the country, i.e. slope surface vegetation coupled with sub-ground drainage and internal stability struts (Figure 1a). Justifications for the combination of techniques selected were from the economic sense, feasibility aspect as well as availability of expertise and materials locally. Similarly for P4, the students examined past failures of projects involving deep excavation to identify the triggering factors, looking up literature in textbook, news archives, library repository and technical publications. The general failure mechanism was next investigated and established to determine the key areas to fortify in prevention against such failures of deep excavations. The proposed solution was an ingenious combination of removable wire mesh baskets filled with rocks stacked up against the excavated pit walls, with additional reinforcement of the exposed dug out pit with soil nails (Figure 1b). Interestingly, the techniques incorporated in the solution were commonplace retaining methods for slope facing, where the required materials, technology and installation skills were not lacking. This made economic sense with no need for costly import of external expertise.


(a) Slope stabilisation
(b) Safety of deep excavation

Figure 1: Proposed technical solutions by the students.

Such reasoning proved the student' serious engagement of the Project with remarkable prowess pertaining to reviewing of current conditions of the problem at hand and technical resources available, undertaking of an organized teamwork approach to address the given problem, and formulation of an appropriate solution to the problem based on the information obtained from the research conducted. It was a positive indicator of the expediency brought by the group task, not only in in terms of technical knowledge and competencies' acquisition, but also in developing the soft elements often associated with employability skills desirable in graduates.

Assessment

Figure 2 shows the performance distribution of the students in the primary learning domains, i.e. cognitive, psychomotor and affective. The project targeted the second course learning outcome which addressed the psychomotor component. Apparently students demonstrated the best performance in this learning domain, suggesting the learning tendency and preference of technical students in an engineering technology course, with leanings towards hands-on and practical tasks. As the project called for extensive research beyond the course module, students would be pursuing investigations via other sources of information, including the ubiquitous internet, interviews with experts, published works and past records such as newspaper archives.A large portion of their time allocated for the project would also be dedicated to building the model and visual aids, further exerting a demand on their physical constructive ability and skills, substantiated by necessary prior knowledge and knowhow of the subject matter. Nonetheless, the fact that the students fared relatively less well in the cognitive domain assessed through test and examination seemed to be incongruent with their good performance in the project, seeing that the project contents were closely related with the course contents. A plausible explanation is that individual close-book assessment may not necessarily reflect the students' actual and deeper understanding of the topics, where stress and anxiety can lead to subpar performance in the somber air of an examination hall.

The breakdown of the students' achievement in the psychomotor domain is given in Figure 3. Note that the smaller percentage of marks assigned to the labwork, also contributing to the psychomotor learning domain, appeared to be slightly better achieved by the students. Marks for both tasks were combined to constitute the 35 % psychomotor component of learning in this course. Weighed against the 40 % cognitive domain apportioned for the total assessment, the hands-on prioritization in the course is arguably comparable and inter-supportive. Intuitively the performance record supports earlier observation of the students' predisposition towards hands-on exercises not unrelated with the course contents. Considering that the course is part of an engineering technology programme with emphasis on practical skills, the overall psychomotor learning domain performance corroborated with the aims of the programme and course, especially when the course is a core and compulsory technical one.

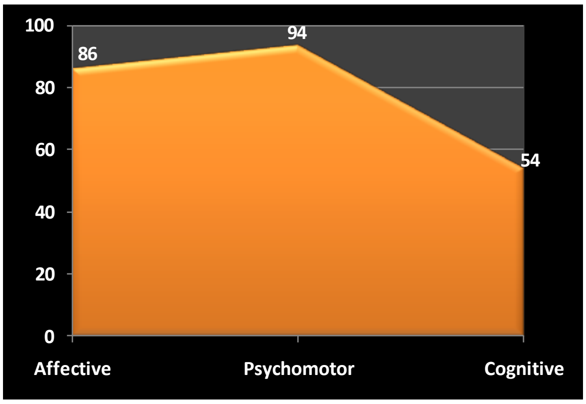

Figure 2: Performance per learning domain.

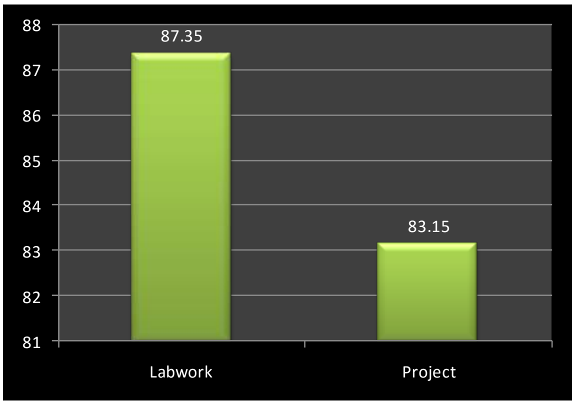

Figure 3: Psychomotor domain achievement.

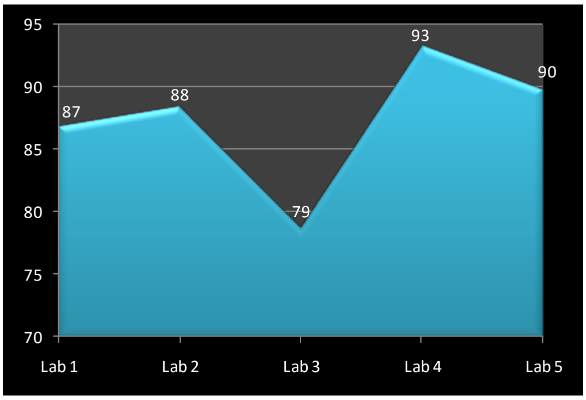

Figure 4: Labwork assessment (as per 100 %).

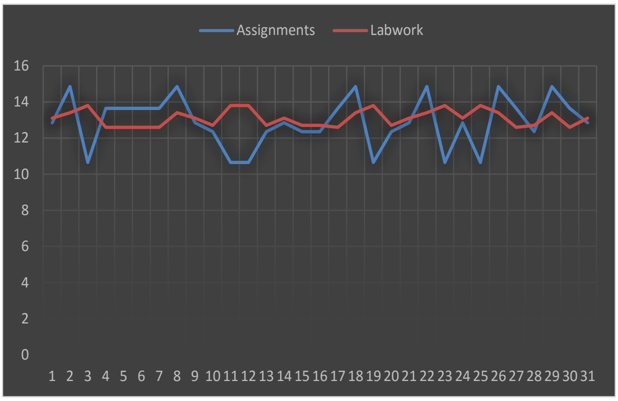

Figure 5: Trends for formative group tasks (as per 15 % each).

As the Labwork and Assignments were the other tasks completed by the students in the same group formation, but the Assignments were being done in pairs within the same group, a brief account of the performance by the students in these tasks are included to better illustrate the group accomplishment in the course. The average performance for each of the Labwork is shown in Figure 4. The rather disparate marks obtained by the students ranged between approximately 80 to 95 %, with Labwork 3 seemingly the ‘killer’ task where all groups fared poorly. As all groups scored similarly for the particular task, it is assumed that Labwork 3 which consists of 2 experiments might have been too overwhelming to the students within the time allocated. It is also postulated that coverage of the topic concerned might have been inadequate in the lecture and hence requiring revision. A combination of the performance of the students for Assignments and Labwork, which were both topical and formed part of the formative assessment exercises is shown in Figure 5. Clearly the overall performance for the Labwork was far more uniform than the Assignments, and that there was no apparent correlation between the performance for both group tasks. The rather large variation observed in the marks for the Assignments could be indicative of non-uniform learning pace of members in the same team, not readily noticeable in the group setting for Assignments and Project.

Attainment of Learning Outcomes

While the Programme Educational Objectives (PEOs) are not expected to be attained until 3-5 years upon graduation, they are nonetheless the ultimate outcomes predetermined for an entire academic programme, where the Programme Learning Outcomes (PLOs) are drawn up and the Course Learning Outcomes (CLOs) for each subject in the programme are in turn attuned to. With approximately 40 courses in the complete programme, the CLOs of individual courses would contribute towards the PLOs in a progressive and gradually built-up manner across the duration study. In other words, the learning outcomes are related in an ascending time frame of on study (CLO), on graduation (PLO) and on service (PEO) for every student, spanning the course of the student’s study at university right up to several years after joining the work force.

The PEOs for the civil engineering technology programme were as follows:

PEO 1	Practice in the civil engineering technology field with outstanding knowledge and skills.
PEO 2	Involve in activities pertaining to civil engineering technology with demonstration of exceptional technical competencies.
PEO 3	Communicate effectively with all relevant stakeholders.
PEO 4	Adapt to changes and renewals in the civil engineering technology field.

Following is an analysis of the students’ response on their projected attainment of the PEOs based on the Project alone. While it is arguably stretching the students’ imagination and also the yardstick in making this measurement, the contributing factors of the Project towards these ultimate goals in a cumulative manner, albeit small per se, are undeniable. It is noted from Figure 6 that over half the students considered the education objectives to be significantly developed via the Project, though 40 % were of the opinion for PEO 2, suggesting a budding confidence in their technical competencies. Nevertheless this is not surprising as these students were only in year 2 of their 4-year programme, relatively green still on the holistic view of the body of knowledge and industry as a whole with a yet to be fully formed self-confidence in their professional aptitude. The small number

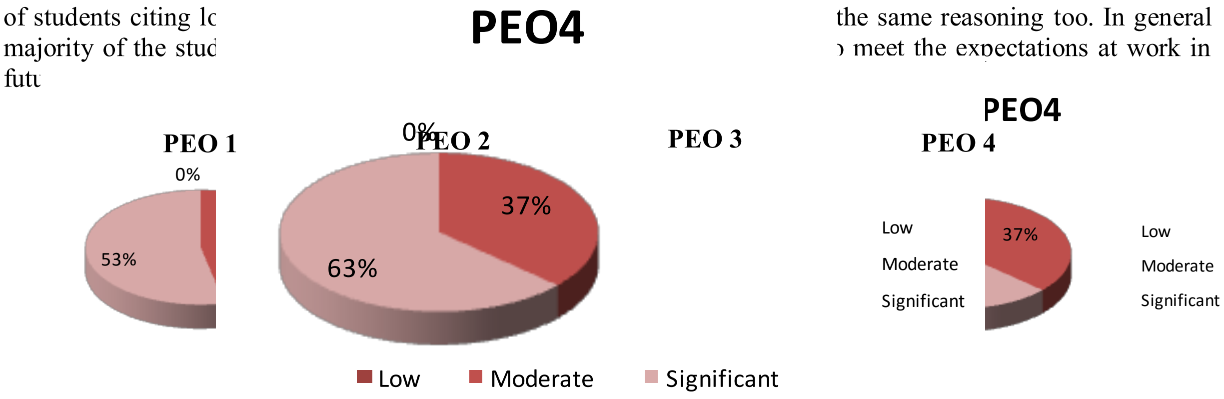

Figure 6: Programme Educational Objectives (PEOs) attainment perceived by students.

With the Programme Learning Outcomes (PLOs) being expected of the students upon completion of all the courses at the end of their study, it is of interest to identify the students' perception on how the Project could help them move nearer the ultimate goals. The PLOs for the programme are as listed below:

PLO 1	Use and apply knowledge of science, technology and fundamentals of engineering in the discipline of civil engineering technology (Knowledge).
PLO 2	Demonstrate comprehensive technical expertise in civil engineering technology (Practical Skills).
PLO 3	Communicate effectively both in written and spoken form with engineering technologist, other professionals and community (Communication Skills).
PLO 4	Identify, formulate and provide creative, innovative and effective solution in civil engineering technology problems through the use accurate tools and routine design (Critical Thinking, Problem Solving, Routine Design).
PLO 5	Function individually or in teams effectively and with the adaptability to be a leader or a team player (Teamwork Skills).
PLO 6	To engage in life-long learning and professional development (Lifelong Learning & Professional Development).
PLO 7	Self-motivate, enhance entrepreneurship and managerial skills for career development (Entrepreneurship & Managerial Skills).
PLO 8	Understand and commit professionally, ethically and responsibly, for sustainable development, safety in technology in line with the engineering technologist best practices (Moral, Professional Ethics & Safety).
PLO 9	Mastering and demonstrate effective leadership qualities (Leadership Skills).

Figure 7 summarizes the students' response on how the Project influenced their attainment level of the PLOs. All PLOs recorded ≥50 % perceived significant attainment except for PLO 3, which had a slightly low 33 %, though students who considered moderate attainment level of the learning outcome was a remarkable 67 %. Combined, the perceived PLOs attainment levels were all in all positive and encouraging where the Project was concerned. It shows that the group tasks helped the students to cultivate areas of learning not usually covered in normal lecture sessions or other activities in class. In addition, of all the PLOs, PLO 5 was thought to be the one most supported by the Project. This is evidence of the students' conscious engagement in the semester-long activity, harnessing on the beneficial collaborative learning platform provided by the group task.

It is worth noting that with the rotational team leader role every fortnightly for each group ensured the equal opportunity for all members to helm the ship and steer the team on the right course. The team leader succession exercise also took the group task a notch higher in terms of difficulty especially in terms keeping the group's solidarity and organization in place with every change of leadership. The students were challenged to adapt to organizational changes within their respective groups, while adopting the appropriate attitude and stance to cope with the dynamic working environment both as a leader and a team player. Apparently, the survey results showed positive response among the students, a strong indicator of the students' preparedness to face disruption to their comfort zone as well as the presumed status of the peer learning setting.

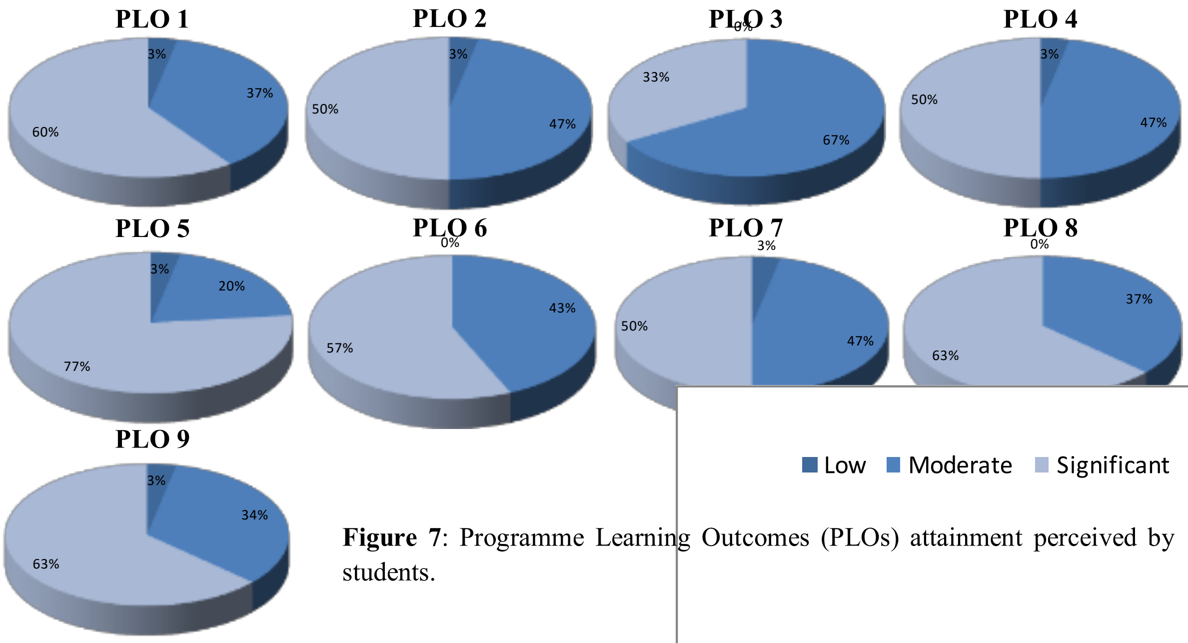

Figure 7: Programme Learning Outcomes (PLOs) attainment perceived by students.

This was followed by relatively high perceived attainment of F
both recorded 63 % and average of 35 % of significant an
effectiveness of the Project in relating the group task with real
future graduates as engineering technologists. The stude
professionalism and social responsibilities in performing the
presented in the Project. Besides, the rotational leadership for each group enabled each and every student to gain experience as a team leader, honing the essential skills and finer nuances of dealing with a group of co-workers under his or her supervision. It is indeed heartening to note the students' active engagement in the group task aiding their growth as a technically competent yet humanely sensitive professional in future.

Cultivation of Soft Skills

Apart from the apparent academic-related technical knowledge and competencies, students also had the opportunity to develop their soft skills (SSs) while conducting the Project. The skill set examined were as follows:

SS1	Communication skills [PLO 3]
SS2	Critical thinking and problem-solving skills [PLO 4]
SS3	Teamworking skills [PLO 5]
SS4	Continuous learning and information management skills [PLO 6]
SS5	Entrepreneurship skills [PLO 7]
SS6	Ethics and professionalism [PLO 8]
SS7	Leadership [PLO 9]

The overlap with some of the PLOs was immediately noticeable, as noted in the square brackets at the end of each SS above. It follows that the students' response in the survey would likely show similar pattern of perception in the attainment level of the respective soft skills. For instance, the skill component with the highest significant attainment perception was SS3 (Figure 8), which corresponded with PLO 5, i.e. teamworking adaptability. Interesting though, a small number of students reckoned the Project to be marginally helpful in moulding them into effective team players. This was thought to be caused by isolated cases of interpersonal issues impeding the positive skills cultivation among the students, and this is considered accountable for the 10 % low attainment level recorded for SS 5 too.

From Figure 8, it is also apparent that all soft skill components recorded distinct positive responses, with more than half the class scoring significant attainment level except for SS 5, entrepreneurship skills. Nevertheless the combined significant and moderate attainment levels from the students' perception for SS 5 was a good 90 %, pointing to an optimistic outlook on the skill cultivation via the Project. This attribute was not especially emphasized in the Project, notwithstanding the basic costing and economic advantages each group highlighted in the reports. As the year 2 students were considered novices in technopreneurship mastering, the Project served more as an introductory exercise in the enterprising aspect of technical innovation and not a full-fledge course on entrepreneurial development. The defence put up by students on the economic sense of their proposed solutions during presentation affirmed contribution of the Project to development of the particular soft skill component. As mentioned earlier, discord among group members could have led to the rather negative perception registered from the survey for SS 5. Sound business potential needs to be collectively developed and defended in the presentation with unanimous agreement and support of all team members. Disagreement due to personal issues or team dissonance could result in a resentful team atmosphere damaging to the team's cohesion and solidarity, let alone shared visions of entrepreneurial prospect of the respective Projects.

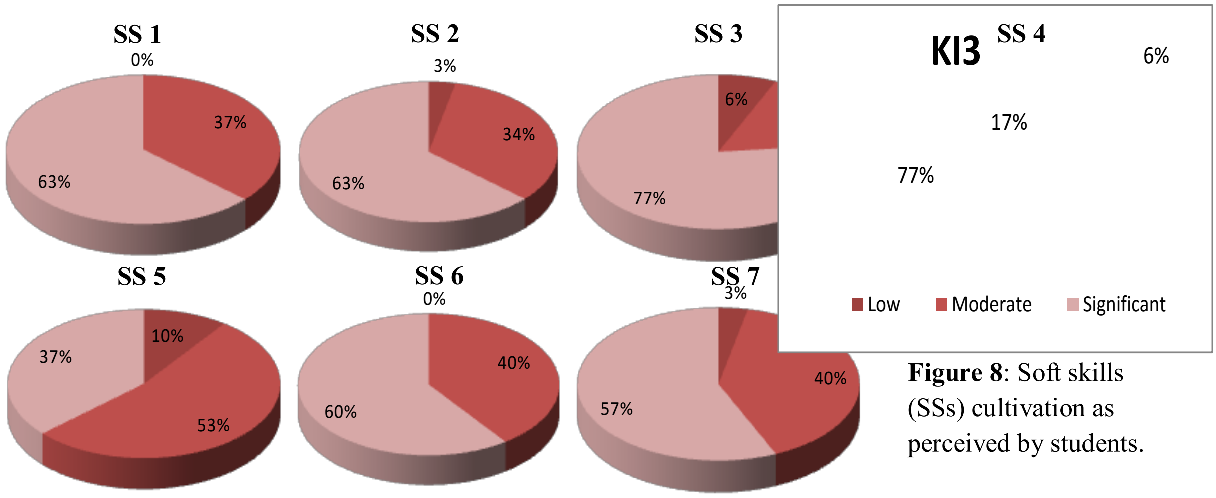

Figure 8: Soft skills (SSs) cultivation as perceived by students.

CONCLUSIONS

The study gave an interesting overview of the students' performance in a group project and their corresponding attainment of learning outcomes as well as soft skills cultivation. While the students excelled in the project with emphasis on the psychomotor domain learning, their cognitive assessment of test and examination results were far less encouraging, indicative of the misleading measurement of a student's grasp of a subject matter based solely on close-book written assessment. For en engineering technology course with greater emphasis on the practical aspect of the subject matter, the preeminent hands-on leaning of the students is perhaps understandable and expected. The students also demonstrated an acute awareness of the group task as a simulation of the real working environment they would one day graduate into, with a growing awareness of the professionalism and social responsibilities expected of them as engineering technologists. Besides, the students consciously honed their team-working skills, be it as a leader or a team member, learning the different functions and attributes expected of the intertwined roles routinely found in a group work setting. Soft skills development with execution of the Project was generally perceived to be positive by the students, with a good corroboration with the overlapping PLOs. The minority who rated their teamworking and entrepreneurial experiences to be less gratifying were likely motivated by personal unsatisfactory teamworking experience, not unexpected in any group work setup. In a nutshell, the group task of Project was effective for psychomotor domain training of the students, with a comprehensive development of the relevant soft skills too.

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Gustav, Web Tool For Software Development Time Estimation

Veronika VESELA
Tomas Bata University in Zlín
Faculty of Applied Informatics, Czech Republic

Petr ŠILHAVY
Tomas Bata University in Zlín
Faculty of Applied Informatics, Czech Republic

Tomáš URBANEK
Tomas Bata University in Zlín
Faculty of Applied Informatics, Czech Republic
turbanek@fai.utb.cz

ABSTRACT

Nowadays, time plays a very important role in the field of SW development. Estimation of development time is a key element of a software creation process. Our project is focused on improving of these estimations as for the commercial sector as scientific and educational purposes to. The time estimations are processed by analytical programming, differential evolutions and method of Use Case Points.

A new web application was created based on this solution. In this application, the analysis can be performed directly in a web browser and the data can be exported for further processing. Our main objective is to help users to improve their estimations and learn directly from real data.

INTRODUCTION

Field of software development (SD) and software engineering is constantly evolving. This situation is caused by increased requiments from users whose use computers every day for work and for fun. Continuous development of better software is not trivial matter. The most important of SD is selection of the right methodology, tools and procedures. There are a number of these methodologies. These are divided into two groups - traditional and agile ("Manifesto for agile software development," 2001). Traditional methodologies were mostly replaced by agile methodologies (AM). AM provide new procedures in development. For example rapid development methodology brings procedures like prototypes, customer involvement into development, bigger freedom for programmers and also increased efficiency and productivity of development (Martin, 1991).

Crucial aspects of SD are time and quality. Until the development starts the project demands must be correctly estimated. There are various methods of time demands estimation such as identification by using expert estimates, the estimation based on the analogy or estimation by the method of function points. All share a common question, "How long will all this take?". Results of all estimation types are timetable of SD parts. It provides overview of parts. According this the SD should be processed. Time is obviously one of the most important factor of SD which can significantly affect project price and profits of Software Company.

THE STUDY

The basis of the project was an idea to estimate the time required for projects by using Use Case Points method supported by analytical programming**.** The analytical programming method was used to improve the Use Case Points method. The Use Case Points method is fully dependent on the human factor. Project manager determines the weights for individual elements such as: unadjusted Use Case Weight (UUCW), unadjusted Actor Weight (UAW) Technical Complexity Factor (TCF) and Environmental Complexity Factor (ECF). Each project manager makes a slightly different estimate based on his experience. Analytical programming uses artificial intelligence reduces dependence on human factor. The combination of analytical programming and the use case point's method is used to more accurate effort estimation results (Urbanek, Prokopova, Silhavy, & Vesela, 2015).

Applications for the calculation of these estimates were programmed in language Lua. It is open-source software, distributed under a very liberal license (the well-known MIT license). It is a powerful, efficient, lightweight, embeddable scripting language. It supports procedural programming, object-oriented programming, functional programming, data-driven programming, and data description ("Lua: About," 2011).
The application has been optimized for high speed calculation. When the calculations application development started, the web interface was developing also.

Software development companies must accurately estimate the time required for development. Wrong preparation of development schedule often has considerable financial sanctions. As a part of this project, the method for calculating these estimates using combinations of analytic programming, differential evolution and Use Case Points method, was used. This method reached up to 60% success compared to the classical method of calculation on testing data (Urbanek, Prokopova, Silhavy, & Vesela, 2015). The method of "Use Case Points" (UCP) was created by Gustav Karner in 1993. The concept of UCP is based on the requirements for the system being written using use cases with factoring to account for technical and environmental considerations by different weights according to the complexity (Karner, 1993). Our application was named after the founder of the method UCP, Gustav.

Your data can be entered manually by using the form (time required about 15 minutes).

You can upload your data using a link.

Figure 1 Landing page

Our project is focused for better estimation of developing time for the commercial sector and for scientific purposes too. The main advantage of the project is the possibility that any software company can generate a custom equation of method Use Case Points. All these calculations and equations are displayed in created web application. The main output of the data processing is clear graphical representation. The user can compare his estimates with our calculations there. With this Web application it is possible to analyse these data with in a web browser or you can export this data for further analysis. Our main aim is to help users to control and improve their estimates for more effectivity and quality of their work.

FINDINGS

During the design of web applications different ways (such as PHP, JavaScript,…) of development was considered. ASP.NET MVC was chosen. The ASP.NET MVC Framework is a web application frame work that implements the model-view-controller (MVC) pattern. It is developed by Microsoft Corporation (Microsoft, 2014). It is a popular architectural solution. The next step was this election of appropriate technologies for storing and working with data. Relational database where the data is structured was chosen. MySQL database using SQL is a popular choice of database for use in web applications ("MySQL," 2016). Another technology that we need to use in this project is the Java Script library for rendering data in graphs in a short time. The research in the field of JavaScript data rendering tools helped us to identify the most suitable libraries (Vesela, 2015). D3.js and Charts.js reached the best score in tested parameters. There was a quality difference of libraries documentations. D3.js library at the project was used. This library has full support for all modern browsers and there are extensive documentation and a lot of examples. With this library you can create simple graphs, but also very complex graphs with extensive data (D3.js - Data-Driven Documents [online]). The architecture of the entire solution consists of two servers. At one of the servers the calculations are running using the algorithm of analytic programming, this conserver issued for the retrieving data from user, data storing and graph plotting.

Result is displayed in the application immediately. The message with link of his data visualization is send to user automatically. This visualization can be plotted on three types of graphs. There the user can see his specified values compared with five best estimate calculations.

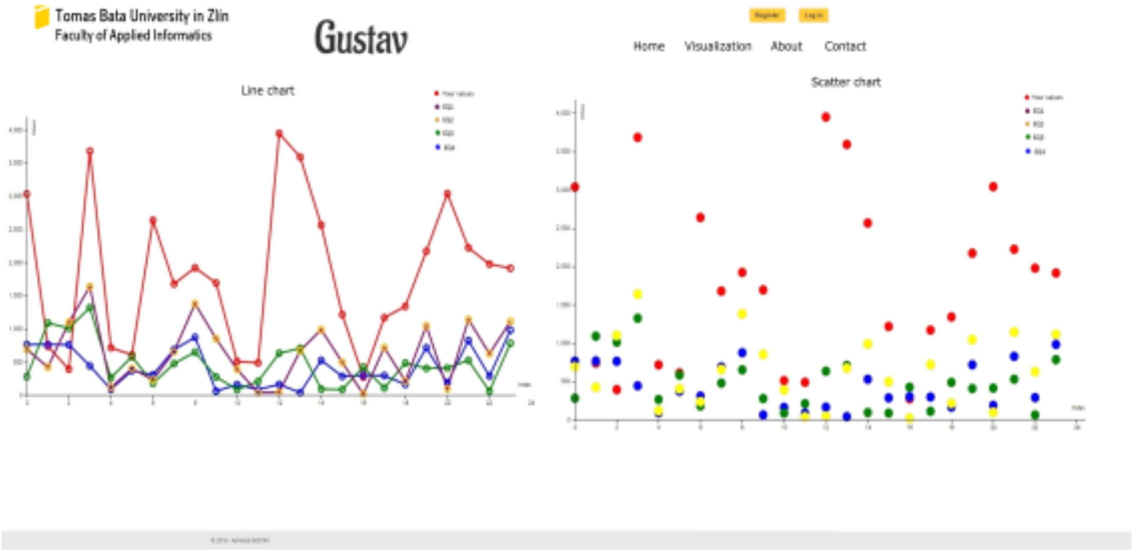
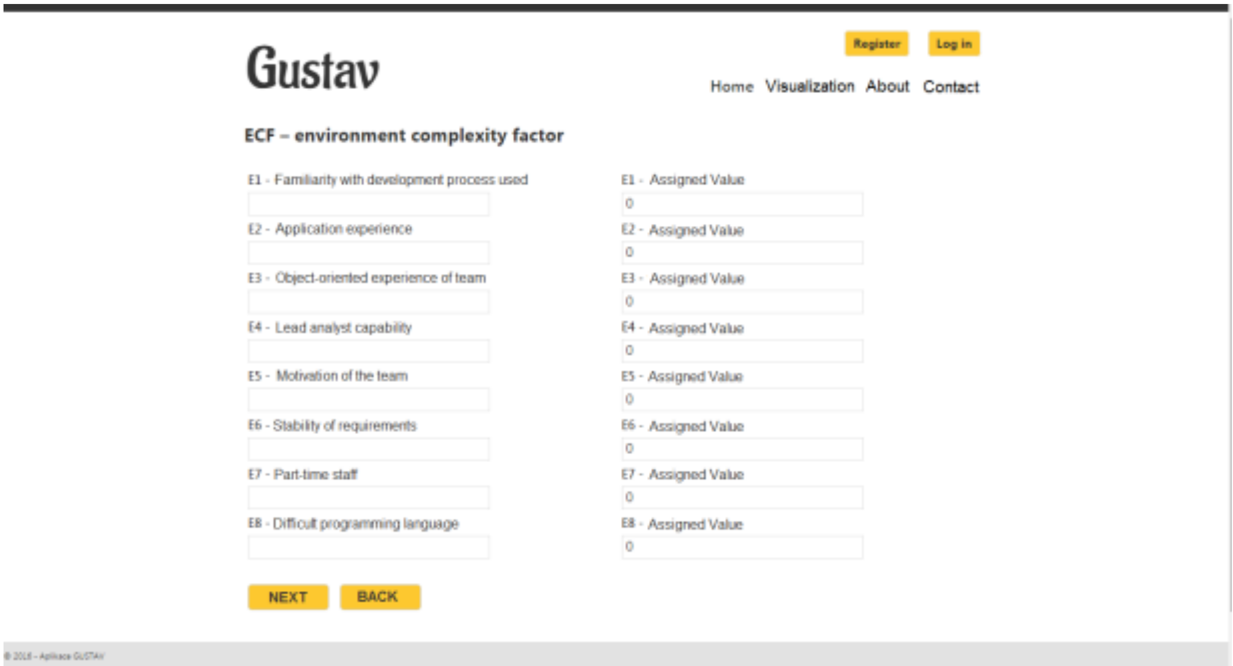


Figure 2 Graphical representation of data in application

Based on these data, the user can check the accuracy of the method used. In the case of large differences user may reconsider changing the valuation of time demands. This can improve economic performance of his company. Application also can be used in teaching of software engineering.

Description of application workflow:

First, the users have to register to application. The registration allows anytime access to previously uploaded data. There are two different methods for data upload. First one is manual filling of form which may take about 15 minutes. Form example is shown in the figure below.



ECF – environment complexity factor

E1 - Familiarity with development process used	E1 - Assigned Value
	0
E2 - Application experience	E2 - Assigned Value
	0
E3 - Object-oriented experience of team	E3 - Assigned Value
	0
E4 - Lead analyst capability	E4 - Assigned Value
	0
E5 - Motivation of the team	E5 - Assigned Value
	0
E6 - Stability of requirements	E6 - Assigned Value
	0
E7 - Part-time staff	E7 - Assigned Value
	0
E8 - Difficult programming language	E8 - Assigned Value
	0

Figure 3 Form example

Second method is uploading of XML file with required data. Users can simplify their work by inserting xml file with already prefilled values and start directly with the calculation and comparison. Example of file format is shown below.

```
<?xml version="1.0" encoding="UTF-8" ?>
<root>
   <row>
      <simple_actors>3</simple_actors>
      <average_actors>5</average_actors>
      <complex_actors>4</complex_actors>
   </row>
   <row>
      <simple_use_cases>5</simple_use_cases>
      <average_use_case>2</average_use_cases>
      <complex_use_cases>3</complex_use_cases>
   </row>
…
</root>
```

CONCLUSIONS

Result of this project can be use both in the research and the commercial sector, where may help refine time estimation. The main advantage of the project is the possibility that each software company will be able to generate their own formula with method Use Case Points, which will be optimized for the software company and its area of influence. There is no need to install any special software since it can be used in standard web browser. The project is also imported according to world economy. It is necessary to provide accurate software time estimation. These estimates may help to developers and their customer also. Created web application is used for the efficient collecting, storing, presenting and analysing of obtained data from the software companies. Collecting data are processed by method Use Case Points using artificial intelligence elements. It can also be used for analysing and understanding of the importance of individual parts of software development. These results can then be used for further research and teaching software engineering or similar objects.

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Heinrich Rombach's Structural Pedagogy And How Technology Can Help To Transform The School System In A School Structure

Michaela MÜNSTERER, M.A.
Charles University, Prague, Czech Republic
mm@lernenhochzwei.de

ABSTRACT

After German philosopher Heinrich Rombach had presented his spanning work "Substanz, System, Struktur" (1965/66, 22010) he subsequently developed his structural pedagogy in which he presented new ways of teaching which complies with the needs of the learner and facilitates genuine and veritable learning. Concerning the crisis in the German school system Rombach's ideas are helpful to find a new approach and might even be a working basis when thinking about a transition from a school system to a school structure. However, his structural pedagogy is quite conceptional and waiting to be applied in a practical context. Modern teaching and learning concepts like *Flipped Classroom* or file sharing like cloud based apps (*Dropbox*, *Evernote* etc.) in a digital classroom are a means of applying the theory of the structural pedagogy in modern educational institutions. Changes like that are very urgently called for to transform institutions for learning environments for human beings with all their diversity, talents and aptitudes who mustn't be pigeon-holed any longer to serve the institution.

Keywords:
Ontology, educational sciences, system, structure, school system, technology, apps, learning, institutional education, Germany, Heinrich Rombach

INTRODUCTION

A lot of discussions and attempts of reforms have been going on in the German school system since the disastrous scores of the first PISA study in 2000. Politicians and parents were shocked and alarmed by the outcome and low ranking of the German schools. Parents are calling for fundamental changes in the landscape of institutional education, politicians are trying to cope with those calls by introducing mini reforms which seem to lead nowhere and politicking, while the educating personnel in the schools are searching for new ways of teaching to handle all the challenges brought into their classroom. But no essential changes are in sight though it is obvious that the school system is dysfunctional both in its conduct and results. More and more private schools are popping up which claim to have better approaches, public schools are chronically underfunded. It is obvious that there has to be an ultimate change in the school system and the question might be why the decision makers adhere to the construct of the system when there is, as German philosopher Heinrich Rombach asserts, a better and working advancement, namely the structure. Out of his work "Substanz, System, Struktur" in which Rombach tells the course of the European intellectual history, he has developed the structural pedagogy which differs from most of today's classroom practices in many ways. The concept of the structure is worthwhile to elaborate on and think through because it might represent the turnaround that the institutional education is looking for. Thinking in structures is a considerable possibility to return to a vibrant learning environment in which the vividness and uniqueness of human beings exploring is allowed. In fact, Rombach has pointed out that thinking in terms of the structure is the only way of comprehending (post-)modern times.

SUBSTANCE, SYSTEM, STRUCTURE

A good example for thinking in categories of ***substance*** is wheat. The nature, i.e. the substance of the wheat is always there – be it in the ear in the fields, the flour or the bread. The entity of God is substance and present everywhere.
Thinking in ***systems*** started out in the early days of natural sciences, when people began to explore the world around them without the entity of God as the overall substance. The solar system would be a good example.
A structure is a system with one vital extra factor: movement. In a structure, there is no unchangeable law or a underlying principle like in a system. Neither is there a whole or an entity outside of the structure looking "at" or "down on" it or guiding it. Viewing, observing and beholding a structure means being a part of it. Through movement the function of the single elements in a system becomes obsolete and the structure focusses on relations. The elements in a structure originate only through their relation and thus become moments. A moment

can only be described in its relation to the other moments of the structure. There is no difference between the elements, no gap between the part and the whole. A structure means entity, but within the structure there is always change. The structure corrects itself constantly and this goes hand in hand with the concept that the structure is alive. This makes it impossible to view the structure from any other point as in between. There is no above or below, no front or behind. A structure is vivid, alive and quick. The structure always finds a way, it is flexible. In a structure there are always possibilities because there is constant adjustment. This is why the structure can always change according to its revisions and adjustments from within and it is changing constantly (Rombach, 2010).

THE STRUCTURE IN CONTRAST TO THE SYSTEM

A good example for grasping the difference between the structure and the system is Rombach's contrast between Wallenstein and the emperor Ferdinand II. in Schiller's same-named play.

Emperor Ferdinand II. stands for the system whereas Wallenstein is a personification of the structure. His character resembles possiblity. The emperor‘s thinking categories are that of a center and a hierarchy. He thinks in terms of idealism and nature of things. His arrays are the law, the war and obedience.

Wallenstein has a totally different approach to leadership. His way of thinking is that of balance, he himself is present within the army he is commanding. His approach is that of realism and the situation motivates his actions. His notions are determined by the categories of success, a balance which can be reached by peace. He does not claim obedience, but focuses on information of his men. (Rombach, 1988, p. 77-80)

STRUCTURAL PEDAGOGY

According to his work on the structure Rombach has come up with the concept of a structural pedagogy. Learning is profoundly human and so the step from developing the concept of structure to applying it to pedagogy and education is a very small one for the philosopher Rombach.

In a structural pedagogy some principles which have been applied for a very long time in institutional education have to be put aside. Rombach claims that first and foremost there mustn't be anything like an aim or *telos* for educational interventions because these aims are fixed from the outside. Education cannot happen for fulfilling a predefined plan, but for the human being. Planning is part of a system. Learning in a structure means that the learner himself defines his aim.

Education in the way Rombach sees it works without “Einwirkung” (impact). Impact is always result-oriented which makes it a category for the system. Without impact there is freedom for self-constitution of the student and acting in relations to and with others. Only thus there is a chance of walking our unique and invariant path of life. There will be special requirements for the teaching individuals, the educators – they have to be able to span and stretch the horizon for learning, showing the way instead of leading, they have to turn away from viewing themselves as a omniscient instance but rather as a counselor, coach and a coequal part of the learning group.

Other categories to let go of are those of grading and the idea of development. Human sciences cannot be countable or measurable (just like squeezing education into a plan). By grading, the students are given the impression that they are not good enough or only good enough if they reach certain marks. The idea of immaturity is always present in the school system and legitimizes the efforts of the institutional education to “develop” the student: Only by fulfilling a certain plan which is given to her from the outside the student can become a “complete” human being (Rombach, 1966).

One central point of how to facilitate learning in a structure is that of the group experience. In a group the peers let the others “be as they are”. In the perception of the peers no one is unfinished, immature or deficient. The role of the educator (not teacher) is to span a horizon in front of which the group and the learning experiences can unfold. Institutionalized learning is mostly isolated learning. To make learning in a structure possible, that isolation of the learner needs to be replaced that by learning in groups and social structures, spanning widely across knowledge levels and the age of the children. There has to be movement, outward and within the learner, creating wow effects (Schmaus 2012).

Using the right and already existing technology could make all these requirements for structural learning possible.

TECHNOLOGY AS AN ELEMENT OF A SCHOOL STRUCTURE

Technology can enable differentiation, integration and flexibility because it is very easy to provide the right material to any skill level. Contents can be presented and research can be done with the highest possible

flexibility the students learn how to think critically on the fly.
Thinking in a structure in Rombach's sense is always correction and adjustment. With the help of technology, the student has access to information that facilitates change in an instant.

Examples for straightforward use of technology without skyrocketing costs would be the implementation of smartphones and tablets. In the app stores there are numerous apps which enable students to work in groups:

1. Cloud based work spaces like DropBox, Google Drive or OneDrive:
Working in projects and using the cloud is an easy way of making information available for anyone anywhere. There could be something like a „class cloud" which can be accessed by anyone in the class or the work group. Teachers can upload additional information, texts and other media, quizzes for self-evaluation, extra exercises etc. The cloud can be used for projects by different groups which use different folders or areas but also have access to the information stored by other work groups. Google has introduced "Google Classroom", a virtual learning environment. One might say that companies and enterprises have to stay out of the public educational system (or even the private), but companies and enterprises are the institutions who have the money to react quickly to provide the required resources. The administration apparatus is much too slow and does not make enough money available.

2. Evernote
Evernote is an app for personal note taking and note storage, but can also be used in cooperation with a work group. It can easily be used for classroom management issues and making resources available for everyone in a learning process. Because it is cloud based the access for assigned members of work groups is easy and cooperation in learning projects is really simple. Anyone anywhere can store ideas and resources and share them with the members of the group. Evernote is a web-based app which synchs with a smartphone and tablet app as well an installation on a local computer. A learning environment like the *Flipped Classroom* can utilize all the possibilities that Evernote offers:

- setting up different "notebooks" for different topics, subjects, workgroups etc. and enable/disable access for different groups or individuals
- taking and storing personal notes (text, pictures/photos/videos, links etc.) , clipping information from the internet as text, links, screenshots etc. and storing it
- full text search and filter functions
- sharing notes with an assigned work group or the whole class

The *Flipped Classroom* is a method which turns the learning process around. The conventional way is teaching first by giving the information in the classroom and the student has to do exercises at home. "Flipping the classroom" means giving the necessary information at home for the students to work through and then discussing it, elaborating and working on it and doing exercises in the classroom. The information the teacher/moderator gives the workgroup/class can be uploaded to Evernote and shared with the class for easy access at home. Different fields to work on can be assigned to each student individually or for work groups and the assignments can be shared with only the moderator or the whole class. In class, on site so to speak, the work can be presented and elaborated on.

3. Electronic school books
In Germany, the discussion of using e-books or not is mostly limited to books of fiction. School books are not included in this discourse. Besides the advantages of less weight and the huge storage of an e-book reader there are many more features which make an e-book the ideal format for a school book.
Children are carrying their school books on their back from their home to school and back every day. There are heavy books for almost each subject and considering a whole school day a child of 10 years has to carry about five books plus copybooks and work books, other paper, pens etc. to school and back home for the homework. A tablet which stores the schoolbooks would literally take a load off the children.

If children carried their school books on a tablet, they could "come alive" very easily. Implementing multi-media in an e-book is very easy and makes information vivid. Examples for avoiding text heavy books are:

- video,
- audio,
- links to the internet for more information (e.g. for projects or presentations),

- up-to-date and relevant pictures and graphs[1].
- interaction: After each chapter, a short (or longer) quiz is attached for the student to work on, the results can be sent directly to the teacher who can see which students still needs support.

Last but not least e-books can save a lot of money, space for storage and paper.

4. Gamification

Turning unpleasant tasks and chores into a game or a competition is not a very new idea. On the internet there websites where you can become part of a team who does housework and with each finished chore the teams collect points. Fitness wrist bands or watches transfer data about taken steps or sporting activities to a platform where the user can compete against other users, e.g. who has walked farthest on a weekend or during the week.

Classcraft (http://www.classcraft.com) is a very successful way of bringing the concept of gamification into the classroom. It is an “educational role-playing game” for the classroom with “real risks and rewards”. Cooperative learning is encouraged because helping each other with homework leads to rewards and the promotion of the characters and the team.

CONCLUSIONS

Heinrich Rombach’s structural pedagogy is very relevant to the current situation of institutional education. From a structural point of view it is possible to re-think education in public (and private) schools and to transform it to meet the needs of a post-modern society. Rombach has pointed out that a structural approach is the only way of thinking and reforming these days. We all have the feeling that “something is wrong”. Applying the structure as a framework for renewal – not only in the field of philosophy and education - is a possibility worth considering.

Deriving from this different approach are new ideas and stimuli for applying different ways of learning. By means of today’s technology and the access to the internet new horizons are opening up for bringing information, knowledge and learning to students of every age. With very small efforts and very little expenses it is possible to dust off old ways of learning which still date from the era of industrialization. Easy-to-use applications can turn the learning process into a gripping and absorbing experience for every student and thus help to overcome educational injustice. Using technology in the classroom is but only one small component of structural pedagogy.

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[1] The video game heroine Lara Croft (Tomb Raider) was very popular in the 1990s, but if you show the character to students now, nobody knows her anymore. But she is still shown in a German text book for ESL as well as a boy group which used to be in the charts by the time the English text book was printed (around 1990). In an atlas used for geography lessons in German schools you can still find the expression *Mulatte* (mulatto), which is discriminating and perjorative.

High School Students' Views About Process Oriented Guided Inquiry Learning (Pogil)

Şenol ŞEN
Department of Secondary Science and Mathematics Education, Faculty of Education
Hacettepe University, Turkey
schenolschen@hacettepe.edu.tr

Ayhan YILMAZ
Department of Secondary Science and Mathematics Education, Faculty of Education
Hacettepe University, Turkey
ayhany@hacettepe.edu.tr

Ömer GEBAN
Department of Secondary Science and Mathematics Education, Faculty of Education
Middle East Technical University, Turkey
geban@metu.edu.tr

ABSTRACT

The aim of this study was focused on identifying high school students' views regarding Process Oriented Guided Inquiry Learning (POGIL). In this study, a case study design was employed as the research method and the sample of this study was comprised of 11th-grade students in a chemistry class. The study was conducted during 2014-2015 spring semester. Purposeful sampling was used to identify the students. At the end of the implementation with POGIL, semi-structured interviews were conducted with 7 students to explore their views about POGIL. All of the interviews were audiotape recorded and transcribed. Summarizing content analysis was conducted to analyse the data. The results showed that all students improved positive attitudes towards POGIL. Also, after the data analysis, students' views about POGIL were grouped into four main categories. The categories were as in the following: POGIL and learning process, the views about effects of POGIL, the views about POGIL structure and the negative views about POGIL implementation.

Key words: POGIL, high school students, content analysis, case study.

INTRODUCTION

Process-oriented Guided Inquiry Learning (POGIL) is a student-centred teaching philosophy, and it supports students' active participation in their own learning process. In POGIL, students learn in cooperative learning groups through specially prepared activities which follow the paradigm of learning cycles approach. In this method, where peer learning is at the forefront, students respond cooperatively to questions available in a peer-led guided inquiry learning environment. The questions are organised in a way that enables students to configure the concepts, in a relatively easy way, and in a manner that takes students' prior knowledge (their misconceptions, misunderstandings and lacking mental structures) into consideration. The questions asked later become relatively difficult, and are prepared in a manner that enables students to acquire basic process skills (Moog, Creegan, Hanson, Spencer, & Straumanis, 2006).

Both students' cognitive properties and their process skills affecting the process of learning are extremely important in POGIL. Process skills such as analytical thinking and team work play important roles in learning in POGIL. It is related with process education-which is a philosophy of education focusing on increasing the skills necessary for achievement at school and in life, and focusing on lifelong learning and on its continuation by increasing (Hanson & Wolfskill, 1998; Shatila, 2007). Beside specially prepared activities, group work supporting cooperative learning is also available in POGIL. In addition to learning a topic, students also need to participate actively in basic processes such as working efficiently in groups (Simonson & Shadle, 2013).

POGIL emerged on the basis of the benefits of inquiry and cooperative learning which ensure that students participate in and configure their own learning (Bransford et al., 2000; Farrell, Moog, & Spencer, 1999; Moog, Lewis, & Bunce, 2006, as cited in Simonson & Shadle, 2013). It is pointed out in the literature that teaching in inquiry and cooperative learning strategies contributes more to the development of students' achievement and problem solving skills than traditional teaching does (Cooper, Cox, Nammouz, Case, & Stevens, 2008; Johnson, Johnson, & Smith, 1998; Lou, Abrami, & Spencer, 2000; Schroeder, Scott, Tolson, Huang, & Lee, 2007). Studies conducted found that the students in experimental groups using POGIL activities were more successful than the ones in control groups. Therefore, POGIL, which offers the advantages of both cooperative learning and inquiry leaning together, is proffered in this study. After POGIL was successfully used in university undergraduate Chemistry courses (Farrell, Moog, & Spencer, 1999), it was used in other undergraduate courses. It was employed for instance in such courses as organic chemistry (Schroeder & Greenbowe, 2008), physical chemistry (Spencer & Moog, 2008), biochemistry (Minderhout & Loertscher, 2007), medical chemistry (S. Brown, 2010), anatomy and physiology (P. Brown 2010). It is also used in secondary education Chemistry course to eliminate misconceptions (Barthlow, 2011; Şen, 2015; Şen, Yılmaz, & Geban, 2015).

This study also uses POGIL to eliminate the misconceptions students have in relation to electrochemistry. While the course was taught through POGIL in the experimental group, it was taught in traditional teaching method in the control group. Determining the views held by students exposed to POGIL learning environments would offer important clues on the use of the method in high schools. In this way, both teachers and educators will benefit from the clues while using the method, and they will be able to create classroom environments accordingly. Setting out from this idea, the study seeks answers to the following question:

1. How do the students in the experimental group perceive POGIL?

METHOD

This study uses the design of a case study. A case study analyses a setting, a topic and an event in details. It is used so as to describe the details of an event and to evaluate the event (Yin, 2003).

Study Group

According to Merriam (2009), a researcher is aware of the problem in qualitative research, and accordingly chooses a purposeful sample necessary for data collection. Therefore, 7 students (3 girls and 4 boys) were assigned to the experimental group to conduct a semi-structured interview. The students were chosen in the purposeful sampling method. Patton (1987) suggests that purposeful sampling is a method of sampling enabling researchers to analyse and research the situations which are thought to get more information about (as cited in Yıldırım & Şimşek, 2011). The above mentioned 7 students were determined through intensity sampling– which is one of purposeful sampling methods (Patton, 1990). The views held by other students in the experimental group were obtained through POGIL feedback form.

Data Collection Tools

1. Semi-structured Interviews

Semi-structured interviews aim to exhibit the effects and sides of the application done through POGIL activities which are pleased and displeased by the students in the experimental group. On examining the post-test scores at the end of the application, it was found that there were seven students having relatively plenty, little and mild misconceptions. Each interview lasted for about 10 minutes, and the interviews were recorded by students' consent. Prior to the interviews the students were informed of them and the purpose of the interviews were explained to the students.

2. POGIL Feedback Form

The POGIL feedback form was prepared by the researchers in order to reveal the other experimental group students' thoughts of POGIL at the end of the application. Expert opinion was received for the form prepared, and thus the required arrangements were made on the form.

Data Analysis

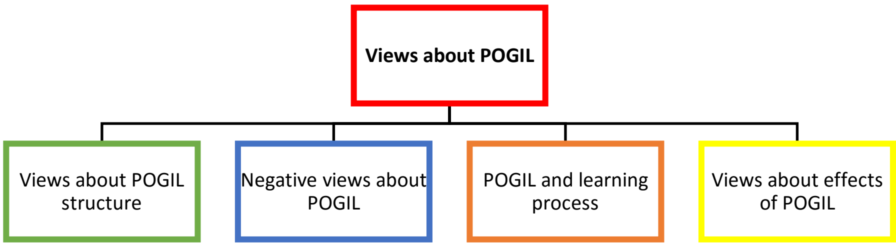
Summary content analysis, one of the three types of content analysis methods described by Mayring (2002), was used in this study. Summary content analysis is performed by means of abstraction so as to display a comprehensive perspective of the data set. In this way, a general picture of the data set is obtained in consequence of the analysis. Inductive categories are formed in summary content analysis. The categories are derived from the data set.

Categories were formed in consequence of encoding the data obtained from the feedback form and from the interviews. Assistance was received from an external auditor in encoding the data. The results obtained through exchange of views with the auditor were analysed step by step together. After the individual codings made by the auditor, comparisons were made, and it was found the fit levels were very close. For the different codings made individually, the researchers and the auditor returned to the data, and agreement was reached in terms of encoding by working together, and thus the process of data encoding was completed. Having completed the encoding process, the results concerning the data were shown to the participants, and member checking was obtained for verification.

FINDINGS

On examining the replies students gave to the feedback form and the interviews, 4 categories were divided. The categories were: the views about POGIL structure, the negative views about POGIL implementation, POGIL and learning process, and the views about the effects of POGIL. The categories are shown in Table 1.

Table 1: Students' Views of POGIL



In the category of views about the structure of POGIL, the students said that they covered their as well as friends' deficiencies by working in groups, that learning in groups was more enjoyable, and that they learnt and socialised in consequence of group discussions. Besides, they also stated that the critical thinking questions increased their curiosity and led them to research and inquire instead of being directly offered the information, that their learning became permanent, and that they no longer memorised the redundant information due to the critical thinking questions. They also added that the use of smart boards made classes no longer monotonous and that offering the information through questions instead of directly instructing was more beneficial for them. Some of the students' views in this category are as in the following:

> *Student:" We have learnt to work in groups, to respect our friends' opinions and to listen to each other."*
>
> *Student: "Thanks to critical thinking questions, a subject becomes permanent in mind."*
>
> *Student: "The POGIL activities, we did on smart boards were enjoyable, and the classes were no longer boring or monotonous. In this way, POGIL contributed to our learning."*

Another category distinguished in consequence of the analyses was about students' negative views of POGIL. In this category, the students pointed out that they got used to the present system (traditional method), and therefore they could not get used to the new system. They said the they were not accustomed to group work, and that they learnt better by working individually. They also said that they were disturbed because of the noise arising in consequence of discussions while doing group work. The analyses performed indicated that some of the students were anxious about the potential use of POGIL in classes. Some of the views stated in this category are as in the following:

> *Student: "The method was occasionally effective because group work is not effective for me. I do better when I work individually, on my own."*

> *Student: "..because we have got used to memorising, I do not understand anything in this system."*
>
> *Student: "POGIL was something we had faced for the first time. For this reason, at the beginning I didn't think I could understand in this system."*

Another category distinguished was the category of POGIL and learning process. In this category the students stated that they learnt step by step, they learnt in classes, they exchanged views while doing group work, they worked to give joint answers, and that they had fun while learning. Some of the views stated in this category are as in the following:

> *Student: "…with this system, it was assured that individuals earnt by themselves by understanding the rationale instead of using rote learning."*
>
> *Student: "The most beautiful side of learning in groups is that everybody states a different opinion. In this way, I am learning the things that I did not see before."*
>
> *Student: "Learning through this method is fun and we also explain to each other what we cannot do on our own. Our teacher cane and showed interest to us, one by one."*
>
> *Student: "This method both made lessons less boring and assured learning together."*

In the category of views about the effects of POGIL, students said that POGIL had effects on effective learning, on learning the different strategies and techniques of learning, on permanence of learning, on increasing the interest in chemistry, on students' active participation in classes, on students' making efforts to learn, and on peer cooperation and inquiry. Some of the views stated in this category are as in the following:

> *Student: "We have learnt the subject with our own efforts. We make made inferences from the questions. In this way, we learnt differently from the one in classical system of education."*
>
> *Student: "POGIL increased our interest in and attitudes towards Chemistry course."*
>
> *Student: "Since classes were not boring, POGIL activities, other activities and the questions increased the permanence of the subjects in mind."*

CONCLUSIONS AND DISCUSSION

This study using an experimental design with experimental and control groups in it made an attempt at identifying the experimental group students' views on POGIL. For this purpose, the students were interviewed and they were asked open-ended questions about POGIL learning environments in feedback form. The data obtained were then put to the medium of computers and put to summary content analysis. In consequence, the students' views were grouped into 4 categories. The categories were the views about POGIL structure, the negative views about POGIL implementation, POGIL and learning process, and the views about the effects of POGIL respectively.

Following the analysis of the open-ended questions in the POGIL learning environments feedback form and of the data obtained through semi-structured interviews, it was found that the majority of the students held positive views of the POGIL despite some negative views. A review of the studies available in the literature demonstrates that students hold positive views about POGIL (Conway, 2014; Eberlein et al., 2008; Farrell, Moog, & Spencer, 1999; Hinde & Kovac, 2001; Lewis & Lewis, 2005; P.Brown, 2010; Schroeder & Greenbowe, 2008; Soltis et al., 2015). This current study, on the other hand, divides the views about POGIL into four categories. One of the categories is the category of negative views about POGIL. The category mostly contains students' worries that the method used would not be adequate in preparing for national examinations and their insistence on (or rather demand for) working individually. The other categories distinguished were the views about POGIL structure, POGIL and learning process, and the effects of POGIL. Farrell, Moog and Spencer (1999) found that students had positive attitudes towards POGIL. Accordingly, the students stated that cooperative learning increased their achievement and that POGIL was a better method than traditional method of teaching. They said that it was a useful method for the teaching of chemistry. Eberlein et al (2008) report that both educators and students liked POGIL learning environments more. Schroeder and Greenhowe (2008) point out that POGIL increases students' self-confidence. Students say that they find lessons taught through POGIL easier and that it helps them to have positive attitudes towards the course. Researchers also emphasise that there has been a positive change in students' perception that Organic Chemistry is a difficult course. P. Brown (2010) reports that almost all of the students say that POGIL is an effective and useful method. Conway (2014) points out that students say they have positive attitudes towards Chemistry course, and that they attribute it to POGIL.

RECOMMENDATIONS

The fact that students' worries could not be prevented and that they were not ready for inquiry learning and cooperative learning caused problems in performing this study. POGIL activities should be used beginning with primary schools so as to remove such problems, and should be assured that students are ready for this method. In this way, students will understand better and basic process skills will develop at early ages. With the use of POGIL at the first stages of teaching, POGIL will be used more effectively. With the effective use of POGIL it will be assured that students have fewer misconceptions.

NOTES

The present study is a part of PhD Thesis entitled "Investigation of Students' Conceptual Understanding of Electrochemistry and Self-Regulated Learning Skills in Process Oriented Guided Inquiry Learning Environment" (Şen, 2015) completed within Hacettepe University Graduate School of Educational Sciences. This study was supported by Research Fund of Hacettepe University. Project Number: SDK-2015-5443.

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How Adults Have Spatial-Temporal Flexibility Experiences Through Learning Technologies

Nurcan TORENLI
Distance Education Center
Ankara University, Turkey
nurcantorenli@gmail.com

Murat CINAR
Distance Education Center
Ankara University, Turkey
mcinar@ankara.edu.tr

ABSTRACT

Spatial and temporal involvement of individual into the process of socialization through the mediation of technology is explored in the framework of e-learning in this study. e-Learning is highlighted by its advantage in terms of spatial and temporal flexibility for accessing and participating learning activities. The problematic of the study, focusing on students as individuals, is to determine the interpretation of "spatial-temporal flexibility", emphasized in social theories that explain social relations and their transformation in the framework of technology with concepts such as interaction, asynchronization, de-massification, convergence, networking etc…

INTRODUCTION

The common characteristic of new forms of socialization, which became increasingly visible both in daily and occupational dimensions of social relations, is their concretization through information and communication technologies. In other words, our spatial and temporal involvement into existing social relations as individuals in both dimensions is ever more meditated by technology (Aggleton & Whitty, 1985, p. 60).

In this study, spatial and temporal involvement of individual into the process of socialization through the mediation of technology is explored in the framework of e-learning. e-Learning is highlighted by its advantage in terms of spatial and temporal flexibility for accessing and participating learning activities. The problematic of the study, focusing on students as individuals, is to determine the interpretation of "spatial-temporal flexibility", emphasized in social theories that explain social relations and their transformation in the framework of technology with concepts such as interaction, asynchronization, de-massification, convergence, networking etc…

In order to demonstrate their spatial-temporal interpretation, information gathered from a sample that consists of two categories of students enrolled in the vocational schools and undergraduate programs of Ankara University will be used. The first group contains those who have chosen e-learning program according to their grades obtained in national qualification exam. The other group comprises student who have chosen regular program but are obliged to get to have some courses via e-learning model (blended learning program).

METHODOLOGY

Online questionnaire was used in this study (www.online-anket.gen.tr). There were two groups of query expressions in the survey and each group had eight query expressions. The first six query expressions were same and those based on the program either e-learning program or blended program and the last two query expressions were different (as differentiated query expressions) for two categories of students. Students with the age of between 18 and 35 were asked to respond using a 5-point Likert scale in all query expressions. Concerning agreement of benefits, '5' on the scale was 'strongly agree' and '1' was 'strongly disagree'.

The survey was administered at the beginning of fall 2014 semester. Based on the sample of the study, 4000 e-learning program students and 1660 blended learning students received information about the study. They also received email with the link of the questionnaire.

The questionnaire was open for three weeks. 109 e-learning program students out of 733 who opened their emails and 123 blended learning program students out of 629 who opened their emails responded the questionnaire.

FINDINGS

Query expression 1: *I do get more detailed answers when I ask a question to the instructor in the forum*.

Figure 1 shows no significant difference between synchronous and asynchronous activity in the blended learning group: [1+2]=% 45; [4+5]=% 39.

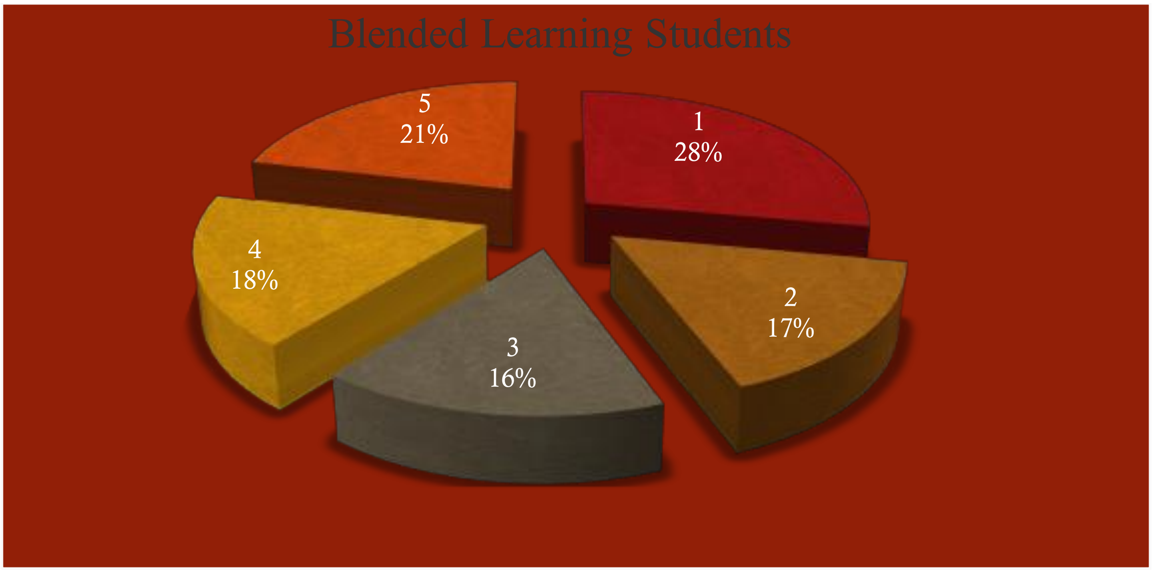

Figure 1

Figure 2 shows positively significant difference between synchronous and asynchronous activity in the e-learning group: [1+2]=% 18; [4+5]=% 56.

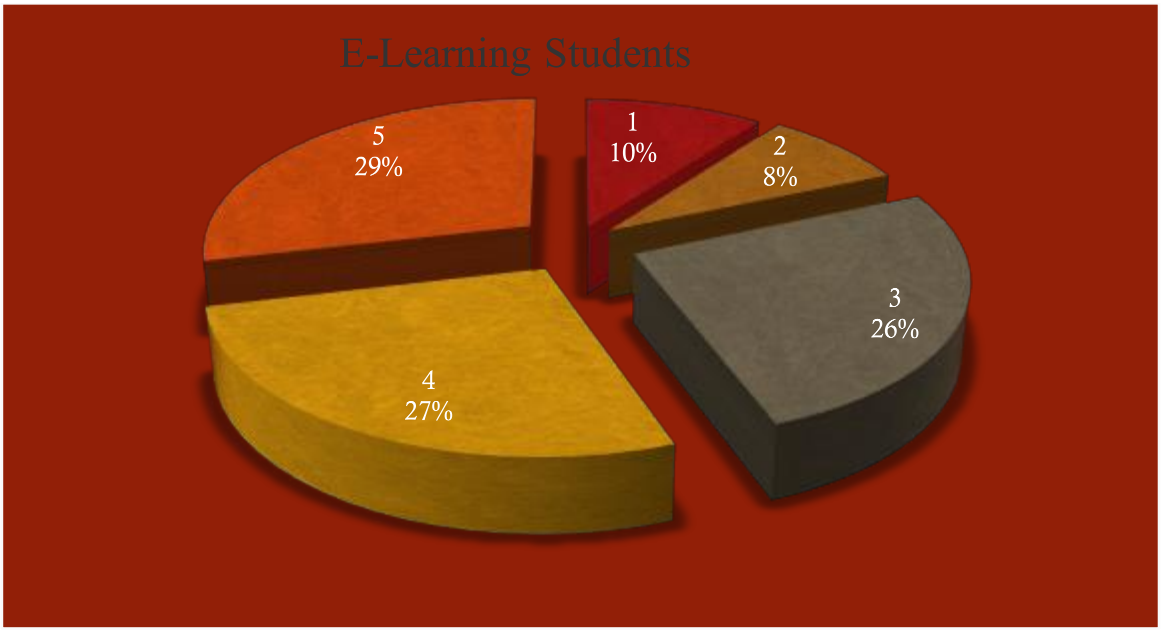

Figure 2

Query expression 2: *When we have a class in the virtual classroom, I feel like I am one-to-one interaction with my instructor.*

Figure 3 shows negatively significant difference in terms of "real" interaction between virtual class and real classroom in the blended learning group: [1+2]=% 58; [4+5]=% 27.

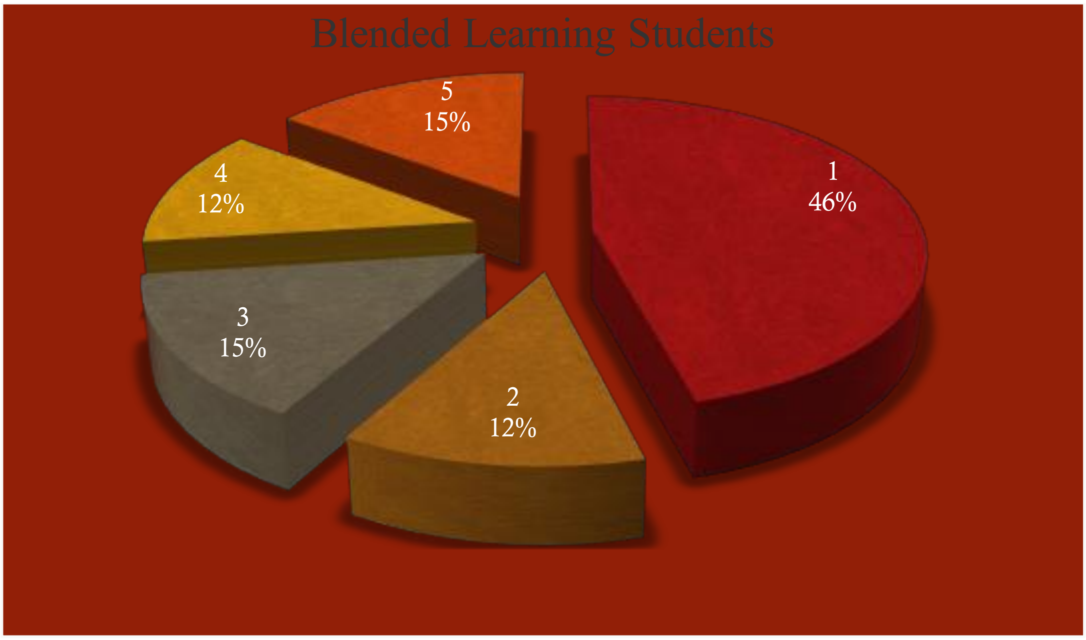

Figure 3

Figure 4 shows positively no significant difference in terms of "real" interaction between virtual class and real classroom in the e-learning group: [1+2]=% 24; [4+5]=% 58.

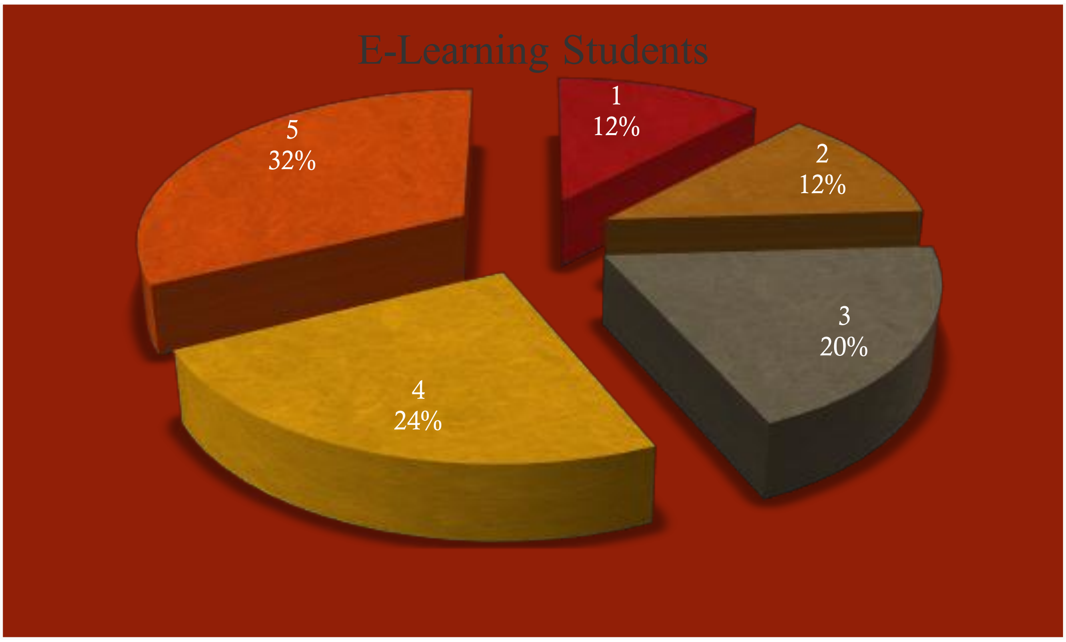

Figure 4

Query expression 3: *Since I do not choose class time by myself I do not prefer virtual class.*

Figure 5 shows no significant difference on understanding to have or have not time flexibility in the blended learning group: [1+2]=% 41; [4+5]=% 43.

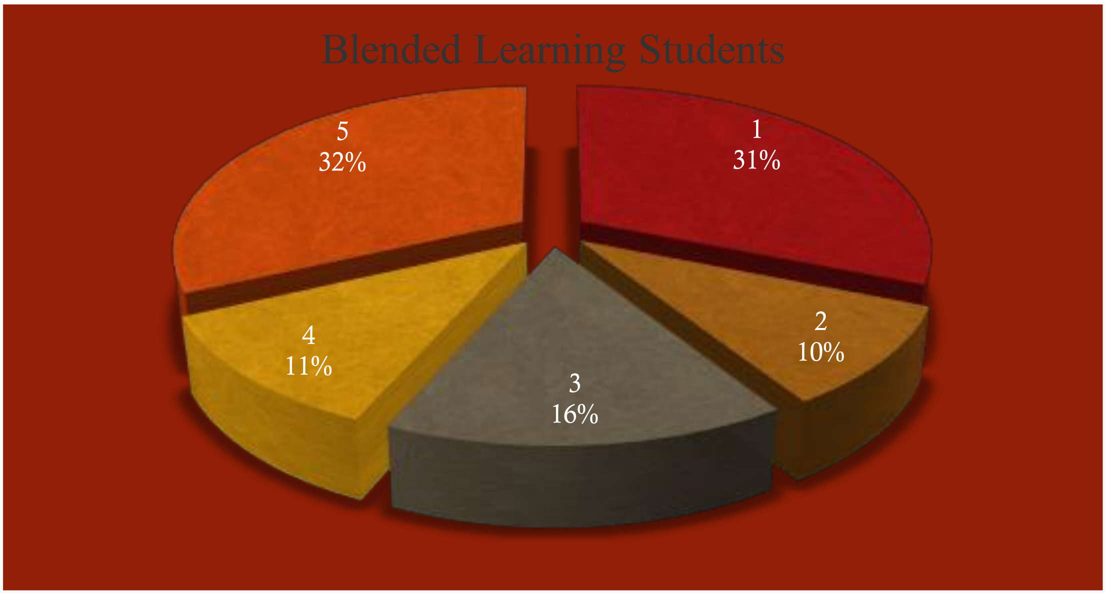

Figure 5

Figure 6 shows no significant difference on understanding to have or have not time flexibility in the e-learning students: [1+2]=% 36; [4+5]=% 37.

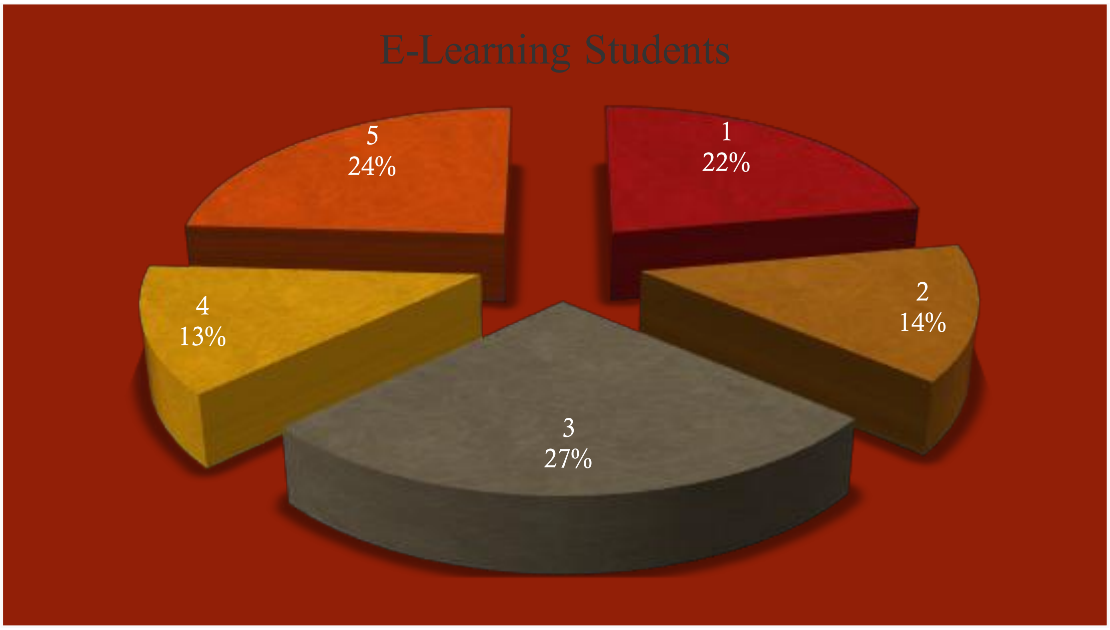

Figure 6

In this group, the high score on [3]=%27 shows there is no understanding by students to be able to choose class time by themselves.

Query expression 4: *Virtual classroom application gives me the opportunity to have other activities in the Internet environment at the same time.*

Figure 7 shows no significant polarization on understanding the difference between being virtual/physical and having virtual/physical activities in the same environment for the e-learning students: [1+2]=% 40; [4+5]=% 41.

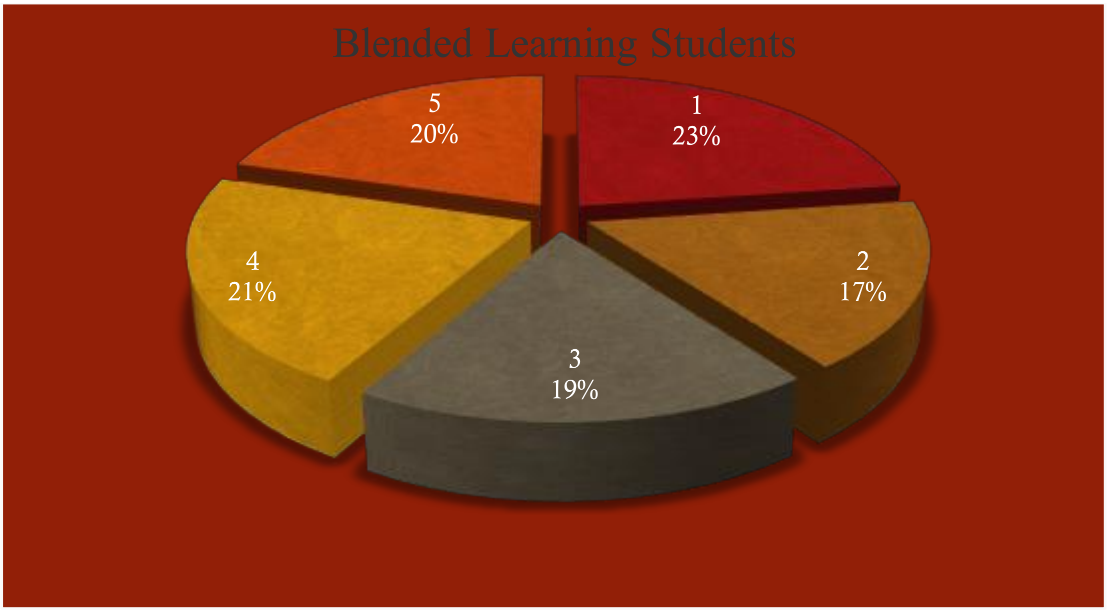

Figure 7

Figure 8 shows a significant polarization on understanding the difference between being virtual/physical and having virtual/physical activities in the same environment for the e-learning students: [1+2]=% 27; [4+5]=% 49.

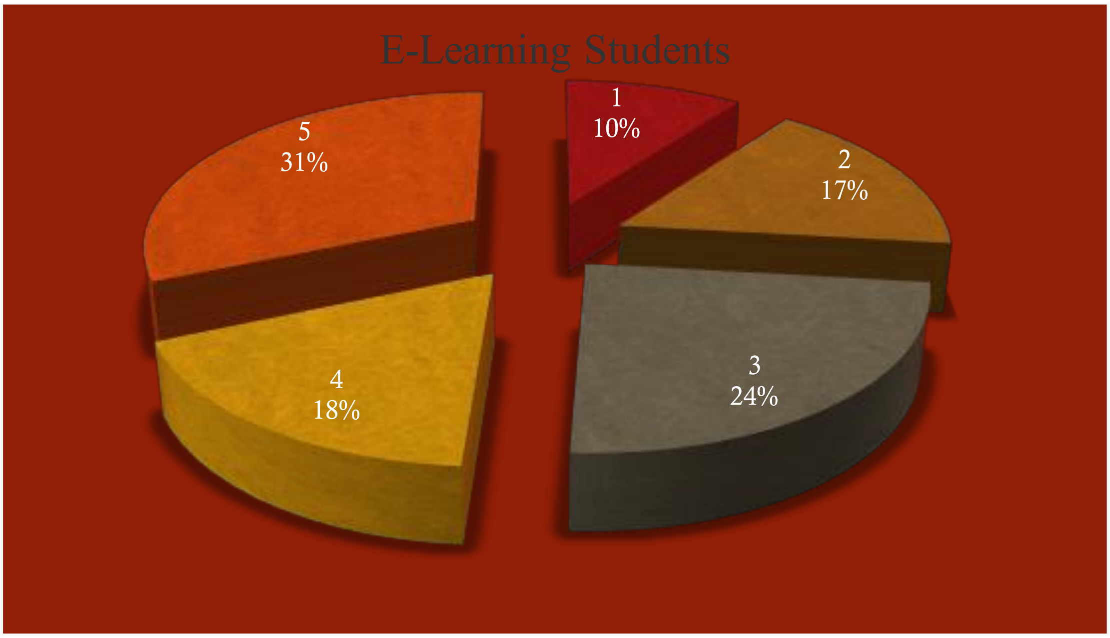

Figure 8

Query expression 5: *I had the opportunity to join the learning activities without leaving where I live with the e-learning model.*

Figure 9 shows that there is no significant understanding on the difference between virtual and physical environment in terms of place flexibility for the group of blended learning: [1+2]=% 45; [4+5]=% 44. The fact on understanding is not just the technology itself, it is also to have it or to be able to being accessible to it.

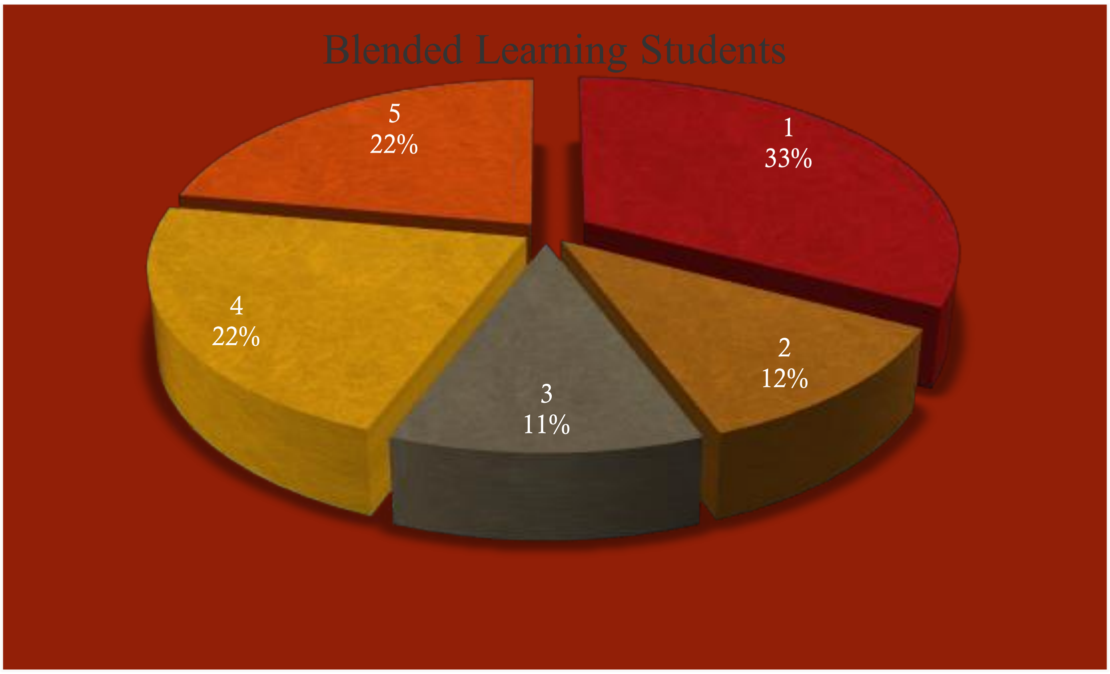

Figure 9

Figure 10 shows that there is significant understanding on the difference between virtual and physical environment in terms of place flexibility for the group of e-learning students: [1+2]=% 12; [4+5]=% 74.

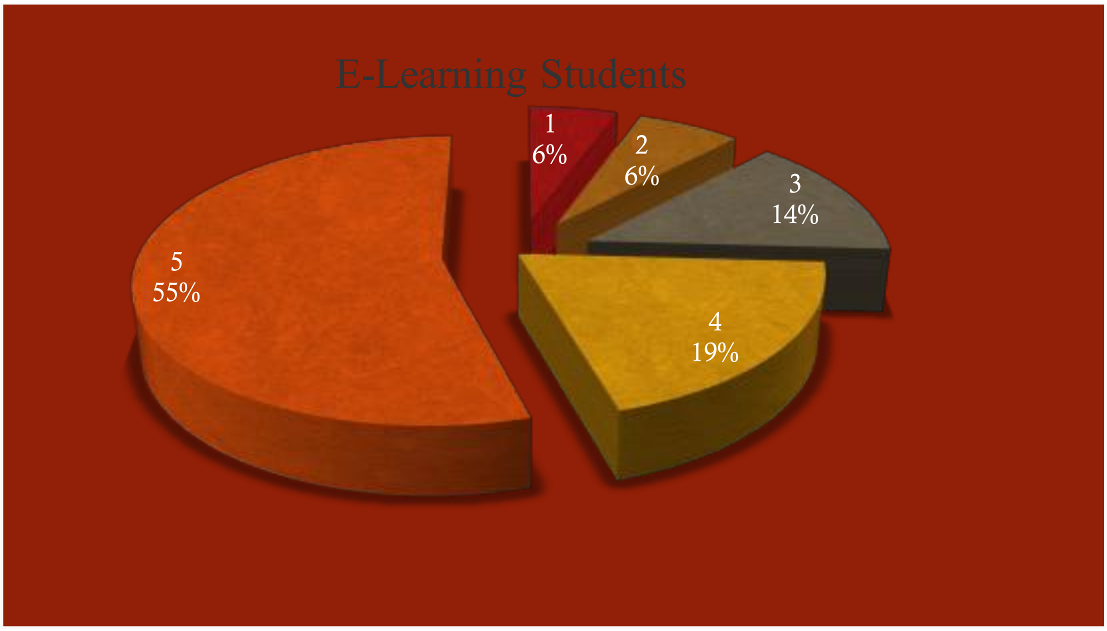

Figure 10

Query expression 6: E-learning module should continue only with forums and electronic materials instead of virtual classroom.

When we look at the **Figure 11**, we do not see the understanding of the close relationship between time-place flexibility and synchronous interaction from the view of blended learning group. [1+2]=% 40; [4+5]=% 41. This group has a high time flexibility. Having a work is not a priority according to the group of blended learning students.

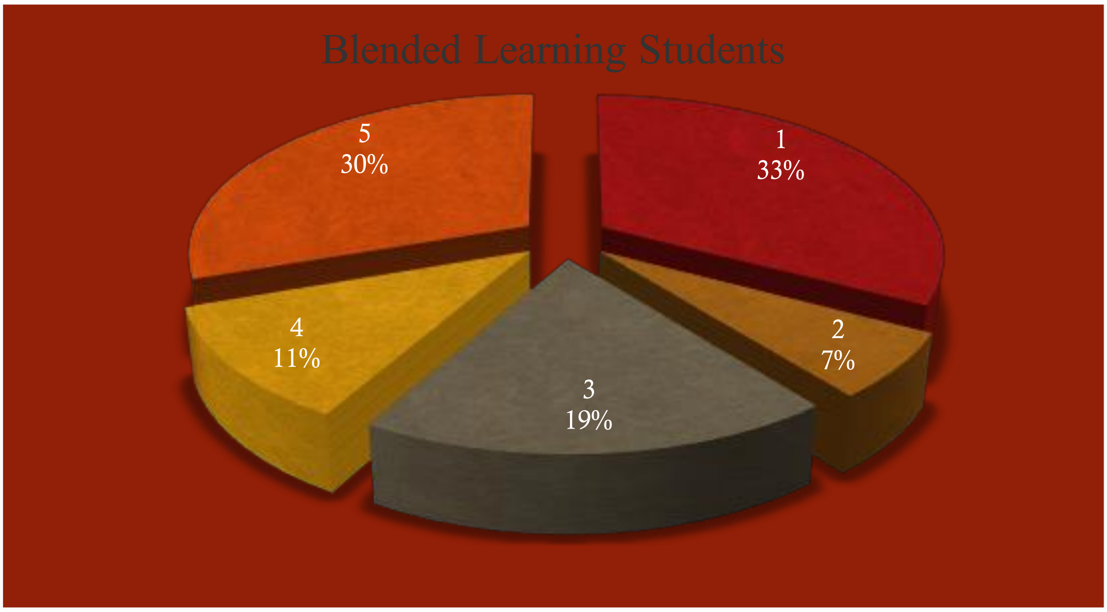

Figure 11

When we look at the **Figure 12**, we see the understanding of the close relationship between time-place flexibility and synchronous interaction from the view of e-learning group. [1+2]=% 61; [4+5]=% 27.

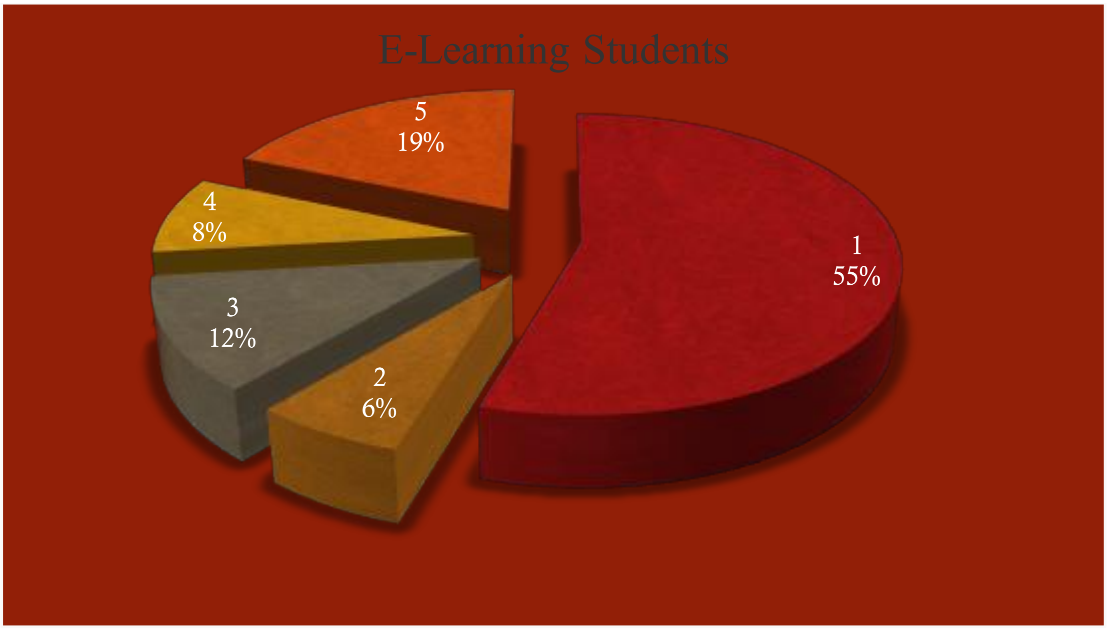

Figure 12

Differentiated query expressions (7 and 8) for two groups:

At this point we have two different questionnaires for these two groups of students. For the group of blended learning students the expression is "*if it were possible I would take all my classes with e-learning model*". For this group, it is obvious that time-place flexibility is not prior (see **Figure 13**): [1+2]=% 74; [4+5]=% 19.

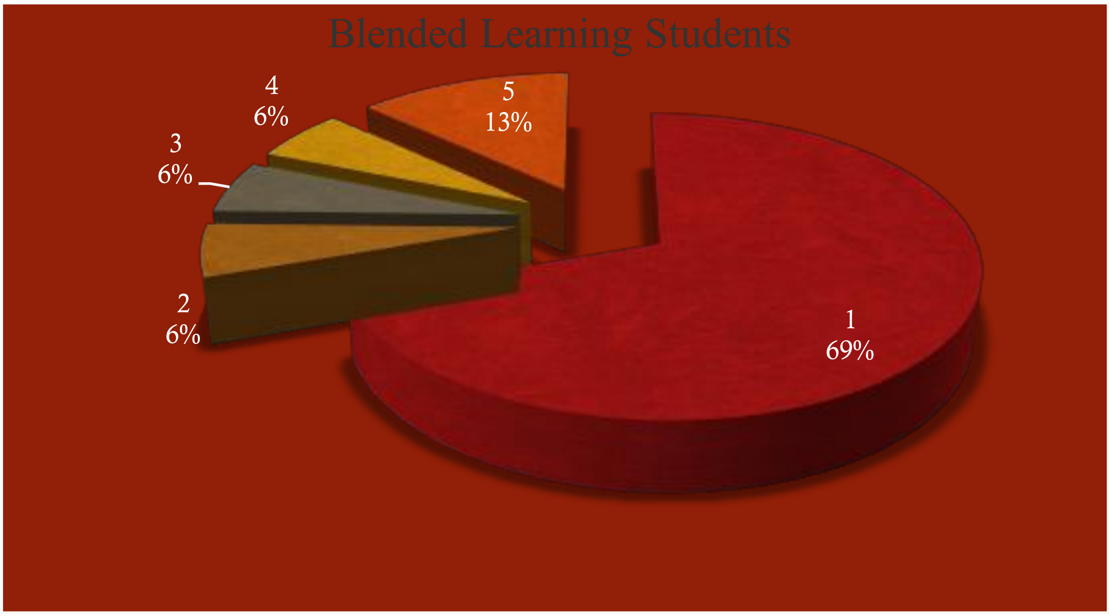

Figure 13: *If it were possible I would take all my classes with e-learning model.*

For the group of e-learning students the expression is "I prefer e-learning model since I had to work". For this group, it is obvious that time-place flexibility is prior (see **Figure 14**): [1+2]=% 68; [4+5]=% 24.

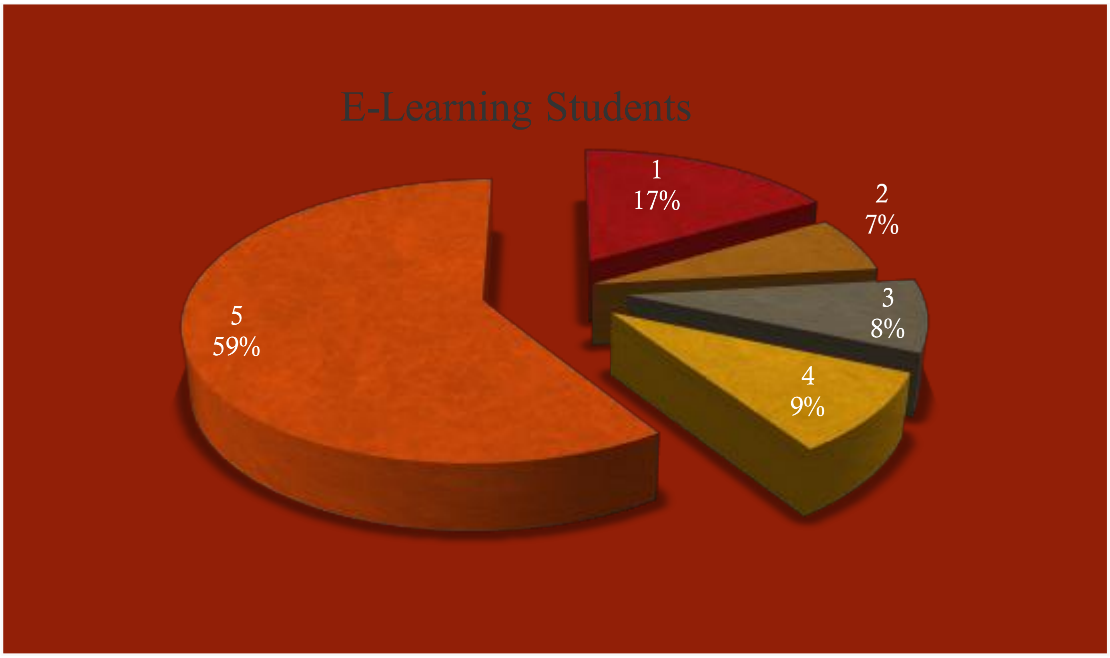

Figure 14: *I prefer e-learning model since I had to work.*

In the last questionnaire, the expression for the group of blended learning students is "when I take common classes with e-learning module I can use my time efficiently". It is seen that there is an understanding the close relationship between time flexibility and controlling the time from the view of blended learning students: (see

Figure 15): [1+2]=% 75; [4+5]=% 19.

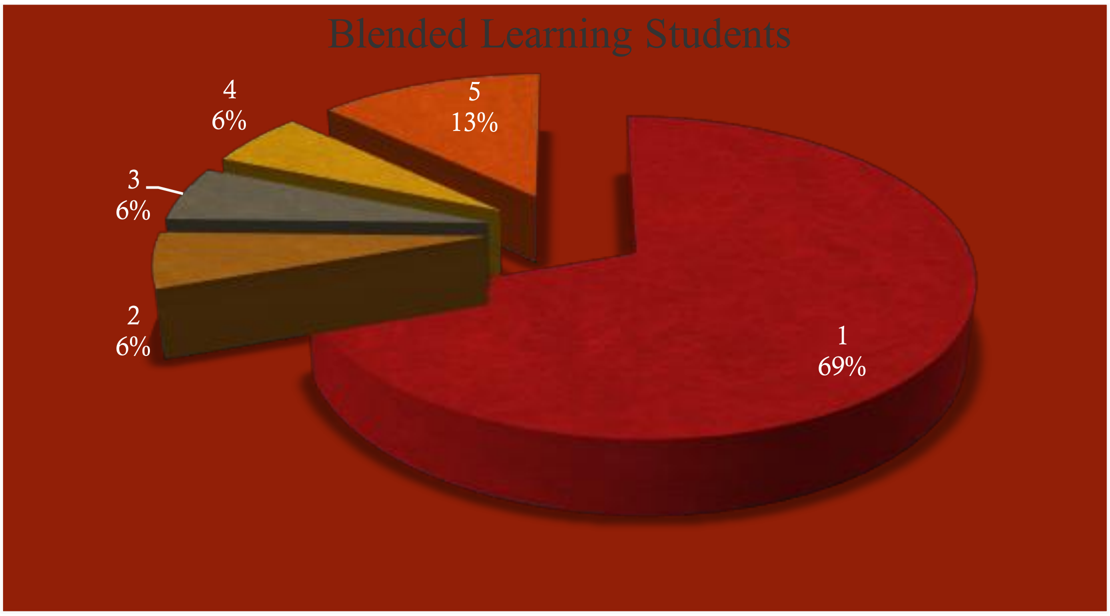

Figure 15: *When I take common classes with e-learning module I can use my time efficiently.*

For the group of e-learning students the expression is "I would rather take face-to-face classroom teaching instead of e-learning if my opportunities were able to". For this group, it is seen that the difference between technology opportunity and material opportunity was understood: (see **Figure 16**): [1+2]=% 21; [4+5]=% 72.

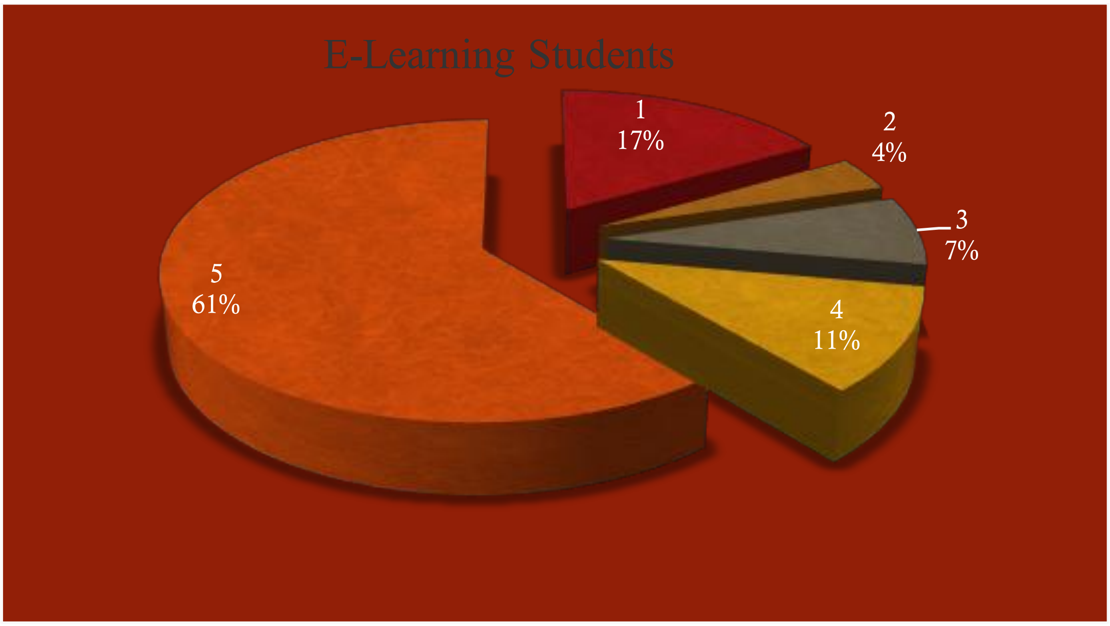

Figure 16: *I would rather take face-to-face classroom teaching instead of e-learning if my opportunities were able to.*

RESULTS

This study shows that students who join any instructional activities use technology in somehow. But the determining factor in here is not student as an individual voluntary behavior[1]. There are other factors involved. For the e-learning students they have working-life priorities; for the regular program students, the priority of the university who organize all these activities (university administration) is decisive.

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[1] Erturgut, R. (2008).

Based on the understanding the differences between synchronous and asynchronous activities for the group of e-learning and blended learning students, individual's understanding as a students is not only spiritual-discursive level acceptances, it is also a process which is continuous and shaped by overlapping with experiences gained in practice/application these acceptances.

In the whole social relations, education-training relations are also abstract relationships. From abstract to concrete or "authenticity" takes effect when relationship and interactivity can happen in both ways. The difference seen in the context of "authenticity" of interactivity between virtual space and physical space is distinctly negative for the blended learning students who take less amount of their class online and almost imposed this situation to them.

The flexibility of time and space is not through only technology, it is a condition determined by the all individual's social existence conditions. For the e-learning students group, in the context of space flexibility, in terms of meaningful understanding of the basis of the difference between the virtual and physical environment, the physical presence of the conditions that made possible by the existence primarily engaged in the work environment.

In terms of e-learning activities, since the virtual interaction can happen everywhere, every time, the people who organize these activities think that technology make it happen itself, although this study shows that students prefer face-to-face interaction if there are options. Because of this (and also to promoting and supporting the ability to change itself), in the context of e-learning activities, people who organize these activities should give students options to select.

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How To Embrace The New Challenges Of Education? The Use Of An Innovative Methodology In The Teaching-Learning Process, In The In The Assessment And In The Relation Teacher-Student Vs. Student-Teacher Based On The Simulator Of Business Environment Technology

Susana Adelina Moreira Carvalho BASTOS
School of Accounting and Administration of Porto (ISCAP)
Polytechnic Institute of Porto (IPP)
Center for Studies in Business and Legal Sciences (CECEJ)
Rua Jaime Lopes de Amorim, s/n, 4465-004 S. Mamede de Infesta - Portugal
Telephone number: +351 91 1906095
Email address: susanamoreirabastos@gmail.com

Liliana Fernanda Moreira Carvalho Bastos AZEVEDO
INVENT – Association for Competitiveness and Innovation in Management
Rua Jaime Lopes de Amorim, s/n, 4465-004 S. Mamede de Infesta - Portugal
Telephone number: + 351 92 7588194
Email address: lilianabastosazevedo@gmail.com

Helena Maria Santos de OLIVEIRA
School of Accounting and Administration of Porto (ISCAP)
Polytechnic Institute of Porto (IPP)
Center for Studies in Business and Legal Sciences (CECEJ)
Research Centre for the Study of Population, Economics and Society (CEPESE), Porto, Portugal
Rua Jaime Lopes de Amorim, s/n, 4465-004 S. Mamede de Infesta - Portugal
Telephone number: + 351 96 3037438
Email address: oliveira@iscap.ipp.pt

ABSTRACT

The existent concern in suppress all the identified gaps in the traditional teaching of Accounting and Administration has led to the creation of a new way to be in Higher Education. This new way to be, denominated by Business Environment resulted in the implementation of two curricular units designated by Project of Business Simulation.

The present article has as purpose study not only the potentialities, but also the constraints of the innovative methodology of the teaching-learning process and the assessment used. We intent, to analyse in what measure the Simulator of the Business Environment beneficiates the school success, in result of an improvement in the teaching-learning process and, consequently, in the development of the students' competences.

The results of the study raised issues related to the teaching-learning methodologies traditionally used and the methodology of the Simulator, as well with the assessment methodology and how it develops in students a different attitude regarding the teaching and learning process. The centrality at the student as the focus of this rating system allows self-regulation of learning through feedback. Individual and group work are presented as key factors in the development of generic skills and behavioral in addition to technical inherent to the profession.

"The act of learning could be reproduced according to four dimensions diversely combined: by an emancipator master or by a heartless master, by a wise master or by an ignorant master" (Rancière, 2005, p.33)

INTRODUCTION

The present work is not finalized, it is a study in course, integrated in a Pos Doctorate Research, so Methodologies, data collections, treatments and solutions are not yet presented here.In the book "The seven knowledge necessary to the education of the future", of Edgar Morin (2002), are highlighted some aspects related to this theme, namely, the question of how education "(…) gives knowledge, provides knowledge, knowing" and the shaping of that knowledge to "a world formed by curricular unit teaching" isolated, this should provide a multidisciplinary character, so that the student has the knowledge as a whole and not only of a part. In the modern society teaching is oriented to students' learning with the purpose of contributing to the society of knowledge and to educate citizens to the job market, taking into account the need for innovation, versatility, adaptation, cooperation and training throughout life.

The main objectives of higher education today should pass by teaching students to think critically and not to memorize small facts; to reflect about the themes and to bring up questions; to develop the capacity of imaginative narrative and the ability to decipher meanings; to form future citizens able to live in an era of growing cosmopolitanism, and, so, to create a "community that knows how ratiocinate together about the problems, debating them in a Socratic manner; not to confuse education with the strict preparation for a profession and with the learning of the wiles of a craft" (Delors, 2001, p. 2).

The approach by competences in school has as main purpose to develop in students the critical reflective thinking, making them able to analyze, decide, plan and communicate their ideas. In this sense, it is fundamental the development of teaching-learning and assessment strategies that promote the achievement of the desired learning results.

Being clearly insufficient to enrich the curricula of the superior courses of Accounting and Administration with the curricular units of Business Simulation, it is imperative the adjustment of the teaching and assessment's strategies in order to ensure the effectiveness of these changes in the formation of the desired competences.

For this desideratum was conceived and already implemented in the curricular units of Project of Business Simulation of the Course of Accounting and Administration at the Superior Institute of Administration and Accounting of Porto, a Model of Simulator of the Business Environment, which intends to be the "terminal environment pivot", which gives the students the application of the knowledge gained separately in other curricular units, in a perspective of a systemic integration and with a critical and reflexive approach.

The present work, besides characterizing this innovator Model of Simulator of Business Environment (SBE) that supports learning, is oriented to the study of the competences that the students of the Superior Course of Accounting and Administration should have arrived at the end of their training process, using an effective process of assessment.

The study of the potential and constraints of the evaluation system (ES) used in these courses, is also a subject of the present article. We intend to, in particular, analyze to what extent this system benefits the academic success of students as a result of an improvement in the learning process and, consequently, in developing the students' skills.

GROUNDS OF THE PROBLEM AND THE CHOSEN THEME

The present study intends to give its contribute to the beginning of a revolution on Education as we know it.
We intend to demonstrate what does not exist in Superior School, namely the increasing lack of teachers with personal experience in business life and the need of aggregating in the teaching "named" Superior, the creativity, the "know how to do well", the risk, the time management, the domain of one or several languages (the internationalization of teaching and the labor market) and to value its clients: the student and the company.

We consider fundamental the change and why not, revolution of the actual programmatic contents and the methodologies of teaching and learning existent which condition the development of a Higher Education able to internationalize, thus dignifying students in their professional performance, both in our country or in the world.

The definition of the Course Curriculum and the technical, didactic and pedagogic quality of the teacher are fundamental aspects to take into account in the structuring of any Course, average or superior, adjusted to the times we live in.

The Superior Schools of the country are still far from a reality that is imposed to them from some time now, the financial crisis and the budget allocation prevails. The gigantic structures created in the last fifteen years were not thought with the simultaneous need of self-finance. The "managers" of these schools are still in a dormancy that does not allow them to see what the future (already passed) holds them: the sustainability through a creation of new services, of networking between the various schools (of the different areas of knowledge), the sharing with the surrounding community and the constant improvement of the Quality of Teaching.

We think it is time that the mentality changes, in order to implement the core values in lack. Are the values that provide security, reliability, cost and performance and which create strength, integrity, competence and excellence, the behavior patterns, these and others, are the basis for the teaching activity.

THEORETICAL FRAMING

"The narrative of the evolution of the models and functions of the universities, especially in the western world, was globally repetitive in the essential, despite the multiplicity of origins, the external protection by state political institutions or institutional Churches.

These circumstances, too evident in the countries responsible by the long and frustrated process of westernization of the world, as happened with the sovereignties of the Atlantic coast, linked the concept of these centers of knowledge and "the how to do knowledge" to the strategic objectives of the founders, but the task of the pursuit of knowledge and "the how to do knowledge", did not prevent it was implemented, growing and generalizing, the principle of freedom of liberty of observation, of conclusions, and the valorizations, cross-beam of the academic identity, frequently supported in the sacrifice of the authenticity sustained by a long theory of venerated masters" (Adriano Moreira, in foreword, 2012, Santos & Filho, p. 9).

The "great classical thinkers that who have studied the problems of education, said and repeated it: it is up to the teacher to pass to the student what Mankind has already learned about herself and nature, all she has created and invented of essential" (Education – a treasure to discover, 2001, p. 19). According to the same document, "one of the main papers reserved to education consists, first of all, in endowing Humanity of the capacity to dominate her own development. She must, indeed, make each one take his destiny in his hands and contributes to the progress of the society in which he lives in, basing the development in the responsible participation of individuals and communities" (p. 82).
UNESCO – United Nations Educational, Scientific and Cultural Organization, defines the four pillars of Education, has being, the learning to Know; Do; Live in society and, to be.

The acquisition of the fundamental instruments to the understanding so that they can act upon the environment around them and participate in the society activities and cooperate with them, defines the pillars of education.

UNESCO identified what considers being the four pillars of education. Are they: learn to know; learn to do; learn to live together; and learn to be. Depending on the perspective and the ideology of each country, governmental organization (political and economic) and school, each one of these counties will have a certain treatment, being evidenced ones over others. Obviously, on tracing these pillars upon which general education should focus, UNESCO intended to magnify and rekindle the purposes of higher education, pointing out that the paradigm and attitude change in teaching was necessary in face to the economic, social and international changes.

These four pillar of education are:

- "(…) learn to know: acquire the understanding instruments;
- Learn to do: the power to act upon the surrounding environment;
- Learn to live together: to participate and cooperate with other in all human activities;
- and, learn to be (…)".

This is an "(…) essential pathway that integrates the background".

The first pillar above mentioned, refers to learning as a domain of knowledge and not uniquely as an acquisition of a set of knowledge. The need to grow the inner feeling to knowledge through life, is one aspect of great importance to this international organization, once knowledge is not immutable and is not uptight, and, therefore there is a need of a continuous learning. Also defending specialization, it presents the two approaches, by calling particular attention to the fact that there is a need of a multidisciplinary approach of knowledge, which does not exist if two requirements are not fulfilled: the general knowledge and the specific knowledge of the individual. If, on one hand, this possesses only a general knowledge, he has not the necessary specialization to the development of his profession; if, on the other hand, he does not possess a specific knowledge, he cannot perceive what is done in the other areas of knowledge/knowledge that may help him in the construction of knowledge.

The “learn to learn” is defined as the necessary attention to aspects related to the development of memory, attention and reasoning, being the deductive and inductive methods indicated as possibilities of “tools” in the classroom, in order to maximize the perfectioning of learning of the student.

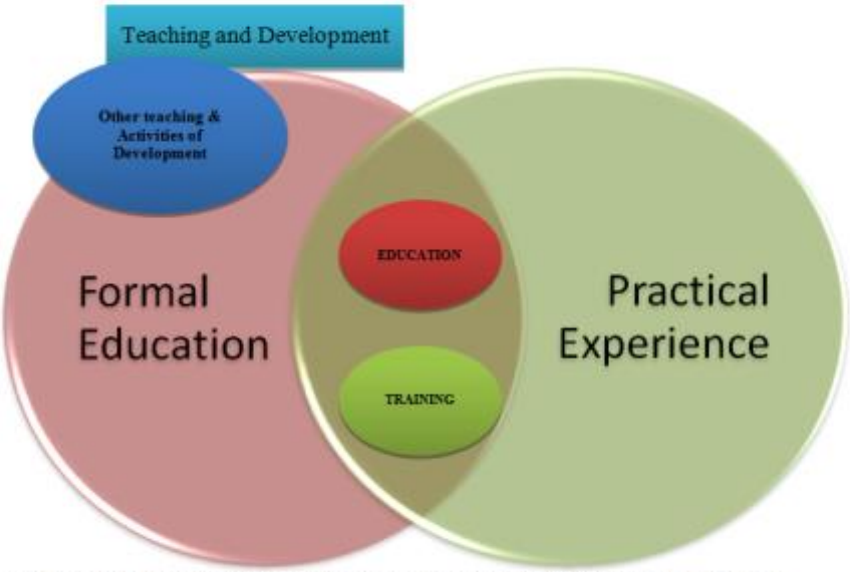
With the "learn by doing", there has been a major concern in education; However, the way to articulate the school with practice is not easy and is often ambiguous. "Learning to do" cannot continue to have the meaning simple to prepare someone for a task well, material or to do participate in the manufacture of something "(p. 93). Learning methodologies should not remain solely as a vehicle for transmitting a set of skills that allow the student to perform a limited range of tasks, and the difference between qualification and competence. If the school's purpose is to provide the student's qualifications enough learning a set of tasks. If, however, is its purpose to provide the student with skills to play in the future his profession independently, so we define competencies as: "qualities like the ability to communicate, work with others, to manage and solve conflicts, that become each time more important.” (p. 94).

These four pillars are to be considered as an essential base of higher education, allowing the cohesion between theoretical knowledge and practice, and giving education a higher fullness to the "realization of the person who, in its entirety, learns to be" (p. 90). As referred to the authors of the study, "the confrontation through dialogue and the exchange of arguments is one of the instruments necessary for the education of the 21st century" (p. 98).

The International Accounting Education Standards Board (IAESB) divided in phases the process of Accounting Education, starting with the IPD - Initial Professional Development, followed by the CPD - Continuing Professional Development and evaluation. This organism identifies the aspects to contemplate in the education programs in Accounting, with obedience to a structure based on skills:

A – General education: comprehensive education that is able to fit the need of the accountant professional;
B – Education in accounting: in schools with a program certified by IFAC (International Federation of Accountants);
C – Practical experience: professional experience relevant to the profession of the accountant;
D – Evaluation: formative and summative tests in order to assess the skills and capacities developed and acquired throughout the formative process.

Figure 1 - Components of teaching and development



Source: *IAESB - Exposure Draft Proposed Framework for International Education Standards for Professional Accountants, 2009.*

The development of information technologies and the increasing generalization of the internet put new bets for the development of the professions, and to the profession of the accountant, administrator and Manager. The technologies caused extraordinary changes in the world since they allow access to information and knowledge, in time, that even 15 years ago found themselves in the possession of a limited number of entities. The concepts of time and space changed radically, being global is a reality without any alternative.

The discussion around the use of technologies in teaching and learning has not been peaceful, particularly in the construction and/or reconstruction of the relationships School-Students-Teachers-surrounding Community. The teacher is now a mediator of information and a supporter of the process of knowledge. The correct use of technologies in teaching and learning is critical to the development of the country, global country, and the country in the world.

According to Lapointe (1990), "the technology of education will, therefore, be considered an approach that consists of applying scientific knowledge and rational data, processed by the left hemisphere, and intuitive data, processed by the right, with the goal of developing systems (methods, techniques and machines) susceptible to solve learning practices, teaching and training (...). The technology is a tool of rational intervention that guides the intuition of the technologist in the research, as well as the development and application of satisfactory solutions, realistic, desirable and achievable, for the practical problems encountered in the actual universe ", cited by Soares (2011).

According to this author, we believe that the technological approach in education should be based on the technology and should not allow her to take precedence over education. This means that the use of technology in education should give special emphasis to the methodologies in implementation in the classroom and facilitate the learning process. In higher education of accounting and management is also essential that students acquire skills in terms of handling technologies and its development, namely of the integrated systems of information and decision support. The role of accounting has evolved and changed as a result of the evolution of technology and of his intervention in the business world. Hence it is important that students seize the necessary concepts and feel capable of handling the various tools on the market, in addition to having the predisposition to acquire skills in terms of its design, operation and control (Soares, 2011).

Educational technology is characterized by "a systematic way of designing, executing and evaluating the total process of learning and teaching in terms of specific objectives, based on research on learning and human communication, employing a combination of human and non-human resources to produce a more effective instruction" (McMurrin and Snelbecker, 1999, cited by Soares (2011).

The use of computers in education arose in the United States of America, in the 1960s, to assist the various teaching activities. With the spread of computers in the 1980s, the schools began to use the tools to support the calculation and writing. It was also inserted the teaching of spreadsheets, word processors and programming in the syllabus of the computing course units. The teaching of information technology, however, kept separate from the teaching of other educational aspects (Valiant, 1991 in Joly, 2002). The position of technologies in education has been changing gradually and, currently, they support the teaching through games, simulations and educational software (Soares, 2011).

Education (cognitive development) and training (performance in a specific competence) are distinct; however, there are convergent points, as the reach of the goals: teaching, learning. Informatics can (and should) support both whenever possible, providing greater efficiency and performance of a larger number of activities.

The use of technology in the superior courses of accounting and management has undergone significant changes. About ten years ago, computers were present in these courses through the own course units, therefore, the teaching related to technologies was not extended to other professional areas in study.

The computerization of small and medium enterprises, which employ a large proportion of these students, was featuring the need of having in education the access to the appropriate tools.

The increasing interaction between accountants, organizations and the supervisory state authorities facilitated the introduction of professional programs in education.

In Portugal, have emerged curricular units of Simulation that integrate the use of professional programs in the teaching of accounting and management. However, it turns out that the technology is in most cases to be used merely as a vehicle for the preparation of exercises. It has been a mere passage of the resolution of exercises on paper for their resolution with the support of professional programs unbundled. Students are asked to perform the exercises by recurrence to the computer software, by the accounting record and the printing of the accounting and tax parts. The teacher guides the students through the process, worrying about the explanation of the procedure.

The technology, in our opinion, must be used, such as should be in practical life. Hence our proposal contemplates that students, when they are faced with the tasks/simulated situations, are obliged to execute them, with the support of technology and teachers. The technology appears in this process to support the student. It is essential that its role is seized in the right place and not in the replacement of teaching methodologies. The technology must be in a common place to the one of the teacher, in the curricular units eminently practical and real tools should be applied and not manipulated or created solely for teaching. Students must be able to conceive, understand, operate and even change when faced with these, both in teaching and in professional life.

And we understood that the role of the school, in addition to teaching, is to provide a leverage effect of society through the quality of its students, so this should think what the true role that technology has in the fulfillment of this goal.

In the Project of Modernization of Higher Education in Accounting and Management (PECRESC) designed by Oliveira (2003), which was at the origin of the curricular units of Business Simulation Project (initially created under the name of Business Simulation, changed in 2007, when the restructuring of the course according to Bologna), it should be noted that students must be conducted through the reflection and work, to adopt certain attitudes towards their own learning process, must realize that they are the actors of that process themselves. Students should be given training which equips them to develop independently, whereas school only prepares them for life, through a previously defined set of objectives to be achieved by providing them training in the skills required for the performance of the professional activity of Accountant and Manager/Administrator.

In higher education of professionals in the field of accounting and business management, the typology of teaching-learning is still far from what we thought was the ideal education, given that there are still problems inherent in the traditional system of higher education, continuing the knowledge to be segmented by theoretical course units (in which the designated practice course units do not pass from the resolution of theoretical exercises using the technologies) with tight nature not enabling the student enough for his immediate inclusion in the professional environment as Accountant/Manager/Administrator, with full capacity to assume the responsibilities that are required in the real world.

From this fact, gave resulted implications that have reflected in a pragmatic inadequacy of the students - a notorious gap between what we teach to the student and what is required and continues to be required to the professional. It must be adopted different (why not revolutionary) strategies in teaching-learning and educational and didactic, namely the introduction of a systematic and growing multidisciplinary, the use of professional techniques, the reinforcement of knowledge for the complexity and variety of information to support the management by creating in students new skills so far forgotten by teachers, particularly the skills that they will be requested within the labor market (teamwork, communication, among others) and ensure the integral formation of the student (in all its human potential) at the level of the degree.

COMPETENCES - CONCEPTUALIZATION

At this point we will examine relevant aspects of learning, skills development and assessment, related to the process of teaching and learning.

The concept of competence, advocated by some authors (Le Boterf, 1997; Perrenoud, 1999; Rey, 2002), refers to the capacity to mobilize several cognitive resources to cope with various situations.

P. Perrenoud, one of the authors that mobilized the idea of competence as an overhaul of education in terms of their improvement, defines competence as a 'knowledge in use' (Perrenoud, 2000). This notion is very close to the center of another author in this field, on professional skills, Le Boterf (1994). These authors refer to various cognitive capacities to mobilize resources to meet different situations. Skills are not themselves knowledge, attitudes, but mobilize, integrate and orchestrate such resources.

This “knowledge in use” can be assumed to be the opposite of “inert knowledge”, i.e., speaking of competence refers to the knowledge that translates into effective usability and handling (intellectual, verbal or practical) and not cumulative with which content is not known to act in the present, nor solve any situation or think about it. Indeed, and as related Costa Martins and Candeias (2010) "Development of skills involves access to knowledge in its various dimensions and, subsequently, the progressive, integrated and dynamic mobilization of this knowledge, a perspective of continuous reconstruction” (p. 24). Despite discussions and lack of consensus in the literature around the concept of competence, in this study we consider the concepts of skills, abilities, knowledge, attitudes, traits and motives within the context of delivery of individual, very close to the triad designated KSA: knowledge, skills and attitudes.

The current curriculum changes in higher education lead us to a reflection on how to conduct a curricular approach by competences, thus reinforcing the need for an effective performance by the student in the act of learning, becoming himself the constructor of his own learning process, critically and creatively.

The definition of what should be the Accountant/Manager and of what he must know in order to perform, adequately enough, his profession as soon as his journey on higher education ends, is very ambiguous. Hence arises an added difficulty in defining and identifying the competences and, consequently, the methodologies of teaching and assessing, which must support the mobilization of those competences being acquired by the students.

According the authors Tavares and Alarcão (2005) it is of great importance to define, in the first instance, the set of competences that the student should acquire along his training process and, in the second instance, the reorganization and the use of methodologies of teaching/learning that facilitate those competences acquisition.

Isabel Alarcão (2004) summarizes that "(…) the professional competence implies knowledge of the situation in an action, holistic, creative, personal, constructed, a knowledge that depends, among other things, of the capacity of the professional to appreciate the value of his decisions and the consequences resulting therefrom".

COMPETENCES VERSUS. PEDAGOGIC PRACTICES

In order to be developed pedagogy for competences, it is necessary to modify the pedagogic practices, with tasks that challenge and motivate the students to mobilize the knowledge they already have, in the search for new knowledge.

Burnier (2001) lists some basic principles of the pedagogy for competences, as the fact that education provides a more comprehensive and solid human training, of changing the concept of learning, of establishing mechanisms to identify previously which knowledge should the students acquire in order to be able to engage in the labour market and the one of developing technical and vocational competences in the students.

Another important factor to focus is that pedagogy for competences applied to higher education, states that the individual inserted into a profession needs to adapt to the new trends in the world of work where he will intervene and act.

THE ASSESSMENT IN THE TEACHING ORIENTED TO THE FORMATION OF COMPETENCES

The competency approach in school aims to develop in students the critical reflective thinking, making them to know how to analyze, decide, plan and communicate their ideas. In this sense, it is essential the development of learning strategies and, in particular, of evaluation to promote the achievement of the desired learning outcomes.

Assess skills at school is to mark a rupture with the assessment practices that favored the acquisition of the disciplinary knowledge, emerging in this logic, the defense of a formative evaluation (Alves e Machado, 2002) putting at the Centre of their concerns a student who, through his pursuit of learning, becomes the protagonist of his own learning.

However, we must bear in mind that the evaluation procedures to be used must be well outlined in pedagogical practices. And the ones that best identifies with skills assessment, are the ones that lie within a formative and forming logic, inasmuch as they are oriented towards a self-regulator assessment or self-evaluative of the individual processes of learning, i.e. each individual learner gradually builds his/her itinerary based on the various benchmarks of the educational process. Therefore, the assessment in a curriculum oriented towards skills training is not organized in function of thematic sequences, but according to the manifestation of the desired competence (Roldão, 2003).

According to Luckesi (2003), when the teacher actually assesses the results obtained, he is able to accommodate the student, to confront him with his learning process, to help him if necessary, a relationship of complicity, in which when the student fails to learn, the problem involves not only him but him and the teacher, providing an educational action of pairs rather than opponents, since the evaluation will only be efficient and effective, according to Sant'Anna (1995) when it occurs in an interactive way between teacher and student.

According to Cardinet (1993), the evaluation serves as a guide to action. The evaluation exercises a regulatory function of learning and before that, as pointed Perrenoud (1999), regulates the work, activities, relations of authority and cooperation among students.

If the act of evaluating assumption is to help the students to learn, the idea of formative assessment becomes quite simple. According to Perrenoud (1993), "the individual will learn better if his environment is able to give answers and regulations in various forms: identification of error , suggestions and counter- suggestions, additional explanations, revision of basic notions, work on the sense of the task." (p. 49).

According to Figueiredo et al. (2010), the assessment should be active, participatory, shared and continuous. New forms of assessment that promote interaction are required (among students, between students and teachers, always based on the retroactivity), and placing the student and his learning experience in the center of the process, cited by Azevedo (2012).

In practice, according to Barbier (1995), "any assessment situation implies the existence of roles and representations: what is at stake is not so much produce , but produce , it's not so much to assert, but make yourself worth, the best device that best enables the exposed assesses their skills, their know-how, and their knowledge" (pp. 19-21).

In this context, ongoing evaluation not only eliminates this situation representation, as it tends to "increase its influence on the development of his own formation" (Barbier, 1995, pp. 19-21). The basic idea of this assessment approach is that the fundamental concern of a teacher should be to help students' progress (Azevedo, 2012).

Met several authors strong point of convergence, in that everyone thinks that evaluates to take decisions. And according to Costa, Martins and Candeias (2010) "decisions by the review aim to understand the processes in order to introduce in them changes, which, even if timely, will be likely to bring about significant improvements" (p. 16).

Identifying the value of formative assessment within a competency evaluation, we can agree with Cardinet (1993), when he considers that formative assessment is intended to allow the awareness on the student of what distinguishes his act from the others and of all the logic that is behind his behavior. It is, thus, the student, who seeks self-regulation, legitimating in advance his assessment.

It is essential to address the self-evaluation in the context of skills, since, if the mobilization of the various knowledge occurs individually and in adverse situations, it is then to learners to manage their ways to make and develop their abilities through their daily practices, insofar as the integration of self-evaluation in school evaluation process, gives the student a different status, giving him a certain autonomy in learning and making him responsible for the condition of his path, with the help of the teacher, transforming the student in the main actor of learning (Pacheco, 1994, cited by Azevedo, 2012).

Formative assessment accompanies the whole process of learning, allowing teachers to tailor tasks to each specific situation, which implies, as stated Abrecht (1994) that it should not be seen as a method, but rather as an attitude. This author believes, for example, that this type of assessment is educational because it is itself a learning activity, it is dynamic, it allows feedback, is transparent, because the students understand what is asked of them and know what it is expected from them.

Formative assessment as a regulatory tool and guidance on decisions that allows adjustment of aid from the continued evaluation of student performances is a core activity of teaching and learning (Allal, 1986).

The formative assessment promotes the gradual assumption by the students of a bigger control and responsibility for their own learning process (Azevedo, 2012).

STRATEGIES OF TEACHING-LEARNING AS A MEAN TO FACILITATE THE PROCESS OF FORMATION OF COMPETENCES

Several authors, numerous articles and case studies of international scope, deal with the various strategies that can be used as a way to facilitate the process of training competences, namely the enterprise games and/or the simulators, the business simulations and the professional internships.

THE COMPANY GAMES

The company games are simulations which aim to reproduce the process of corporate decision, an instrument of research, teaching and learning in management. Although there are many concepts (according Kirby, 1995), they have common characteristics: there is a goal to achieve; the behaviors that are part of the game are clearly defined; it is introduced the competition; there is a high degree of interaction; and, in most situations, there is a defined result.

A common attribute to games, is that they always involve a simulation process with defined roles and decisions taken in certain contexts.

THE BUSINESS SIMULATIONS

Chen (1990) found more than thirty different definitions of the term “Simulation”. For its breadth and diversity there is still no unanimous and precise definition. According to Hönerloch (1997) simulating administrative processes may be characterized by the development of models, by experimentation through these models to identify inter-relations, and to evaluate and quantify the simulation results. Simulations can be used in several areas and circumstances, with emphasis on market research, economic feasibility studies, and still on teaching.

Models are constructed out of real systems, which allows to obtain a drawing as close as possible to reality. The models also allow us to represent situations that have not yet been observed (Bossel, 1992).

The simulations allow a simplification of the reality for study purposes or to assess the various hypotheses and variables, aiming to develop solutions for specific problems or situations.

THE PROFESSIONAL INTERNSHIP

The professional internship appears normally integrated in the curriculum of the Superior Courses of Accounting and Administration, with the purpose to facilitate to students the access to organizations, so that they can apply the competences they’ve acquired throughout the course, in the actual/real practice of business.

The professional internship is centered in the application of the competences learned, by students, along their higher level training process.

One of the problems placed is related to the type of organization that welcomes the student, depending on its activity and organization to provide him, effectively, or not, the access to various functional areas, in order that he can experience the inherent practical competences acquired. Another problem occurs with the inadequacy of organizations/companies to the pursued aims, which does not allow students to learn in quality environments, providing them, generally, only the execution of routine tasks.

The process of assessment of this form of learning is normally incipient, not allowing gauging its results for the development of the students’ competences.

Typically, this evaluation is the result of a probation report that, in the end, is evaluated by the School, in an isolated form.

It’s our conviction that professional internships must be used as a strategic training of observation and critical reflection, when combined and in complement to the training based in the simulation of the Business Environment available along the entire course.

THE MODEL OF SIMULATOR OF BUSINESS ENVIRONMENT - THE REVOLUTION IN THE WAY OF BEING IN THE CLASSROOM

Although we accept that in certain curricular units it may be useful the resource to the strategy of games/simulation of companies, we defend, notwithstanding, that the complete training of competences in the Superior Course of Accounting and Administration requires an availability of a Simulator of the Business Environment that assures to the student a multifaceted participation, as an intervener agent in the process of conception, development and maintenance of the business reality.

This Model of Simulator of technological basis must propitiate a space of learning, based on the simulation of the organizational environment typical of an entity provided with an advanced management profile which involves the student in the application of the knowledge that throughout the course is emerging in a multi and inter-disciplinary form.

The particularity of the skills training process so that the courses Project Business Simulation I and II are oriented, shapes teaching methodology and evaluation system itself, which is built on a dynamic basis primarily interested in the progressive effects of the expected change students, the learning of complex behaviors, but also concerned with the verification of skills acquired with a view to their final academic certification. Since this is a practice of education and training, whose fundamental purpose is to link theory to practice, turning the experience of training in professional experience, in which the passive role and receiver gives the student time to the active part of it, evaluation is interpreted as a process of systematic collection of information to measure the progress of students (for these and the teachers in the two dimensions of self and hetero) and the decision of the adjustments resulting training deemed necessary.

The teachers themselves, responsible for monitoring the curricular units, do so, on a different approach, dealing directly with the real tools of the new technologies available in the field of communication and information, being their function of guidance permanently ensured.

In each of the distinct and gradual steps the training path, demarcated management, import verify and qualify the degree of progression in the trajectory of accumulation of powers, giving the student the possibility to judge on its own evolution, in terms of training, attentive the mandatory rating for administrative purposes, it cannot fail to make a judgment for assessing the satisfaction level of skills acquired by each student. In summary, the assessment of the degree of competences acquired over the frequency of courses Project Business Simulation I and II, follows an evaluation system by the feedback permanently given to the student by the teacher and by the obligation of execution, by the student, of the planned tasks in person and accompanied by the teacher, in all the working sessions.

In modelling this learning is considered essential:

- the integration of TIC (technologies of information and communication) in its dual roller of mentor and facilitator,
- the priority to dematerialization and interaction(of the students) networked in the global market, with a strong reaction dynamics,
- the presential execution, subject to a real calendar, with the possibility of local and remote exploitation (via Internet),
- the use of the electronic portfolio in the construction of the student's curriculum,
- the learning supported by an organizational environment of high systemic complexity, based on a global network by processes,
- the availability of professional tools and the forms commonly used in the reality of the business world,
- the subjects as a comprehensive system,
- the multidimensional treatment of the information oriented to the support of decision making, to the resolution and answer of the "contents/themes/problems/…" placed to the student.

Note that, on this Model, the major pedagogical change of the teaching of Accounting lies in creating the same pivot environment, available along all course, personalized for each student, supported on real technological tools and in the coordinated implementation of all the theoretical knowledge acquired progressively, in order to form comprehensive professional competences.

In summary, this Model to be adopted, not only in the curricular units at the end of the course, particularly those of Business Simulation, but essentially in all the others that, framed in business sciences, need a pivot environment that ensures the extent of knowing to the action in a common context, duly completed and evaluated.

NEW PEDAGOGICAL APPROACHES TO BE USED IN THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL SKILLS OF STUDENTS IN THE TEACHING OF ACCOUNTING AND MANAGEMENT/ADMINISTRATION

Soares (2011), presents the problems in pedagogy in higher education of accounting and administration, identifying a set of "pedagogies" already used by teachers in the classroom but, alerting to the fact that students forget too easily what they memorize, which leads that the acquired knowledge becomes easily outdated, and often inadequate to the problems they are confronted in the professional life. Criticizes the fact that the teaching of accounting "(...) has expended more time to the transmission of content than that which is dedicated to support students in developing skills that will enrich their lives and make them successful professionals.

The pedagogies, or tools, or different forms of work, how we want to call them, are already used in many classrooms but not in a systematic manner and are often used in the wrong way, what creates in the student discomfort and mistrust in his learning process.

We've identified a set of tools to be used defining the circumstances of its use and its purpose, and how each one is already used, since 2003, at ISCAP, in the curricular units of Business Simulation Project I and II, through the teaching-learning methodologies underlying the Business Environment Simulator, presented in the table below.

Table 1 – Pedagogy – Objective – Use vs. The Simulator of Business Environment

Pedagogies	Objectives	Circumstances of use	Business Environment Simulator
Works in real companies	Facilitate to the student the real work environment.	Professional internship along and at the end of the formative process.	Real Companies Simulated.
Analysis of cases	Stimulate in the student the reflexive and critical thinking and the resolution of problems.	During classes, to be held in group, preferably, and presentially.	Always and by processes. Critical reflection at the beginning of all sessions.
Exercises with feedback	Provide the student the resolution of the exercises /problems placed to them and motivate to find new solutions.	During the classes, to be held individually, and outside the classroom, always with feedback.	Ongoing assessment with feedback (from session to session).
Theory	Provide students with the required contents for the development of pre-defined competences.	Before "put" the student challenges to apply this knowledge received in practice.	Explanation of the theory underlying the tasks to be performed by students.
Oral presentations (different languages)	Support the student in the systematization of information for oral presentation and development of communicating competences.	During the classes, after the analysis of a case by a particular group, for instance, and its presentation to colleagues; execution request of certain exercises / works, individually, based on the acquired knowledge for subsequent oral presentation.	Four (4) oral presentations in the two (2) semesters.
Book reading/Support Manuals	Motivate the student to the reading, facilitating like this the acquisition of new information and the taste for reading will allow him to develop communicative competences (oral and written).	During the classes and outside the classroom, always framed in the themes to be developed at the moment.	Supporting documentation to sessions; A's; PRO's[1]; Manuals; Slides; in all sessions.
Role Playing	Develop in students the ability to communicate, to bond with others, leadership and conflict resolution.	During the classes, always mediated by the teacher, and framed on the themes to be developed at the moment.	In the oral presentation "of the company" of a Theme in response to the questions raised by the colleagues (role playing: defend his perspective) and in the final defense FR: one in each semester.
Work group	Develop in the student relational, ethical and behavioral competences.	During the classes, whenever possible.	Since the first session/class and outsider the classroom (reports, work)
Works with technology support	Use correctly the information and communication technologies and instil in students the information search to support the development / resolution of works / problems.	During the classes, whenever possible.	All sessions / classes.
Films/videos/ music	Motivate students by using various tools for oral and written communication.	During the classes, whenever possible and outside the classroom (in the elaboration of work and problem solving / placed situations).	Whenever necessary.
Written works (different languages)	Mobilize students to the necessity of using the English language /Spanish/…. in the various disciplinary fields.	In foreign language classes. And wherever possible in the remaining areas (search for information, etc.)	News in English and written opinion in English about the same; and in the last FR in the second semester the "*firm in brief*" (that they may present orally)

The authors Albrecht and Sack (2000, p. 54) question "Why is it, if we believe that there is still too much theory, we continue to support us in it?"

Students forget easily what they memorize, and the acquired knowledge becomes outdated, and often not adaptable to different types of jobs. The solution lies in the balanced combination, and why not perfect, between the theory and the above mentioned pedagogies (or other) once the critical competences rarely become obsolete and are usually transferable throughout the career of the students.

In the studies consulted on the subject under consideration and with regard to training based on skills, we've verified that, either the School or the professionals, take the same position with regard to developing core competencies in students, being this range of competencies the same as other International Associations, such as the AIPCA, the UNESCO, the IMA, the AECC the European Union, the World Bank, recognize as fundamental and mandatory (Soares, 2011). Thus, it is urgent to find solutions whose primary objective is to integrate these skills in the curriculum of the courses of the various areas of knowledge.

In our area of knowledge, accounting and management or administration, students must, at the end of the training process at the level of the 1st cycle, have the following competencies:

Table 2 – Competences to develop in the students

COMPETENCES	
VOCATIONAL	**TECHNIQUES**
Analytical / critical thinking	Use of the Information and Communication Technologies dexterously
Written communication	Business decision moulding
Oral communication	Risk analysis
Decision taking	Budgeting
Interpersonal competences	Project management
Continuous learning	Accounting
Group work	Negotiation
Professional behaviour - ethics and attitudes	Resource management
Leadership	Sales
Entrepreneurship	Creating a Business Plan
Foreign language	Economic and financial analysis

Source: Adapted from Soares, 2011.

Soares (2011) argues that, on one hand, students have to understand how the technology makes the information less expensive and accessible, and, on the other hand, they must know what this "cheaper" information means and for what purpose it is taught. It is necessary to make students see that technology facilitates business, including communication, decision-making and the importance of strategic partnerships.

The technology changed the world of business, making transactions more complex, shortening the life cycle of products and facilitating the permanent change in business. The students have to use effective and efficiently technology, and learn to remove from it the information to support decision. As already mentioned, the role of accounting has been changing, assuming today, as a management tool, so the accountant must also have competences at the level of the constructions of information systems for decision support. To this end, shall be transmitted knowledge to students to provide them the skills necessary for the handling of this technology.

The school and the professionals will have to position themselves favorably in relation to this aspect, whereas the main technological competences should stabilize at the level of the use of spreadsheets; the word processor; the Windows, the Internet, presentations software and technological terminologies, Database software; planning information systems (for decision support) and e-commerce, among others (Albrecht and Sack, 2000, p. 57, cited by Soares, 2011).

Adds this author that in addition to the previously identified ICT is essential for students in School, taught how to work with Enterprise Resource Planning (ERP) or integrated management systems, capable of introducing the inputs relating to the business and removes the outputs required for obtaining the information to be processed by these to support the management and decision-making.

"Our criticism about accounting education has been harsh. Maybe. But then, before, cries of impending danger have been widely ignored. We lost too much time to rest on our traditions and always look to the past, when we should have been teaching for the future. With the right direction and with dedication and work, accounting education has a bright future. And that future depends on the actions we take now. " (Albrecht and Sack, 2000, p. 58; cited by Soares, 2011).

The changes have been insufficient (Albrecht and Sack, 2000, p. 45), and "all cases studied have focused only on the change of one or other name of one or another discipline" (Albrecht and Sack, 2000, p. 48), cited by Soares, 2011.

In short, the main problems raised at the level of content and the curriculum of accounting courses reside in the fact that introducing the accounting and management/administration as a curricular unit where the debits and credits are the essentials and financial preparation is emphasized; where the management is seen solely as an accumulation of costs and preparation of budgets; where students are prepared for the achievement of financial reports that obey to strict criteria; and where the tax rules and audit standards are transmitted in theory.

Despite these contents form accountants for the labor market, the business world needs qualified professionals for the management with accounting knowledge and what has been taught in accounting in recent years, is not what it currently is done in the real world of business. That is why there is an urgent need to make changes in the contents and in the curricula of these courses to train professionals in management.

Table 3 – Competences mentioned in several international studies

Competences	Teaching-learning Methodologies
Communicational (oral and written)	Discussion of concepts in conjugation with the actual traditional teaching methods. Active role of the student in the classroom through the use of study cases, as for instance, research projects, written reports and oral presentations.
Problem Resolution	Reading method combined with the resolution problems method. Resolution problems method thought alternative solutions, as written reports.
Decision Ability	Resolution problems method with alternative solutions. Remove emphasis to the unique preparation for the professional exam. Combine the use of supporting texts and theoretical exercises with other techniques that motivate the student to be in the classroom. Simulation of cases; Group work; Research projects.
Information System	Conception and implementation of the Information Systems and the use of software in practical classes.
Ethics in the profession and with others	Group work and discussions among groups.
Interpersonal	Group work; research projects; discussions among groups.
Techniques	Professional experience as programmatic requirement; multidisciplinary curriculum; Professional internships and observation throughout the course; technical teaching over content; visits to industries; self-assessment.

Source: Soares, 2011.

The above competences identified by Soares (2011) resulted from an investigation of a PhD based on the several studies analyzed of the international organizations with vocation for these themes and the data obtained from students who attended the curricular units under review in the school years from 2008 to 2010.

Then we present a synthesis of the information collected with the above mentioned organizations, which defined the goals of the teaching of accounting and management; the content that these courses should contemplate for the goals presented are met; the structure of the course; the methods and pedagogies to adopt; the evaluation to use; what is expected of teachers and, yet, where the school must act in order to implement the changes required by today's world.

Table 4 – Vision of AECC and the BC

Accounting Education Change Commission (AECC) e Bedford Committee (BC)	
Objectives	Accountancy data: multidimensional and systemic.
Contents	Development of information systems for decision support; Comprehensive and multidisciplinary education; Education of Arts and Science; Existence of interdisciplinary, Curricula adjusted to reality; Flexibility (rapid adjustment to the changes that society demands).
Structure	More comprehensive structure; Conceptual knowledge; Technical specialized knowledge; Course structure of at least five years; Joint work of practice and school.
Methods and Pedagogies	New methods in order to facilitate learning; Active learning methods (development of self-study); Theory and Demonstration; analysis of cases and its discussion; simulation of the decision-making process; assessment based on written and oral reports; relevant supporting texts for learning; discussion of ethical cases with professionals in the field; computer aided teaching; Use of advanced technological tools to generate and develop economic information.
Assessment	Assessment of communicating and problem-solving (quantitative and qualitative) competences.
Teachers	Individual support to students.
School	School-business relationship; Concern about the competition.

Source: Soares, 2011.

Table 5 – Vision of the AICPA, the IMA and the AAA

American Institute of Certified Public Accountants (AICPA), o Institute of Management Accountants (IMA) and the American Accounting Association (AMA)	
Objectives	Transversal.
Contents	Imprecise, out-dated or irrelevant; Preparation at the level of concepts such as globalization, technology and ethics; Lack of preparation of students to the real world of business; Teaching with Information Systems technologies for decision-making;
Structure	Insufficient class time to enable the student with the tools necessary to the business world;
Methods and Pedagogies	Memorizing tests are not sufficient; Preparation towards a final certification is not sufficient; Shortcomings in relation to creativity, involves reading and dependence on supporting texts; Does not develop the ability to learn the technique; Focus on technical competences.
Assessment	Nothing mentioned.
Teachers	Posture change in the classroom, more support and not merely a knowledge transmitter.
School	Isolated from the real world; Distance between the labour market and the School; It is still remaining to change the management strategies so that the School increases the quality of the service provided; Lack of leadership in School.

Source: Soares, 2011.

Table 6 – Vision of the AECC

Accounting Education Change Commission (AECC)	
Objectives	Accounting education as a mean of information and development of the communication function to the support on the process of decision making; Development of critical thinking; The student should be able to learn for himself; The student must be an active participant in his learning process; Develop ethical attitudes in students.
Contents	Emphasis on teaching by procedures.
Structure	Nothing mentioned.
Methods and Pedagogies	Emphasis on learning by doing and by group work.
Assessment	Nothing mentioned.
Teachers	Reward the most effective teachers.
School	Reward courses and their development.

Source: Soares, 2011.

Table 7 – Vision of CNUCED, of ISAR and of IAESB

Conferência das Nações Unidas para a Cooperação e para o Desenvolvimento e o International Accounting and Reporting Standards	
Objectives	Development of imagination, creativity, re-appreciation of the oral culture and the student experience, "complete development of the person" (p. 99 and 100). "(…) Combining a general culture, sufficiently broad, with the possibility to work in depth a small number of knowledge's."
Contents	"At school art and poetry should occupy a more important place than the one it is granted to them, in many countries, by a teaching that became more utilitarian than cultural" (p. 100). "Conceive education as a whole" (p. 102). "Experience has in fact demonstrated that the most advanced technology is of no use to the educational environment and teaching is not adapted to its use. It is therefore necessary to draft program contents that make these technologies become true teaching tools, which supposes, on the part of teachers, willingness to question their teaching practices" (p. 192).
Structure	Multidisciplinarity.
Methods and Pedagogies	Teamwork, work in various social and professional experiences, alternation between school and work, development of joint projects to enable the development of competences in conflict resolution, greater autonomy, communication, reasoning, (…). Use of new information technologies, interactive and multimedia equipment, of electronic simulators and virtual reality systems to three dimensions (p. 191).
Assessment	Nothing mentioned.
Teachers	Agents of change "must arouse curiosity, develop autonomy, stimulate intellectual rigor and create the necessary conditions for successful formal education and lifelong learning" (p. 152). "The job of the teacher is not simply to transmit information or knowledge, but present them in the form of problems to solve, standing in a context and placing them in perspective so that the student can make the connection between its solution and other broader questions" (p. 157).
School	"Universities must give the example by innovating, through methods that allow reaching new groups of students, recognizing the competences and knowledge acquired outside the formal systems and giving particular attention, thanks to teachers' training and teacher trainers, the new perspectives in learning" (p. 123).

Source: Soares, 2011.

Table 8 – Vision of the European Union

European Union	
Objectives	Creation of a European Area of Higher Education; Training throughout the life enhanced by the University; Student-centered learning; Quality education; Transparency; Mobility; International recognition of the courses.
Contents	In the scope of the new methodologies centered on the student there is the indication that it is fundamental to rethink the contents and restructure them in the indicated periods and with the adequacy to the labor market.
Structure	Courses of 3 or 4 years + master (2 years) + doctorate (3).
Methods and Pedagogies	Methodologies centred in the student; Define what students know (or have to know) and what they can do after their training process – competences and capacities.
Assessment	At the level of the University as a whole.
Teachers	Change inherent to changes in teaching methods and methodologies, that can no longer be focused on the teacher, as this is not the only holder of knowledge.
School	Transparency, recognition of qualifications to the international labour market level.

Source: Soares, 2011.

In short, we note that the international organizations with regard to competences to be acquired, the methods and pedagogies and methodologies of assessment that contribute to its achievement, namely the EFCC, the BC, the AICPA, IMA, the AAA, UNCTAD, the ISAD, IAESB and the EU, agree:

- the goals to be achieved;
- the accounting information must be "multidimensional, systemic and transversal";
- develop in students the thinking, the critical thinking and the active participation;
- put the "centrality in the student".

The teacher has a role of permanent support to the student, as it is a "relationship of peers", and must, through the use of new pedagogies and information and communication technologies suitable to the program content, instill in the student job autonomy and decision making, among other aspects. As a result, the curricular structure, should be reconsidered and must rely on the basic formation of competences, and must "conceive education as a whole," always adopting interdisciplinary and multidisciplinary and a systemic basis.

As methods and pedagogies pointed so that change happens, emphasize active learning methods; the group work; the "learn by doing"; and the motivation of the student by placing him in the center of this whole process. Thus, the assessment should be formative and not merely forming, having the need to assess the School and the teachers, "rewarding the most efficient".
The school has to change its posture and increase the level of relationship with the surrounding community, has to adapt to the real world and open the "windows" to the labor market for, this way, be transparent, achieving a level of quality education, with national and international recognition.

This year is marked by the European Union as the "European year of development: our world; our dignity; our future", and is a set of projects and initiatives in "networking" between the European Union and European universities.

The General-Direction of the International Cooperation and development of the European Commission (DG DEVCO), "aims to support teachers of information to future policymakers (young people from 15 to 24 years) about the results achieved by the European Union (. ..) and for a better understanding of global challenges with which they will have to confront "(teacher's Manual on International Development Aid, 2015, p. 3).

The DG DEVCO created the Manual and the "Toolbox" to support teachers in this mission, and this "Toolbox" subdivided into: teacher's Manual; Teachers modules; VIP brochure; and the Thematic Tests.

And is available on the website of the EYD2015 (European year for the development of 2015).

With the launch of the European year for development, the European Union makes clear its commitment to Education as a vehicle for sustainable development (long-term). Its position is further enhanced by the creation of projects and for the support granted to European Educators through tools and techniques mentioned in this study, pedagogies and the urgent need to put into practice in classrooms of Europe, for the creation of a European area of cohesive and mixed Education for young people between 15 and 24 years.

The Schools cannot pass up this essential support and should reflect critically about him. Reflect, discuss and put into practice the solutions, methods and pedagogies made by Europe. "The European higher education area represents an unmissable opportunity to take a significant step towards the design of European convergence." (Sebastian Feio de Andrade, Professor, National Delegate to the BFUG. Bologna Follow-up Group).

The Higher School has to "take as a point of departure and of arrival a new dimension of competitiveness in the country (...) you have to assume Portugal as a global actor, capable of carrying our social dynamic and unstoppable array of knowledge and to turn into an active inductor tradable in wealth creation (...) has to take its fullness and relevance of a consolidated bet in the three T's that configure their strategic distinction: technology, talent and tolerance (...) " Francisco Jaime Quesado, specialized in strategy, innovation and Competitiveness.

REFLECTIONS

The Superior School should be able to modify the programmatic contents of the various areas of knowledge, using interdisciplinary for that investigation has a prominent place and multidisciplinary so that the investigation is extended in its reality and for that "previous" knowledge is reworked and improved. (Saints; Son, 2005).

The Model of Higher Education was asphyxiated by the global economic and financial crisis by the descending in the scientific breakthrough which puts into question its sustainability. The growing uncertainty led that Superior Schools had languished themselves in the decision of who is responsible and those that will survive will be those that have the courage to turn to the market and "talk" in customers and focus on political and financial independence (total).

"The fourth dimension of the University - after investigating, teaching, and manage knowledge and know-how, is rebuilding the new world, because the Black Swan of the turn of the Millennium anarchized the old and requires the identification, safeguarding, strengthening, and innovative strategy of the institutions that keep the word power, that we will do survive to organize the chaos. Are these institutions in the first place ideas of work or business that connect generations by tradition and cement the future for research, knowledge, knowledge-making, and by wisdom, that is, the restructuring of a range of values, which assume the fourth dimension "(Saints; Son, 2005, citing Adauto Novaes, 2007, pp. 12-13, and others).

"However,"(...) not only outdated knowledge as unleashed unforeseen radical and demolishing changes on the know-how and science building before valued, causing disruptions in the planning, not just scientific, also social, political, and ethical, that seriously affect the very foundations of the university building"(Adriano Moreira, in preface, 2005, in Santos & Filho, p. 10).

The restructuring of a range of values was not inserted into the concept of the information society and of the knowledge to be built, to Delors. The European network of higher education has broadened and harmonized with the signature and commitment of the countries of the European Union with the Treaty, Model or Bologna Declaration. However, this European network was not made “at the measure” of the of the contracting countries, and, these blind rushed to put into practice the predicted/planned in Bologna without looking to the surrounding reality and present that European Schools persist. The Superior Portuguese School has to support her own revenues and be a merchant of her art: the teaching and not be solely at the mercy of the tuition fees of her supposed "customers" and the budget's appropriations. The articulate is completely subverted. There is no quality teaching without autonomy of Knowledge of the political power and/or institutional and there is Teaching without incomes.

We must make Superior School sustainable in its funding but cannot under any circumstances be renegade its role of research, teaching, knowledge, know-how with ethical integrity.

What is needed is to born "wisdom" in the consciousness of those who rule higher education so that they understand that this European network present different shades and unfilled and forgotten spaces and that the European/global network do not hurt the uniqueness of each school.

As Cristovam Buarque refers (2012) "(...), the answers and questions, which must be made at this moment, when the University coexists with a revolution as deep as the Gutenberg and Humboldt together:

How to look from above, without losing contact with the base;
How to be global without losing the overall feeling;
How to define quality in a rapidly changing world; so in reality, as in knowledge;
How to use the methods of mass education and distance learning, without losing the immense power of the teacher/student relation, master/disciple;
How to be of all without ceasing to identify and respect those with more talent, more persistency, more vocation;
How to structure oneself multidisciplinary without losing disciplinary efficiency;
How to follow Morin, without forgetting Humboldt;
How to think by the poor mass, being daughter of the wealthy elite;
How to act, without ceasing to reflect;
How to be both ethical and technical and artist;
How to be contemporary with the future without forgetting the past;
How to be scientific without leaving the Humanities aside;
How to be integrated without losing the richness of diversity;
How to be one and to be many;
How to be more participating in the required revolutions; in basic education;
How to be elitist or democratic”.

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Identification Of The Critical Factors Of The Process Of Innovation Transfer At Universities In The Czech Republic

Radomila SOUKALOVÁ
Tomas bata University in Zlin, Czhec Republic
soukalova@fmk.utb.cz

ABSTRACT

The area of cooperation of universities with commercial or non-commercial entities has currently been a much-discussed problem at the level of the Czech governmental institutions. The efforts are to promote such cooperation eg. in the form of innovation transfer grants. Currently, the only issue is not only to bring innovative solutions but to achieve their specific realization, ie. the particular transfer. The aim of the study is to identify the main problem of innovation transfer processes at regional universities.

To identify the innovation transfer process critical points, a qualitative research method was used, carried out as individual interviews with leaders of innovation transfer teams. The interview questions are: Must a successful transfer cooperate with businesses? Which innovations become more successful, those emerging within a cooperation with an enterprise, or those designed at a university and for which an enterprise is sought for such a cooperation? What are the key issues of cooperation and transfer? (etc.). The interview content is thematically analyzed and is consequently graphically processed into a mind map. The problem areas are identified in the sectoral analysis outcomes conclusion; their elimination is suggested. Despite each process is individual in its content, the results of the study may contribute to efficient solutions for innovation transfers at universities.

INTRODUCTION

Why did we choose such a topic?

The author of a very interesting book says (Chál', Košturiak) that the contemporary situation in various areas is, being affected by the development of technologies, rather complex for competitiveness, especially for the development of technologies leads the areas to overlap and thus numerous factors impacting almost all fields and areas enter the competition. It took be said that *"The fast, flexible and innovative will survive." The competitive lead of a company or enterprise is directly affected by self-improvement, creating and sharing of knowledge as well as experience. Creativity, persistence, joy of one`s work, and enthusiasm for changes, all these are aspects depending on people, trust, and cooperation among them."* (Soukalová, 2016). These statements propose that the competition processes and innovation transfer are closely interconnected, and the practice proves that a successful competition becomes usually the bearer of innovative solutions in the area of products, technologies, as well as design solutions.

For the above reasons, the area of cooperation of universities with commercial as well as non-commercial organizations becomes a highly up-to-date issue in today`s situation of the Czech higher education. An equally important reason is the effort to involve universities as well as commercial organizations into the process of innovation and thus establish a model for a co-financing innovation process. Such collaborative solutions may bring not only a financial effect to universities, it will also provide students, participants of the innovation process, with valuable experience with real projects implemented in practice. Such cooperation also leads to the formation of favorable conditions for graduates and their involvement into practice. Numerous experience from implementation of innovation processes shows that the issue of innovation process should be viewed in two aspects. The first one is related to exploration of new ideas, designs or various innovative solutions, and the other on focuses on the process of implementation of such ideas itself, as well as on its transfer.

The importance of these activities is confirmed also in the fact that the issue of cooperation with the private sector has become a component of the National Research, Development and Innovation Policy of the Czech Republic 2016 - 2020. Based on the comments of the document, a system of collaboration is established which is aimed at the support of applied research for the needs of perspective areas leading the Czech economy forward, among which we also find cultural and creative industries (National Research, Development and Innovation Policy 2016). Key sectors were identified as being biotechnology and nanotechnology, digital economy, automotive and aviation industries and rail transportation, as well as traditional sectors such as machinery, electronics, steel, casting, and energy. Attention will newly be focused on cultural and creative industries. The National Policy further identifies five areas in which the Czech science stays behind, and for these areas, individual solutions are proposed.

Amongst other, it is an area of **the collaboration of the private and public sectors.** For the sake of the support of both the sectors, evaluation and funding of research will be modified in order to encourage researchers and enterprises to collaborate. Some of the existing centers should be transformed into centers of applied research and at the same time a database of the instrumentation that research organizations possess, and which could also be used for corporate research, will be created.

Innovation in enterprises represents another discussed area.

Particularly large multinational enterprises have been investing into research and development. New services and financial instruments (eg. the National Innovation Fund) should assist small and medium-sized enterprises to get involved in research.

The cultural and creative industries also belong to the areas supported by the National Research Policy, and these are closely related to innovation and to increasing the competitiveness of Czech enterprises.

Given the fact that the subject is a regional university, and especially its art-oriented faculty, the main attention of the study is paid to the transfer of design innovations.

Transfer of innovations is a process of implementation of new solutions (technologies, products) into practice, ie. into production. Transfer of design innovations is often a part of the development of new products and it often includes the change in the design of the product, which is regarded a significant innovation.

The successful transfer of innovation is completed by selling production and subsequent sale licenses or the rights of an entity (enterprise). At present, the regional university sold 16 licenses, of which 7 on design solutions and only 2 licenses are used in practice (www.utb.cz). For other licenses, work on completing proposals continues. These data indicate that the transfer process is a very complicated and long process and that it is necessary to identify critical points, which complicate the process, or make it impossible, and to eliminate their effect.

The main element of the innovation process and its subsequent transfer is searching for new ideas and solutions. How can new ideas be developed within the university environment? In principle, we encounter three ways to develop new ideas.

Whereas, each of these methods brings advantages and disadvantages:

a) the first option for new ideas stems from the very initiative of a student who brings new solutions directly in the context of a school assignment management. The great advantage lies in the flexibility of individual work, enthusiasm, and creativity. The disadvantage, on the other hand, is that the assignment is not clearly defined, the idea does not come from the need of an enterprise or the market, and thus the conditions for a real implementation are not clear; see the example of the ArtBook Zlín.

b) The second option stems from the collaboration of an enterprise with a specific faculty department, in our case it is the studio. In this case, an enterprise addresses the studio with a particular assignment. The great advantage of this situation is that there is a clearly-stated assignment, flexibility, and creativity in proposal processing. The assignment is usually handled in more students` proposals while consulting a cooperative enterprise. The enterprise selects the most suitable solution based on their needs. The disadvantage would be a complicated contractual process and financing matters.

c) The third on is an initiative of a student themselves. They contact an enterprise for their collaboration and the both parties work on a new or innovative solution together. The undoubted benefit lies in a student`s personal interest, they like the process of working on the project, they actively communicate with the assigning enterprise, the task has a defined assignment based on the real needs of the enterprise or market. The fact that authorship and intellectual property rights may pose a minor disadvantage.

We encounter all these models in the process of developing new ideas and innovations. We cannot clearly state which one is the best and most effective for each of them has the ambition to become unique, and many of them may become successful, however, not implemented.

1. OBJECTIVE AND RESEARCH QUESTIONS

The objective of the study

is to identify the essential issues of the process of design innovation transfer within the regional university, and to propose a solution for how to eliminate theses problems and issues or at least how to minimize them.

The subject of the study

is the design innovation transfer because the subject faculty is oriented at industrial design, glass design, shoe design, graphic design, and 3D design. These specializations are often a base for collaboration coming from enterprises (for instance, a proposal for a design solution, etc.).

The main premise of the research

comes from the experience proving that innovative ideas frequently proposed by students become successful at international competitions but their transfer into practice is a complicated process and is usually unsuccessful.

Research questions

For these reasons, questions form the content of the interview:
Is collaboration with an enterprise necessary for the transfer to become successful?
What innovations are more successful, those being formed from the beginning in collaboration with an enterprise, or those whose primary idea was invented at a university, and for which the collaboration is sought afterward?
What are the main issues for collaboration and transfer? (first, second, etc.)
What are the motives for arising of such issues?
How could the problem be solved, what ways do you suggest for eliminating the root of the problem?
Besides what was said, what surprised you most about the project? Your positive as well as negative impressions.

2. METHODS AND METHODOLOGY

As revealed by the statistics, the innovation transfer process is complicated and lengthy. To be able to identify the problems of the design innovation transfer process, we need to analyze individual cases which either successful or unsuccessful.

Given that in these cases quantitative methods are not sufficient, it was determined that the most appropriate method for the survey would be qualitative research in the form of individual interviews with people who often lead teams working on innovations and their transfer, or with students/authors of their own original ideas.

Research subject

There are numerous cases of design innovation solutions at individual studios, therefore, for the purposes of the research, three specific student projects were selected that were very successful in national and international competitions, and three studios that deal with design suggestions, the industrial design studio, the 3D design studio, and the glass design studio. In view of the fact that the research is carried out in the form of qualitative research for each subject, and is rather extensive, only two cases were analyzed for the purposes of this study (the other will be the subject of further studies and a subsequent comparison of results). The first case study is the individual student project called ArtBook Zlín; the second one is the analysis of the situation in the area of collaboration between the practice and design innovation transfer at the glass studio of the relevant department.

Thematic analysis of individual interviews

The interview questions are prepared in advance so that the interviewer receives an opportunity to employ their own initiative. The interview is a semi-structured interview with narrative features: the interviewer adapts to the type of projects and to the knowledge of an interviewed individual. Such an interview gives the interviewer space to employ their own initiative and to deeply survey areas that arise only during questioning. The interview has to be recorded upon the consent of the interviewed person. After the record has been made, the interview gets transcribed word by word for the purposes of a thematic analysis. The written record has the form of a transcript, the correctness of which is confirmed by an independent person who compares the record with its transcription.

Each interview starts with clarifying the objective of the survey and a brief focus of the research.

The participant is then asked to describe the course, implementation of the project, for example, see the following.
"Please, describe your experience with the project/collaboration with the enterprise in practice? Who was the initiator of the idea for the project/collaboration with the enterprise in practice. Describe the evolution of the project/collaboration and the objective of the project/collaboration. What caused you troubles in the project/collaboration with the enterprise in practice. From today`s perspective, is there anything you would like to change or influence on the course of the project/collaboration with the enterprise in practice."

Thus formulated questions are typical for the start of interviewing as this is how a narrative approach is achieved (the participant talks and the interviewer listens).

Unlike structured and semi-structured interviews (question - reply), where the interviewer holds the key impact on the topics of the interview; the main task of the interviewer in the narrative approach is to be a good "listener" and the interviewed is a mere "narrator" (Hollway, Jefferson, 2000, s. 31). Hollway and Jefferson (2000) mention that narration is a natural way of how an individual organizes their own experience, what topics they assign the greatest importance, what topic they set aside, how they evaluate the course of events in time and by significance. The objective is to acquire as much authentic material as possible, which we expect the narrator structured according to their own experience. The phase of narration is followed by the following questions complementing the questions that have not been answered; see the research questions (Braun & Clarke, 2006).

Research procedure

a) realization and thematic analysis of an individual interview with the author of an innovative solution for ArtBook Zlín
b) realization and thematic analysis of an individual interview with the person in charge of the design studio
c) comparison and evaluation of the critical points in the area of collaboration with the practice and design innovation transfer.

3. EVALUATION

Student project of ArtBook Zlín

A considerable amount of student ideas become very successful at international competitions, unfortunately, the innovation process is often interrupted after having been awarded. Such proposals are difficult to commercialize in practice especially for the fact that they are not proposed upon a specific assignment coming from a particular enterprise.

ArtBook Zlín is a student project - author book called ArtBook Zlín. It is an example of a unique idea of a graduate of the FMC TBU faculty. The book came to existence as a part of a master`s thesis whose objective was to present the history of the town of Zlín, particularly the period of Tomáš Baťa, in an appealing way. What is interesting about the book are pop-up elements. Pop-up elements are 3D models of the 11 objects typical for Baťa`s Zlín, see http://pavelcoufalik.cz/

The book received the Czech National Award for Student Design in 2013, and the manually manufactured original of the book had been installed in the permanent exhibition at the National Museum in Prague. The book was also exhibited in New York, in Germany, etc. After the successes at home as well as abroad, TBU indicated an immense interest to produce and publish the book and it aspires to obtain funding for the production of its prototype and subsequent publishing of the book. As the prototype production for commercial production has not been realized yet, nor has the subsequent publishing, an individual interview was carried out with the author with the aim to identify critical points of the implementation, ie. the production of the prototype and publishing the book.

The results of the interview with the author of ArtBook Zlín (The interview took place and was recorded on 10. 8. 2016)

The topics the author mentioned during the questioning.

The author himself is the initiator of the idea, which is a significant aspect for the author. He had come up with the topics himself and he creatively developed them on his own without any other party`s intervention. The author appreciates this particular aspect of the project most and he would not change this fact.

The author has already manufactured 5 models of ArtBook Zlin which, however, in terms of graphics and construction cannot be machine-produced (3D pop-up elements are too complicated for machine production). The unique books were manufactured for the purposes of placing the book at domestic as well as international competitions and exhibitions. It is currently necessary for the author to simplify the book in terms of its construction and to work out the system of folding the 3D elements and the technology of production for the entire book so that it could enter the production.

Another task is to seek for an appropriate producer of the prototype (based on searches, references, and demand by domestic and foreign producers). As well as to allocate the necessary financial means for the production of the prototype, presumably in the form of grant applications, together with the development of the production technology and choice of producer.

Summary of the answers to the defined research questions

In this particular case, the student considers the key factor his flexibility of the creative process. He also finds it very crucial that no company has come up with a similar assignment. It is a challenge for him as he enjoys exploring new topics. He is willing to enter into collaboration with an enterprise only in the process of the prototype production.

Problem areas

Three fundamental problem areas arose during the interview relating to the prototype realization and publishing the author book.

The first problem area concerns the **construction of 3D elements.** For the purposes of the production of a larger number of copies, when we do not assume a mere manual manufacturing, it is necessary to adjust/simplify the 3D elements for machine production. The second problem is related to **the selection of the appropriate manufacturer of the prototype** who should (in compliance with the applicable regulations of the university) be selected in a tender process. Regarding the fact that we can presume foreign manufacturers will also be invited, the process will be rather intricate and lengthy. **Allocation of financial means** will be the third problem area. Within the first phase of development and production, financing will be secured probably in the form of grants. The second phase - publishing of a certain edition size, funding will be secured in the form of donations from enterprises in the Zlín Region.

The cause for these problem areas arises already at the moment of the strive for publishing and realizing a unique book, which is something the author had not thought of when writing his master`s thesis.

In the overall, we could say that for the design innovation transfer the ideological creative process, prototype development phase, and the final phase, ie. implementing the project into practice, become equally important.

The results of the interview with the studio supervisor (the interview was taken on 3rd August 2016, was recorded and transcribed)

Topics covered by the author during the interview.

The studio supports any student activity collaborating with the practice. The collaboration runs in several ways:

a) large enterprises have a system developed for acquiring new ideas, often in the form of inviting student projects into student competitions. In these cases, we speak about the collaboration of an enterprise as a contractor authority and students become participants of a competition. This type of collaboration may be positively evaluated in relation with the prestige for the student as well as the department. The student obtains valuable experience and references. A large number of our students receive prestigious, international awards in these competitions. Such a collaboration has no impact on the design innovation transfer of the studio into practice. There are no funding issues for the prototype manufacturing, the enterprise as a competition promoter is in charge of all this.

b) The most common form of collaboration is collaboration on request of an enterprise in the role of a contracting authority for a design proposal. Students propose design solutions through student projects and are discussed with the enterprise. Selected solutions are proposed for production of the prototype. Communication with contracting enterprises is based especially on personal relationships and direct communication. With the prototype production, the first and a probably most crucial problem arises in the first phase - the financial aspect. Questions on who will finance the prototype production. Will it be the contracting authority or the department from which the student comes and where the proposal was crafted? Nowadays, the studio most frequently answers one-off assignments, which are paid after the task has been completed. Enterprises mostly fear to realize such activities through selling licenses, which is a process by means of which the university could efficiently transfer innovations. In all probability, they want to avoid the complexity of administrative transactions involved (from the side of the university) and potential authorial or copyright unclarities.

c) In some cases, students themselves seek for an enterprise who would be interested in their innovative proposals, and the enterprise collaborates with the students on the proposal as well as manufacturing of their prototype. Such solutions cannot become subjects of the transfer of the university, as the authorship remains on the part of students as well as the collaborating enterprise.

Summary of the answers to the defined research questions

The studio needs collaboration with enterprises from the world of practice, and it demonstrates its efforts to extend such activities; nevertheless, not at the expense of creative activities of its students. Students` creative potential must thus be supported and students led to being able to collaborate on specific assignments, and to exercise their own creative skills in particular solutions. Innovations, being designed since the beginning in collaboration with an enterprise, hold unequivocally driving ambitions.

The above-described interview topics showed what the following fundamental areas relating to the design innovation transfer are.

Problem areas and their causes

Financing of the production of the prototype is normally addressed after the selection of the proposed solution. This is not dealt with at the outset because it is not even clear whether the company picks any of the suggested draft designs.

Communication with the client (enterprise) becomes problematic in the case of impersonal electronic communication. On the other hand, communication is smooth in the case of a personal contact and communication.
Transfer through licensing is very problematic, especially for design innovations. For the outsourcer it is easier and more inexpensive to assign a task to students, then select a satisfactory solution, and refund the order with a single payment. As a separate activity to further address the funding of the prototype production.

CONCLUSION

Summary of the results of partial interviews show the basic common problem areas in the design innovation transfer. The main problems are associated with the production and financing respective prototype design innovations. Problems with design solutions arise in the case of realization of student innovations themselves, see the case of ArtBook Zlín (without the participation of any specific enterprise). When assigned a task by a company, the problem is solved directly with the contracting authorities and does not create any major obstacle in the development of the prototype. The common problem of both monitored situations is the question of how to secure finance for the production of the prototype (Šviráková, 2013). This should be addressed directly when the collaboration is initiated, but very often it is not clear whether any proposal for the prototype manufacturing will be selected. At the same time, addressing industrial property protection and licensing, especially by companies, become problematic issues. Enterprises currently do not want to enter any industrial legal relations with universities in the field of design innovations that more and more become subject to new development trends and undergo frequent modifications. Thus there is no point in a long-term protection of these innovations, eg. by means of industrial design, etc.
The identified problem areas should be addressed preventively by establishing sub-project intents for collaboration. These would contain individual phases of specific projects together with possible modifications.
The study analyzes two cases of the issue of design innovation transfer at a regional faculty of arts. To generalize the results, another two student projects and two design innovations studio workplaces operated by the department will be analyzed in the form of individual interviews. The conclusions will be compared and summarized into applicable recommendations.

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Identifying Of Appropriate Topics In Media Coverage For Enhancing Earthquake Survival Skills Of Undergraduate Students

Tatsanawalai UTARASAKUL
Faculty of Science and Technology
Suan Sunandha Rajabhat University
Thailand
Tatsanawalai.ut@ssru.ac.th

ABSTRACT

The purpose of this study was to developed appropriate topics in media coverage for enhancing earthquake survival skills of undergraduate students. The study was conducted by using qualitative research by developed online questionnaire in order to received gap of knowledge of their survival skills of 122 students from 7 universities in Thailand. The results revealed that only 11.5% of the sampling group faced earthquake situation. Among this, 38.8 % of students can handle in case earthquake happened immediately. Even 99.2% of students understand that they should avoid using elevators during earthquake but for other preparation skills were still misunderstand. Therefore, the other appropriate topics and detail such as information about taking care of pets and to keep staying in the second floor instead of run to the 1st floor must be projected in various kind of media coverage.

INTRODUCTION

Hazard is a dangerous event that may cause loss of life, injury or other health impacts, as well as damage and loss to property, infrastructure, livelihoods and services, social and economic disruption and, or environmental damage .The classification schemes for natural hazards vary across different research institutions and governments, but these can be divided into: geological or geophysical (e.g. earthquakes volcanic activity and tsunamis and related landslides, mudslides etc.), hydrometeorlogical (e.g. floods, tropical cyclones, storms, landslides triggered by rainfall etc.), and biological (e.g. outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations) (UNISDR, 2009 cited in Prevention Web, 2015). More people in all parts of the world are exposed to floods, drought, earthquakes and cyclones. In the decade of 2002-2011, 4,130 disasters were recorded worldwide. Whether a natural event turns into a disaster depends on the strength of the hazard as well as on the vulnerability of the people. Vulnerability develops through high susceptibility, a lack of coping capacities and a lack of adaptive capacities (Mucke, 2012).

Thailand is less vulnerable to natural hazards than many countries in the Asia-Pacific region. In 2004, the Indian Ocean earthquake off the Java coast in Indonesia generated a tsunami which impacted six of Thailand's Andaman coastal provinces in the south. The country experienced severe flooding in 2011 due to the monsoon season with rainfall over 140 percent of its normal levels. Floodwater inundated parts of the capital city of Bangkok, 65 of Thailand's 77 provinces were declared flood disaster zones (Center for Excellence in Disaster Management & Humanitarian Assistance, 2015). Disaster statistics in Thailand also presented in Table 1.

Disaster risk is not only associated with the occurrence of intense physical phenomenon but also with the vulnerability conditions that favor or facilitate disaster when such phenomenon occur. Vulnerability is intimately related to social processes in disaster prone areas and is usually related to the fragility, susceptibility or lack of resilience of the population when faced with different hazards (IADB, 2011). The INFORM model adopts the three aspects of vulnerability reflected in the UNISDR definition. The aspects of physical exposure and physical vulnerability are integrated in the hazard & exposure dimension, the aspect of fragility of the socio-economic system becomes INFORM's vulnerability dimension while lack of resilience to cope and recover is treated under the lack of coping capacity dimension. Thailand and other countries in SEA were in the high risk index level (Figure. 1)

Table 1: Statistical Disaster Information for Thailand from 2006 to 2015

Disaster type	Occurrence (time)	Deaths (person)
Drought	4	-
Earthquake	2	2
Epidemic	2	29
Extreme temperature	1	63
Flood	20	1,616
Strom	3	18
Total	32	1,740

Source: EM-DAT (2015)

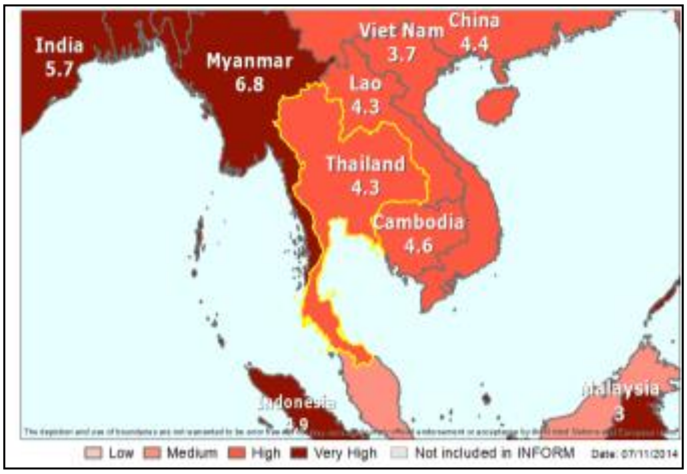

Figure 1. Inform 2015 Risk Index
Source: INFORM (2015)

Disaster risk reduction requires local level action. Most disasters are small-scale and local. To be relevant and effective national policies, such as educational curriculum on disaster risk reduction, need to be adapted to local contexts (UNISDR, 2014). From cultivation theory has been explain how mass media, especially television, can influence people's perceptions of reality (Gerbner et al., 1994 cited in Cheng et al., 2016).). As well as from social cognitive theory (Shrum, 2002) explains that a person's background, perceived environment, and behavior are interrelated. Social media can challenge the role and function of traditional mass media (Olorunnisdola & martin, 2013). Terms of news consumption, the internet has become a form of competitive displacement to mass media (Ha and Fang, 2012). There're also more relevant studies stated that while information is presented by mass media in a one-way communication in which audiences are passive receivers, social media is an interactive platform that requires users to take initiative to obtain and generate information. So, both mass and social media has different effect on people's perceptions of reality (Napoli, 2015). As individuals from their perceptions of the environment though media information, their behavioural intentions will also be altered through the cognitive process. Many people become both more willing to help others and to make disaster preparations for the future (Cheng et al., 2016).

Public education and awareness activities are ongoing side by side with the development of emergency plans, evacuation routes, and safe areas. Awareness materials are also being designed, such as tsunami evacuation maps and guidelines for action after a warning is given. Further activities are being undertaken to ensure that the Provin- cial Governors and the local administration organizations can play the roles expected of them once a warning reaches them from the national level. (Fakhruddin, S.H.M. & Chivakidakarn, Y., 2014)

In addition, experiences of disaster affected some people's behaviours such as their energy conservation, mobility intentions and purchase behaviours (Naoi et al, 2014 cited in Cheng et al., 2016). Therefore, this study was focused on appropriate topics in media coverage for enhancing earthquake survival skills of undergraduate students in Thailand

THE STUDY

In this study, qualitative research was implemented by online questionnaire in Google form (Fig.2) in order to evaluate online for 122 undergraduate students in 7 universities in Thailand. Evaluation period was covering October 2015. The content of evaluation were composed of general information and investigate appropriate media coverage for disaster preparedness as well as fundamental understanding of earthquake survival skills of undergraduate students.

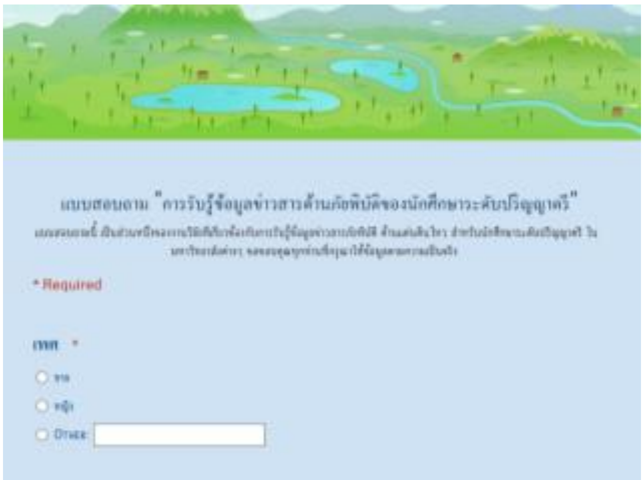

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Figure 2. Online Questionnaire for evaluation in Google Form

FINDINGS

Based on questionnaire, the results can identify into 2 parts which are appropriate media coverage for disaster preparedness and fundamental understanding of earthquake survival skills of undergraduate students.

Appropriate media coverage for disaster preparedness

General information of sampling group and appropriate media coverage for disaster preparedness were identified in Table 2 – 4.

Table 2: General information of sampling

No.	Category	Percentage
1.	Gender	
	Male	32.8
	Female	67.2
2.	Year	
	1	10.7
	2	38.5
	3	18.0
	4	28.7
	Others	4.1
3.	Earthquake experiences	
	Yes	11.5
	No	88.5
4.	Handle earthquake situation	
	Can control the situation	38.8
	Unsure how to do when earthquake	25.9
	Can help others	15.5
	Anxiety	10.3

Table 3: Frequency of received disaster educational media by different types of media

Ranking	Received disaster educational media	Always	Often	Sometimes	Rarely	Less
3	Website	25.4	31.1	27.0	9.8	6.6
2	Facebook	42.6	29.5	18.0	5.7	4.1
	Twitter	9.8	16.4	27.9	22.1	23.8
	Line	10.7	18.0	33.6	17.2	20.5
1	Television	66.4	17.2	13.9	2.5	0
4	Magazine/ Newspaper	23.8	39.3	24.6	9.0	3.2
	Infographics	7.4	2.3	31.1	20.5	18.0
	E-book	3.3	13.1	31.1	23.8	28.7
	YouTube	20.5	27	32.8	11.5	8.2
5	Classroom	23.0	37.7	23.8	11.5	4.1
	Radio	9.8	26.2	38.5	15.6	9.8
	Book	14.8	32	32	15.6	5.7

Table 4: Appropriate media coverage for disaster preparedness

Ranking	Received disaster educational media	Always	Often	Sometimes	Rarely	Less
3	Website	25.4	31.1	27.0	9.8	6.6
2	Facebook	42.6	29.5	18.0	5.7	4.1
	Twitter	9.8	16.4	27.9	22.1	23.8
	Line	10.7	18.0	33.6	17.2	20.5
1	Television	66.4	17.2	13.9	2.5	0
4	Magazine/ Newspaper	23.8	39.3	24.6	9.0	3.2
	Infographics	7.4	2.3	31.1	20.5	18.0
	E-book	3.3	13.1	31.1	23.8	28.7
	YouTube	20.5	27	32.8	11.5	8.2
5	Classroom	23.0	37.7	23.8	11.5	4.1
	Radio	9.8	26.2	38.5	15.6	9.8
	Book	14.8	32	32	15.6	5.7

The results revealed that Majority of sampling group were female (67.2%) and only 11.5% of the sampling group faced earthquake situation. Among this, 38.8 % readiness to handle in case earthquake happened immediately. Fortunately, 80.2% of students received news and information of earthquake survival skills. Different kinds of media coverage perception were also assessed. Students received information of disaster in the highest level from television (66.4%) follow by Facebook (42.6%), website (25.4%), magazine (23.8%), classroom (23.0%) and YouTube (20.5%), respectively. The highest level of appropriate media coverage for sharing news and knowledge of disaster preparedness are television (74.6%), Facebook (59.8%), classroom (59.8%), magazine (51.6%),YouTube (49.2%), and website (45.1%).

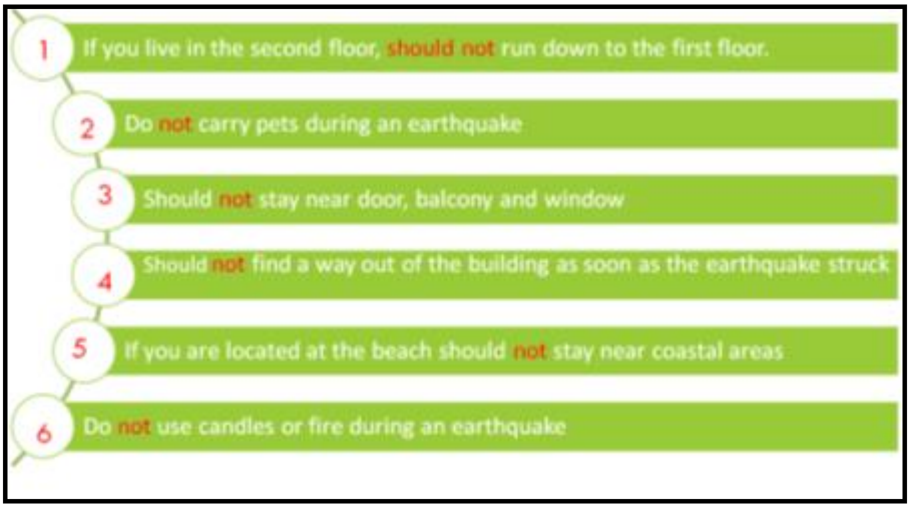
Fundamental understanding of earthquake survival skills of undergraduate students

Fundamental understanding of “Disaster Knowledge: How to prepare when earthquake” or earthquake survival skills of undergraduate students also identified in table 5.

Table 5: Fundamental understanding of earthquake survival skills of undergraduate students

No.	Topics	Correct Answer (%)
1	If you live in a building, should stay under table/ at the corner	93.4
2	Should stay near door, balcony and window	71.3
3	Should find a way out of the building as soon as the earthquake struck	74.6
4	Should avoid stay under electricity post or under the tree	94.3
5	Do not use candles or fire dduring an earthquake	79.5
6	If you are located at the beach should stay near coastal areas	77.9
7	If you're in the car should go under a bridge or express way.	89.3
8	Do not carry pets during an earthquake	65.6
9	Do not use elevator	99.2
10	If you live in the second floor, should not run down to the first floor.	59.8
	Average	80.49
	Min	59.8
	Max	99.2

The most understandable knowledge of earthquake that students can answer the correct answer was do not use elevator which are 99.2% follow by they should stay under table or at the corner when live in the building during earthquake. However most of them still lack of information about taking care of pets and to keep staying in the second floor instead of run to the 1st floor. Besides, proper topics which were suitable to enhancing knowledge of survival skills were identified in Figure 3.



1. If you live in the second floor, should not run down to the first floor.
2. Do not carry pets during an earthquake
3. Should not stay near door, balcony and window
4. Should not find a way out of the building as soon as the earthquake struck
5. If you are located at the beach should not stay near coastal areas
6. Do not use candles or fire during an earthquake

Figure 3. Appropriate topics for develop media coverage

CONCLUSIONS

The majority of the students know very well about how to survive under earthquake situation even few of them had experiences related with earthquake. Televisions are the most effective media to enhance knowledge and awareness of disaster preparedness follow by Facebook and classroom activities.

According to the basic knowledge of earthquake survival skills, students know very well that they should not use elevator which are 99.2% follow by they should stay under table or at the corner when live in the building during earthquake. However, most of them still lack of information about taking care of pets and to keep staying in the second floor instead of running to the 1st floor.

Last but not least, digital media such as E-book and infographics should be produced and combined with TV, website, especially social network in order to raise awareness of natural disaster preparedness for future generation.

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Identity Styles And Internet-Related Addictive Behaviors In Adolescents

Maria SINATRA
Department of Educational Sciences, Psychology, Communication
University Aldo Moro of Bari
Italy
maria.sinatra@uniba.it

Valeria DE PALO
Department of Humanities
University of Foggia
Italy
valeria.depalo@unifg.it

Paolo CONTINI
Department of Educational Sciences, Psychology, Communication
University Aldo Moro of Bari
Italy
paolo.contini@uniba.it

Vito VOLPICELLA
Department of Educational Sciences, Psychology, Communication
University Aldo Moro of Bari
Italy
vitovolpicella@yahoo.it

ABSTRACT

Even though the modern online technologies has positively impacted life areas in terms of social interaction, entertainment, cognitive skill development, etc., as largely demonstrated by several studies, the excessive use of these technologies may be particularly problematic to adolescents. Consequently, the interest of researchers has focused on those individual and/or social factors which could foster internet-related addictive behaviours. The current study aimed at analyzing how and to what extent identity formation could be a protective or a risk factor. A sample of 254 adolescents (M = 135, F= 119; M*age* = 18.22, SD = 1.06) were recruited from Italian high schools. They were asked to fill out a questionnaire composed by: the socio-anagraphic section, the Revised Identity Styles Inventory (ISI-5), the Bergen Social Media Addiction Scale (BSMAS), and the Internet Addiction Test (IAT). Descriptive and causal analyses were applied to the data. Results showed high positive correlations between the diffuse-avoidant style and internet and social media addiction and between internet addiction and social media addiction. As the diffuse-avoidant style resulted as a risk factor in the development of maladaptive behaviours, educational contexts should deserve more attention on adolescents' identity formation to prevent or at least reduce the abuse of online activities.

INTRODUCTION

In the last decades the Internet has emerged as an essential medium thanks to its ability to connect people around the world and to provide unlimited sources of information, communication, and entertainment (Turkle, 1995). While these benefits are unquestionable, its excessive use may cause the detriment of work, study, and social life. This is why the Internet has become potentially addictive and, thus, an interesting topic for psychological researchers who have attempted to explore its characteristics and symptoms, to conceptualize its antecedents and consequences, and to develop corresponding measurement tools (Byun et al., 2009).

Preceded by the notions of computer addiction (Shotton, 1991) and technological addictions (Griffiths, 1996), the different internet-related activities were classified in 1998 by Young who developed an eight-item scale, the Internet Addiction Diagnostic Questionnaire (IADQ), borrowing the criteria for pathological gambling (Young, 1998) from the DSM-4. In spite of this, the different terms currently in use, such as cyberspace addiction, online addiction, Net addiction, Internet addicted disorder, pathological Internet use, high Internet dependency, etc., make evident the inconsistent definition of Internet Addiction (Byun et al., 2009), even though the relative symptoms have been identified. They often include increased investment of resources on online activities, unpleasant feelings (e.g. anxiety, depression, emptiness) when offline, an increasing tolerance to the effects of being online, and the denial of the problematic behaviors (Kandell, 1998). The following three symptoms were added by Griffiths: salience, i.e., when Internet becomes the most important thing in the individual's life, mood modification, i.e., the usage of the Internet to change mood states, and relapse, i.e., when the individual returns to the addictive behavior, even after a period of abstinence (Griffiths, 1998). These symptoms have been often linked to underlying psychological issues, such as low interpersonal skills, high levels of intelligence, degree of self-control, psychological distress, abnormal behaviour, etc. (Hur, 2006; Ko, Yen, & Chen, 2006). Further associations were found between problematic Internet use and depression, self-esteem, loneliness, shyness (Caplan, 2002, 2003), sensation seeking (Armstrong, Phillips, & Saling 2000), locus of control, and online experience (Chak & Leung, 2004).

In the field of personality factors, research has generally showed inconsistent results: both introversion and extroversion have been found to predict Internet addiction (Huang, Zhang, Li, Wang, Zhang, & Tao, 2010; van der Aa, Overbeek, Engels, Scholte, Meerkerk, & Van den Eijnden, 2009; Yan, Li, & Sui, 2014; Zamani, Abedini, & Kheradmand, 2011). According to Wang, Ho, Chan, and Tse (2015), this controversy may be attributed to the differences in participants and in online activities, including social networking. In this context, in reviewing the psychological literature on online social networking and addiction Kuss and Griffiths (2011) have noted that certain personality traits, such as extroversion and introversion, have been often associated with higher usage frequency of Social Networking Sites (SNSs) with different motivations: extroverts use SNSs for social enhancement, whereas introverts for social compensation. Negative correlates of excessive use of SNSs include a decrease of the participation in real life social community and of the academic achievement, as well as relationship problems.

On the contrary, studies on the relationship between identity styles and addictive behaviors are limited (Arabzadeh, Bayanati, Nikdel, Nadery, & Naimi, 2012; Morsünbül, 2014; Tabaraei, Nikoogoftar, & Minoosepehr, 2014). Individual identity has been found to be an important protective factor against health-risk outcomes, such as delinquency or addictive behaviours (Côté & Levine, 2002). Berzonsky's social cognitive perspective of identity (Berzonsky, 1988, 1990, 2011 for a review), generally linked to substance addictions, could provide a good framework of exploring addictive behaviors. The relationship between identity styles and recovery from substance abuse has been explored by White, Montgomery, Wampler, and Fischer (2003), who have highlighted that individuals with a diffuse-avoidant style have shorter lengths of continuous abstinence, fewer recovery-oriented behaviors, lower quality of recovery, and less recovery progress than individuals with an informational style. Recently, the scores obtained on diffuse/avoidant identity style by the drug user group have resulted significantly higher than those of the non-user group (Hojjat, Golmakani, Bayazi, Mortazavi, Khalili, & Akaberi, 2015).

Given the above mentioned lack of research on the relationship between identity styles and internet addictive behaviors, the aim of the current study was to explore the effects of identity styles on internet and social networking addiction. In particular, informational and normative styles were hypothesized to be protective factors, whereas diffuse-avoidant style was hypothesized to be a risk factor.

METHOD

Participants

The sample was composed of 254 adolescents (M = 135, F = 119; M_{age} = 18.22, SD = 1.06). Participants were recruited form Italian high schools in the period January - March 2016.

Ethics approval for the study was obtained from the Institution. Permission was required from heads and deans to conduct the research study at the school. Written informed consent was obtained from students over 18 years of age; parents or legal guardians provided written consent for students under 18 years of age to participate. Respondents were asked to complete an anonymous questionnaire during an ordinary 60-min classroom lesson.

Measures

The Italian version of the *Revised Identity Style Inventory* (ISI-5; Berzonsky et al., 2013; Monacis, de Palo, Sinatra, & Berzonsky, 2016) was used to assess three identity styles, i.e., Informational style, Normative style, and Diffuse-avoidant style. The scale comprises 36 items rated on a 5-point Likert scale (from 1 = *Not at all like me* to 5 = *Very much like me*). The Inventory also includes a nine items identity commitment scale. Total score of each scale is computed by summing responses to the items. The internal consistency of the Informational and Diffuse-avoidant scales were good (Cronbach's alpha = .80 and .81, respectively), whereas the reliability of the Normative scale was acceptable (Cronbach's alpha = .62). These values were comparable with previous studies

(Monacis, de Palo, Sinatra, & Berzonsky, 2016; Monacis, de Palo, Di Nuovo, & Sinatra, 2016).

The Italian version of the *Internet Addiction Test* (IAT; Fioravanti & Casale, 2015; Young, 1998) measures the severity of self-reported compulsive use of the Internet for adults and adolescents. The scale is composed of 20 items rated on a 5-point Likert scale (from 1 = *Never* to 5 = *Always*). The total score is computed by averaging the scores obtained in each item. The internal reliability of the scale was excellent (Cronbach's $\alpha = .94$).

The *Bergen Social Media Addiction Scale* (BSMAS; Andreassen et al., 2016) assesses the experiences in the use of social media over the past year. It contains six items answered on a 5-point Likert scale (from 1 = *Very rarely* to 5 = *Very often*) reflecting core addiction elements (Griffiths, 2005). The internal consistency of the scale was very good (Cronbach's $\alpha = .81$).

FINDINGS

Descriptive statistics (minimum, maximum, mean and standard deviation) of each considered variable for the total sample and males and females groups are reported in Table 1.

Table 1: Descriptive statistics of the variables of interest.

	Total sample (N = 254)		Males (N = 135)		Females (N = 119)	
	Min-Max	Mean (SD)	Min-Max	Mean (SD)	Min-Max	Mean (SD)
BSMAS	6 – 26	12.30 (4.61)	6 - 25	12.11 (4.94)	6 - 26	12.51 (4.20)
IAT	6 – 26	12.31 (4.59)	6 - 26	13.06 (5.17)	6 - 24	11.45(3.65)
Informational style	13 - 44	33.10 (5.71)	13 - 44	32.44 (6.18)	20 - 43	33.84 (5.06)
Normative style	12 – 39	26.15 (4.52)	12 - 39	26.22 (4.69)	16 - 39	26.07 (4.34)
Diffuse-avoidant style	9 – 40	22.54 (6.82)	10 - 40	23.62 (6.93)	9 - 38	21.30 (6.49)

Gender effects were examined using t-test for independent samples. Significant differences emerged only in the IAT score between males and females, $t_{(252)} = 2.84$, $p < .01$. Males obtained higher scores.

Bivariate correlation analyses were performed to analyze the pattern of association between the variables of interest (Table 2).

Table 2: Bivariate correlations between the variables of interest.

	BSMAS	**IAT**
IAT	,719**	-
Informational style	,033	-,079
Normative style	,014	-,043
Diffuse-avoidant style	,527**	,578**

** $p < 0.01$

Findings showed that only the diffuse avoidant style was positively associated to both internet and social networking addictions and that both addictive behaviors were positively correlated. Two separate linear regressions with backward method were performed to examine the influence of each identity style on addictive behaviors. Findings showed that internet addiction was positively predicted by diffuse avoidant style ($\beta = .59$) and negatively by normative styles ($\beta = -.11$), whereas social networking addiction was positively predicted by diffuse avoidant style ($\beta = .53$).

CONCLUSIONS

The current study aimed at analyzing the extent to which identity styles, as defined by Berzonsky (1988, 1990), could predict internet and social networking addiction. More specifically, it was expected that informational and normative styles acted as protective factors and diffuse-avoidant style as a risk factor. The hypotheses were partially confirmed: among the identity styles, only diffuse-avoidant was positively associated with both internet and social media addiction. Regression analyses provided a more detailed and interesting information about the causal relationship between the variables: diffuse-avoidant style was a positive predictor of both social media and internet addiction, whereas normative style resulted a negative predictor of internet addiction after removing informational style. These findings partially corroborated previous studies according to which there is a relationship between technology addictions, in terms of internet and social networking, and identity styles (Arabzadeh, Bayanati, Nikdel, Nadery, & Naimi, 2012; Morsünbül, 2014; Tabaraei, Nikoogoftar, &

Minoosepehr, 2014). Individuals with diffuse-avoidant style tend to avoid or procrastinate identity problems they have to face probably preferring social networking sites to develop social interactions, which could lead to an excessive use of internet. Conversely, normative-oriented individuals, in internalizing significant others' expectations and values, tend to protect and conserve their own identity structure. In this case, the virtual environment could represent an uncertain space characterized by a variety of identities and values (Tabaraei, Nikoogoftar, & Minoosepehr, 2014). This is why this kind of identity style negatively predicts internet and social media addiction.

Thus, Internet and social network sites seem to provide a virtual environment where adolescents could face their identity conflicts and issues, especially when they look for independence and separation from parents and need to establish exciting and satisfying relationships with companions and groups on the Internet. On top of that, they can reveal only a part of their identity or construct imaginary identities and names (Arabzadeh et al., 2012) using them for specific goals. These disordered identities, therefore the risk to become addicted to technology, are favoured by inappropriate expectations, dissatisfaction with parents, school, and social relationships.

In general, the findings of this research may be useful both in prevention and intervention programs: parents, teachers, educators, counselors, etc., have to support particularly diffuse-avoidant adolescents who could make an excessive use of internet and social networking sites. It should be worthwhile to promote social skills in order to avoid/reduce the risk of negative outcomes (Caplan, 2005).

Since the hypotheses of the current study were partially confirmed, further studies are needed: (1) to better analyze the nature of the relationship between identity styles and technological addictions, above all as for the informational style which has been found elsewhere (Arabzadeh, Bayanati, Nikdel, Nadery, & Naimi, 2012; Morsünbül, 2014; Tabaraei, Nikoogoftar, & Minoosepehr, 2014) to be a negative predictor; (2) to test a causal model in which further antecedents and consequences of internet/social media addictions can be clearly integrated.

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Impact Of Missing Data On Rasch Model Estimations

Sümeyra SOYSAL
Hacettepe University, Turkey
sumeyrasoysal@hotmail.com

Çiğdem Akın ARIKAN
Hacettepe University, Turkey
akincgdm@gmail.com

Hatice INAL
Hacettepe University, Turkey
haticeinall@hotmail.com

ABSTRACT

This study aims to investigate the effect of methods to deal with missing data on item difficulty estimations under different test length conditions and sampling sizes. In this line, a data set including 10, 20 and 40 items with 100 and 5000 sampling size was prepared. Deletion process was applied at the rates of 5%, 10% and 20% under conditions of completely missing at random (MCAR) and missing at random (MAR) data structures in these full data sets. Pursuant to deletion process, values were assigned through regression and mean imputation methods being among missing data methods. The method of leaving the missing data blank (non-imputation) was also examined. In Rasch model, CML, JML and Pairwise estimations of item difficulty parameter were evaluated in comparison with parameters estimated from full data sets. To this end, RMSE was used as an evaluation criterion. At the end of the research, the least amount of estimation errors was obtained in JML method of Rash model than CML and Pairwise methods and it was found that Pairwise method had similar performance as CML method. It was found that errors in the estimations obtained through three different estimation methods among the methods to deal with missing data increased as missing data rate increased; and decreased as sample size increased. In a big sampling, non-imputation of missing data and regression-based estimations offered good results under many conditions as missing data rate increased. It was found that test length affected CML and Pairwise estimations among missing data imputation methods under many conditions

INTRODUCTION

Missing data is a very common problem for researchers in many studies in the field of education and psychology. De Ayala, Plake and Impara (2001) reported that there are three reasons for missing data in their research. The first reason is that individuals respond to only one subgroup of test in test applications such as individualized tests, multi-staged tests or common item design for nonequivalent groups and thus missing data emerges in sub-test sections which are not submitted to individuals (Eggen and Verhelst, 2011; Misley and Wu, 1988; Shin,2009). However, this situation does not cause any problem in ability estimation of individuals. As a second reason, missing data may emerge in lack of sufficient time to complete test application of an individual. In this case, non-responded items do not give information about abilities of individuals; therefore these items can be excluded for ability estimations. As a third reason, individuals do not want to respond to some test items even though they have time. Misley and Wu (1988), on the other hand, report that the presence of missing data may be dependent on ability level besides characteristics and demographic features of individuals.

Missing data is a remarkable problem since many model and theories such as item response theories (IRT) are based on the expectation that data are complete. However, amount and distribution of missing data in data matrix obtained especially at the end of research are more important for statistical estimations. Missing data were collected in three classes being completely at random, at random and not at-random by Little and Rubin (2002). Data missing completely at random (MCAR) are independent from observed and non-observed data and are random sampling of the observed data. Data missing at random (MAR) are dependent on observed variable and not dependent on non-observed variable. MCAR and MAR missing structures do not lead to systematic error in statistical estimations. Missing data, which are not MCAR and MAR, are data missing not at-random (MNAR) and dependent on variable which is observed to be missing or not. According to Mislevy and Wu (1988), a suitable algorithm must be used considering missing data estimation in parameter estimation of IRT-based data in presence of missing data.

The effect of missing data on the estimation of IRT -based individual and ability parameters has been discussed for years in psychometrics. In this field, studies were conducted on the effect of missing data on parameter estimations under the conditions of different missing data structures and rate; the effect of missing data on parameter estimations; comparison of methods to deal with missing data or methods of parameter estimations on missing data.

In their study, De Ayala, Plake and Impara (2001) investigated ability parameter estimations of dealing with missing data for 3-parameter logistic (3 PL) model. Accordingly, they reported that considering missing data as incorrect response leads more biased results than considering them as blank. In the study conducted by Finch (2008) on the effect of missing data imputation methods on the estimation of item difficulty and discrimination parameters based on 3PL model, it was found that efficiency of missing data imputation methods differs by missing data structure. In their study, Andreis and Ferrari (2012) investigated item parameter estimations in different missing rates and missing data structures in terms of methods to deal with missing data according to multi-dimensional two-parameter logistic (M2PL) model. In the present study, it was found that estimation bias increased as the rate of missing data increased; miss forest, forward imputation and multivariate imputation by chained equations gave similar results under almost every condition. Zhang and Walker (2008) investigated the effect of methods to deal with missing data in data sets having different missing data rates, sample size and item number on individual-model fit and individual ability estimations. At the end of this research, it was found that individual-model fit decreased and ability estimation bias increased as missing data rate increased; considering missing data as incorrect response gave the worst result while pairwise deletion method gave the best.

DeMars (2002) investigated the effect of missing data in MCAR and MAR structures on difficulty parameter through joint maximum likelihood (JML) and marginal maximum likelihood (MML) estimation methods. De Mars (2003) researched the correlation between individual abilities rate of not-reached items in terms of JML and MML estimations of 1PL model. In this study, it was found that two estimation methods estimated item parameters unbiasedly when rate of not-reached items was not dependent on abilities of individuals, JML estimated unbiasedly and MML estimated lower than real situations when not-reached rate was correlated with abilities of individuals.

Heine and Tarnai (2015) investigated estimations based on MML, CML and Pairwise methods at different rates of data missing completely at random in item difficulty parameter in the context of Rasch model. According to this research, it was found that three methods gave similar results when there was no missing data and pairwise-based parameter estimations even at %35 rate of missing data were as stable as those obtained from MML method. Custer, Sharairi and Swift (2012) discussed the effect of missing data on parameter estimations on the basis of JML method while Mislevy et al. (2005) investigated it on the basis of MML method.

Studies (Hohensinn & Kubinger, 2011) reported that missing data lead to bias in statistical results. The effect of missing data methods to deal with them on statistical estimations could be more clearly examined through IRT models that can estimate with missing data matrix. At this point, to research this case through Rasch model estimation methods was considered important. Apart from maximum likelihood estimation methods which are frequently used in the literature, it was aimed to attract attention to less known and less used pairwise-based estimations. In this content, this study aims to investigate the effect of methods to deal with missing data on item difficulty estimations under different test length conditions and sampling sizes. To this end, following three questions were asked.

1) What is the effect of data structures being missing at random or completely at random and missing data rate on CML estimations of item difficulty parameter?
2) What is the effect of data structures being missing at random or completely at random and missing data rate on JML estimations of item difficulty parameter?
3) What is the effect of data structures being missing at random or completely at random and missing data rate on Pairwise estimations of item difficulty parameter?

Rasch Model and Estimation Methods

Rasch Model: In item response theory, models are named by the number of parameters included. Rasch model known as 1 PL model in the literature is mathematically same with 1 PLM. However, discrimination parameter in Rasch model equals to 1 when it is equal for all items in 1 PL model (de Ayala, 2009). Rasch model is a special form of 3-parameter logistic model in which opportunity parameter is minimum and discrimination parameters are the same for all items (Hambleton and Swaminathan, 1985). Mathematical formula of Rasch model is presented as follows.

$$P_i(\theta) = {\exp(\theta - b_i)}\Big/{1 + \exp(\theta - b_i)}$$

$P_i(\theta)$: Likelihood of an individual with θ to give correct response to item i.

bi : difficulty of item i

Parameter b in Rasch model is item difficulty parameter and generally gets a value between -2 and +2. In this model, it is assumed that performance of an individual is solely affected by item difficulty.
In this research, CML, JML and pairwise estimation methods were used for the estimation of item difficulty parameter based on Rasch model.

Joint maximum likelihood (JML): JML 1, 2 and 3 parameters used in estimations of both ability and item parameters can also be used in models (Hambleton, Swaminathan and Rogers, 1991). Unknown ability levels in JML are considered as known values by using estimated ability levels. Afterwards, unknown ability levels are used to estimate item parameter and arrangements are made in the estimations of ability levels through estimated item parameters. In other words, JML estimation is iterative and includes estimation of item and ability parameters. In the first stage, individual parameters are estimated and in the second stage, item parameters are estimated. The first iteration of these two stages includes initial values for item parameters; in this way, ML estimations of individual parameters are obtained. Afterwards, item parameters are estimated by using first individual parameters and this process maintains until the change of item parameter is very little among iterations (Hambleton, Swaminathan and Rogers, 1991; Embretson and Reise, 2000; de Ayala, 2009). JML has some advantages and disadvantages.

Constrained Maximum Likelihood (CML): CML can be applied only to Rasch model and other models that are extension of Rasch model (Hambleton, Swaminathan and Rogers, 1991; Embretson and Reise, 2000). In CML estimation; unknown ability levels examine response pattern likelihood without the parameters of ability level. Since total score of individual is a sufficient statistical information for the estimation of ability level, there is no need for more information for parameter estimations (Embretson and Reise, 2000). Therefore, 2 PL and 3 PL are not used in the model.

Pairwise Method: It is method that ensures the calculation of parameters based on constrained item category frequencies obtained from pairwise comparisons of items. Chopin (1968, 1985) showed the practical application of this method which was considered as an alternative to the calculation of item difficulty parameter by Rasch (1966). Chopin (1985) developed two methods being iteractive based on maximum likelihood for the estimations based on these pairwise comparisons (e.g. Andrich and Luo, 2003) and non-iteractive based on the estimation of the least squares of item parameters as well. In the present study, pairwise method based on the estimation of the least squares of item parameters was used (e.g. Heine, 2015). Pairwise method is based on the comparison of responses given to two items taking stand from the likelihood of an individual for giving correct or incorrect response to an item. An individual can give four different responses to two items; correct response to both items, correct response to at least one item and incorrect response to both items. These likely cases are presented with equations below by Rasch (1966) and Chopin (1985).

$$P(x_{vi}= 0,\ x_{vj}=0)= \frac{1}{1+ e^{(\theta_v-\sigma_i)}} \times \frac{1}{1+ e^{(\theta_v-\sigma_j)}}$$

$$P(x_{vi}= 1,\ x_{vj}=0)= \frac{e^{(\theta_v-\sigma_i)}}{1+ e^{(\theta_v-\sigma_i)}} \times \frac{1}{1+ e^{(\theta_v-\sigma_j)}}$$

$$P(x_{vi}= 0,\ x_{vj}=1)= \frac{1}{1+ e^{(\theta_v-\sigma_i)}} \times \frac{e^{(\theta_v-\sigma_j)}}{1+ e^{(\theta_v-\sigma_j)}}$$

$$P(x_{vi}= 1,\ x_{vj}=1)= \frac{e^{(\theta_v-\sigma_i)}}{1+ e^{(\theta_v-\sigma_i)}} \times \frac{e^{(\theta_v-\sigma_j)}}{1+ e^{(\theta_v-\sigma_j)}}$$

In these equations θ_v, v presents ability level of an individual and σ_i and σ_j present item difficulty of items i and j. Taking stand from these four likelihood, constrained frequency matrix of items and the least square estimations of item parameters are calculated. Individual parameters are estimated through weighted likelihood approach under the assumption of stable item parameters. Choppin's (1985) studies can be examined for all calculations in Pairwise method and Heine's (2015) studies can be examined for a sample application matrix.

METHOD

Research Type

This study is a fundamental research since it investigates the effect of different ability estimation methods on estimation errors of item difficulty parameter in the presence of missing data.

Data Production and Analysis

R 3.5 program was used to produce full data sets within the context of this research. Full data sets were produced in accordance with Rasch model according to three test lengths being 10, 20 and 40 and two sampling sizes being 100 and 1000. Item difficulty parameter (β) and ability parameter (θ) N~(0.1) had normal distribution. Data sets with missing data were obtained by deleting data at the rates of 5%, 10% and 20% in missing completely at random (MCAR) and missing at random (MAR) structures through codes written in R program from full data set. Afterwards, mean and regression imputation methods were used for the missing data and these data sets were turned into full data sets. HotDeckImputation (Joenssen, 2015) package was used for mean imputation and mice (van Buuren and Groothuis-Oudshoorn, 2015) package was used for regression imputation being among missing data imputation methods.

In this research, 196 conditions; being 2 (100x1000) sample sizes, 2 missing data types (MCARxMAR), 3 missing data rates (5x%10x%20%), 3 test lengths (10x20x40), 3 estimation methods (JMLxCMLxPairwise) and 2 (mean and regression) methods to deal with missing data were investigated. 30 replication was applied for each condition.

Current R packages were used for the estimation methods used in this research. eRM (Mair et al., 2015) was used for CML estimation, sirt (Robitzsch, 2016) was used for JML and pairwise (Heine, 2015) package was used for pairwise method.

Research results were evaluated by comparing parameters estimated from full data sets which were obtained according to full data sets and missing data imputation methods based on these sets. To this end, RMSE was used as an evaluation criterion for the validity of the estimations of item difficulty parameter.

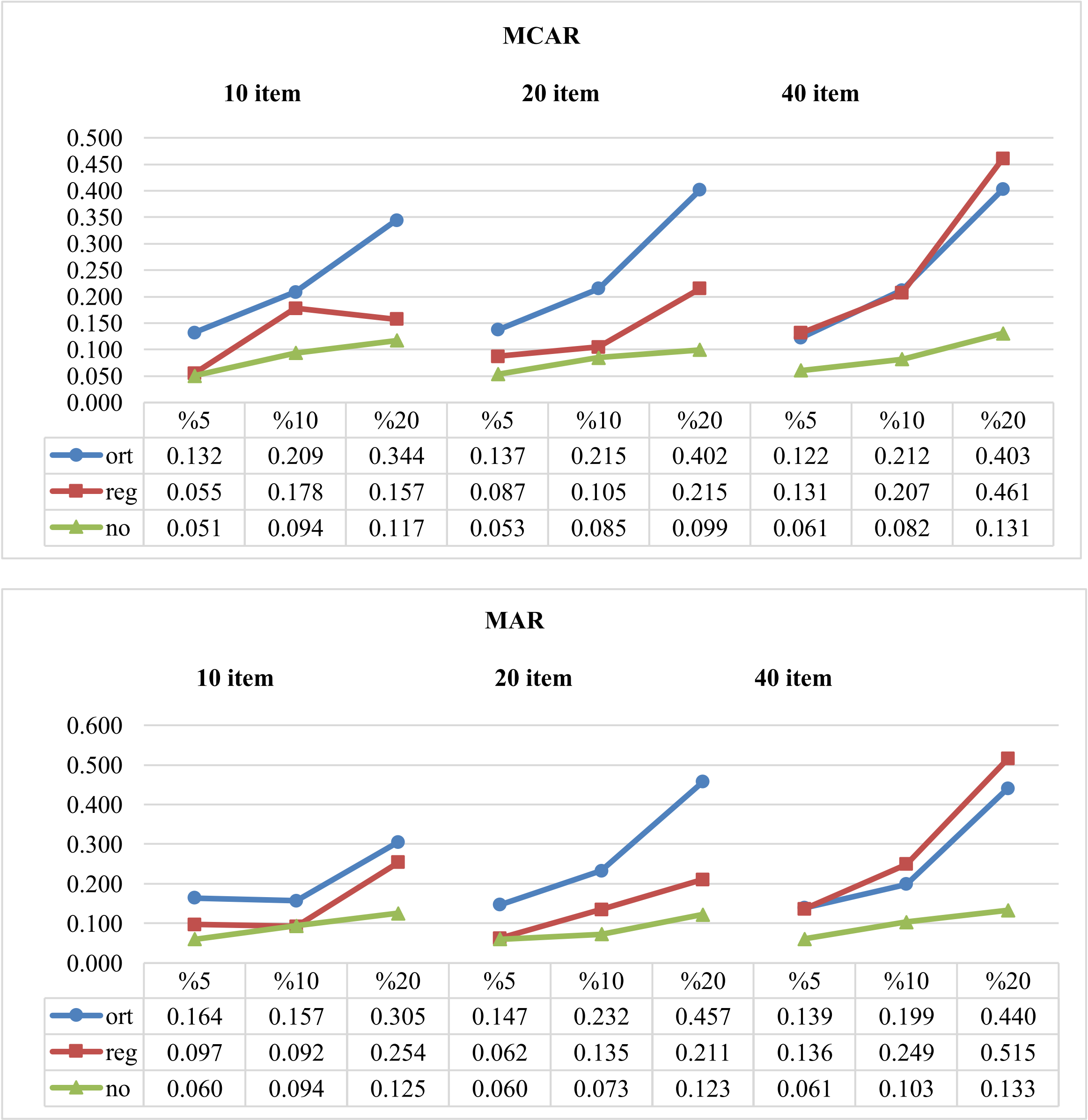
FINDINGS

In this chapter, the difference between estimations of item difficulty parameter obtained from data sets which were completed by the methods to deal with missing data and estimations obtained from full data sets under the conditions detected within the context of the research. The findings are presented based on the research questions.

What is the effect of data structures being missing at random and missing completely at random and missing data rates on CML estimations of item difficulty parameter under different sampling size and test length conditions?

According to sample size, test length and and missing data structures, RMSE values of conditional maximum likelihood (CML) estimations of item difficulty parameter are presented in Figure 1 and Figure 2.

According to Figure 1, the least erroneous estimations were obtained from leaving the missing data blank for all conditions of missing data rate and item length for N=100 under MCAR missing data structure. RMSE values of CML estimations obtained through regression imputation method were lower than mean imputation when test length was 10 and 20 while the results were reverse when test length was 40 items. It was found that estimation errors increased for each method to deal with missing data as missing data rate increased under all conditions. This finding is remarkable especially for mean and regression imputation methods. It was found that estimation errors obtained through the method of leaving missing data blank and mean imputation method did not vary much according to the variable of test length while estimation errors generally increased as item numbers increased in regression imputation method. Similar results were obtained for MAR missing data structure.



	%5	%10	%20	%5	%10	%20	%5	%10	%20
ort	0.132	0.209	0.344	0.137	0.215	0.402	0.122	0.212	0.403
reg	0.055	0.178	0.157	0.087	0.105	0.215	0.131	0.207	0.461
no	0.051	0.094	0.117	0.053	0.085	0.099	0.061	0.082	0.131

	%5	%10	%20	%5	%10	%20	%5	%10	%20
ort	0.164	0.157	0.305	0.147	0.232	0.457	0.139	0.199	0.440
reg	0.097	0.092	0.254	0.062	0.135	0.211	0.136	0.249	0.515
no	0.060	0.094	0.125	0.060	0.073	0.123	0.061	0.103	0.133

Figure 1. RMSE Values of CML Estimations of Item Difficulty Parameter (N=100)

According to Figure 2, RMSE values obtained through regression imputation methods and the method of leaving the missing data blank under all conditions of test length and missing data rates for N=1000 within the context of

MCAR missing data structure are very close to each other and the least erroneous estimations are obtained from these two methods. Estimation errors increased as missing data rate increased for each method to deal with missing data while this finding changed at minimum level by test length. Similar results were obtained in MAR missing data structure for N=1000 as well.

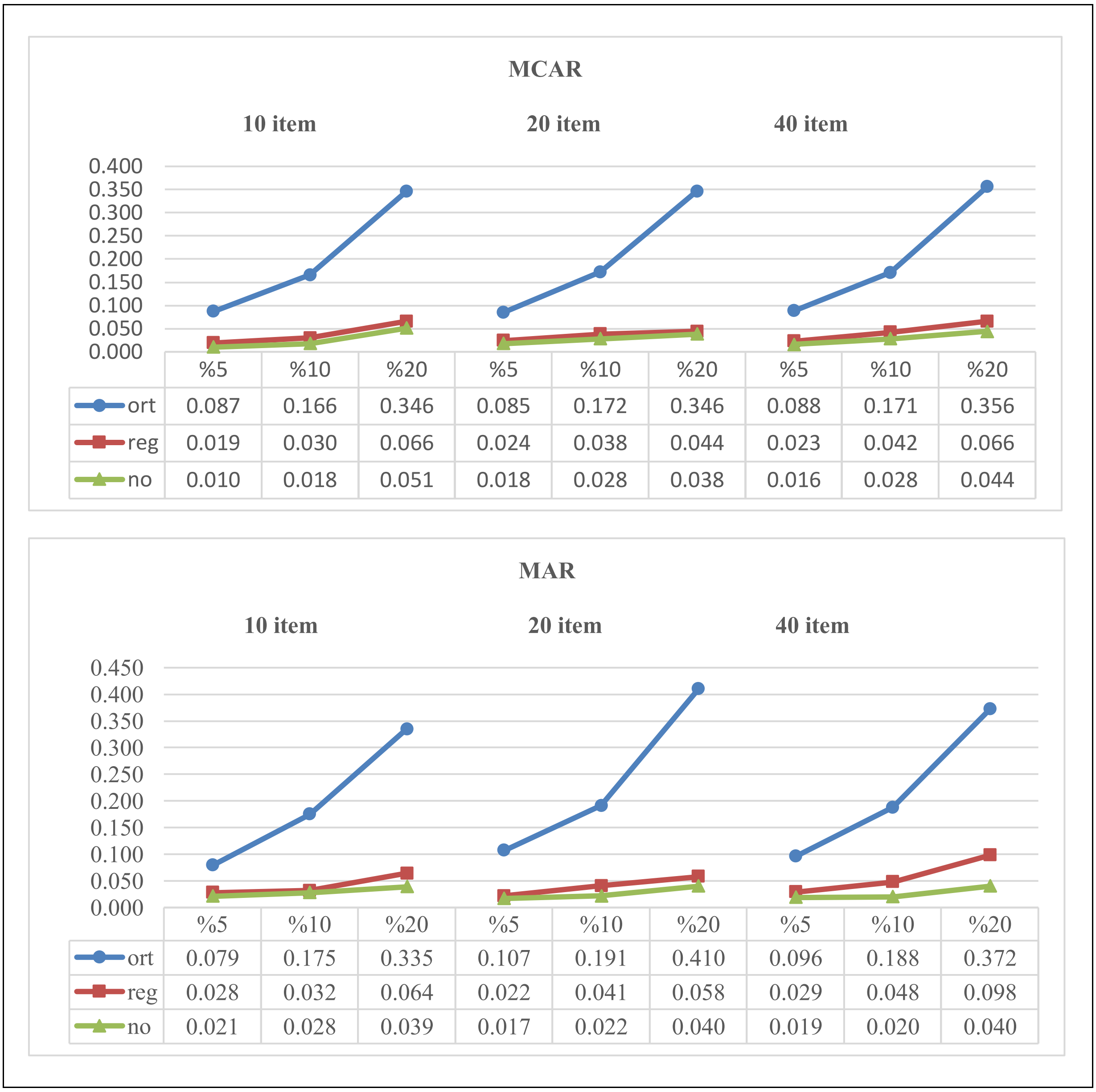
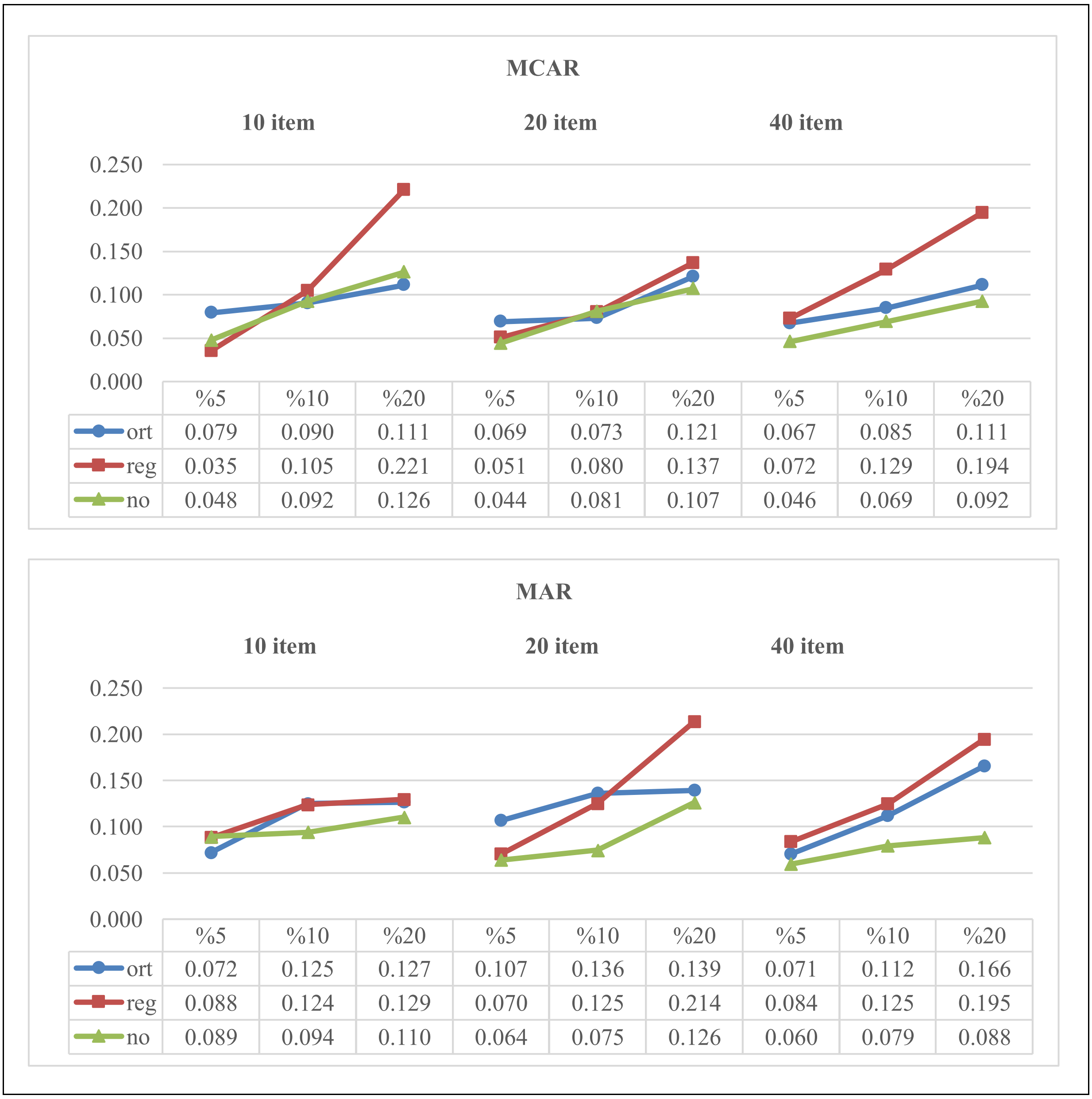


Figure 2. RMSE Values of CML Estimations of Item Difficulty Parameter (N=1000)

What is the effect of data structures being missing at random and missing completely at random and missing data rates on JML estimations of item difficulty parameter under different sampling size and test length conditions?

According to sample size, test length and and missing data structures, RMSE values of joint maximum likelihood (JML) estimations of item difficulty parameter are presented in Figure 3 and Figure 4.

According to Figure 3, the least erroneous JML estimations were obtained from leaving the missing data blank for all conditions of missing data rate and item length for N=100 under MCAR missing data structure. RMSE values obtained for mean imputation method and the method of leaving missing data blank were close to each other under all conditions. The most erroneous estimations were obtained from regression imputation method under many conditions. It can be seen that estimations obtained from three methods are similar to each other when the item number is 20. It can be seen that error increases as missing data rate increases for each method according to test length, yet regression imputation method is mostly affected by the change in item number. It can also be seen that similar results are obtained for MAR missing data structure for N=100 and the least erroneous estimations are obtained from the method of leaving the missing data blank. In contrast to results obtained from MCAR structure, three methods had similar results under MAR structure when the item number was 10.



MCAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
ort	0.079	0.090	0.111	0.069	0.073	0.121	0.067	0.085	0.111
reg	0.035	0.105	0.221	0.051	0.080	0.137	0.072	0.129	0.194
no	0.048	0.092	0.126	0.044	0.081	0.107	0.046	0.069	0.092

MAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
ort	0.072	0.125	0.127	0.107	0.136	0.139	0.071	0.112	0.166
reg	0.088	0.124	0.129	0.070	0.125	0.214	0.084	0.125	0.195
no	0.089	0.094	0.110	0.064	0.075	0.126	0.060	0.079	0.088

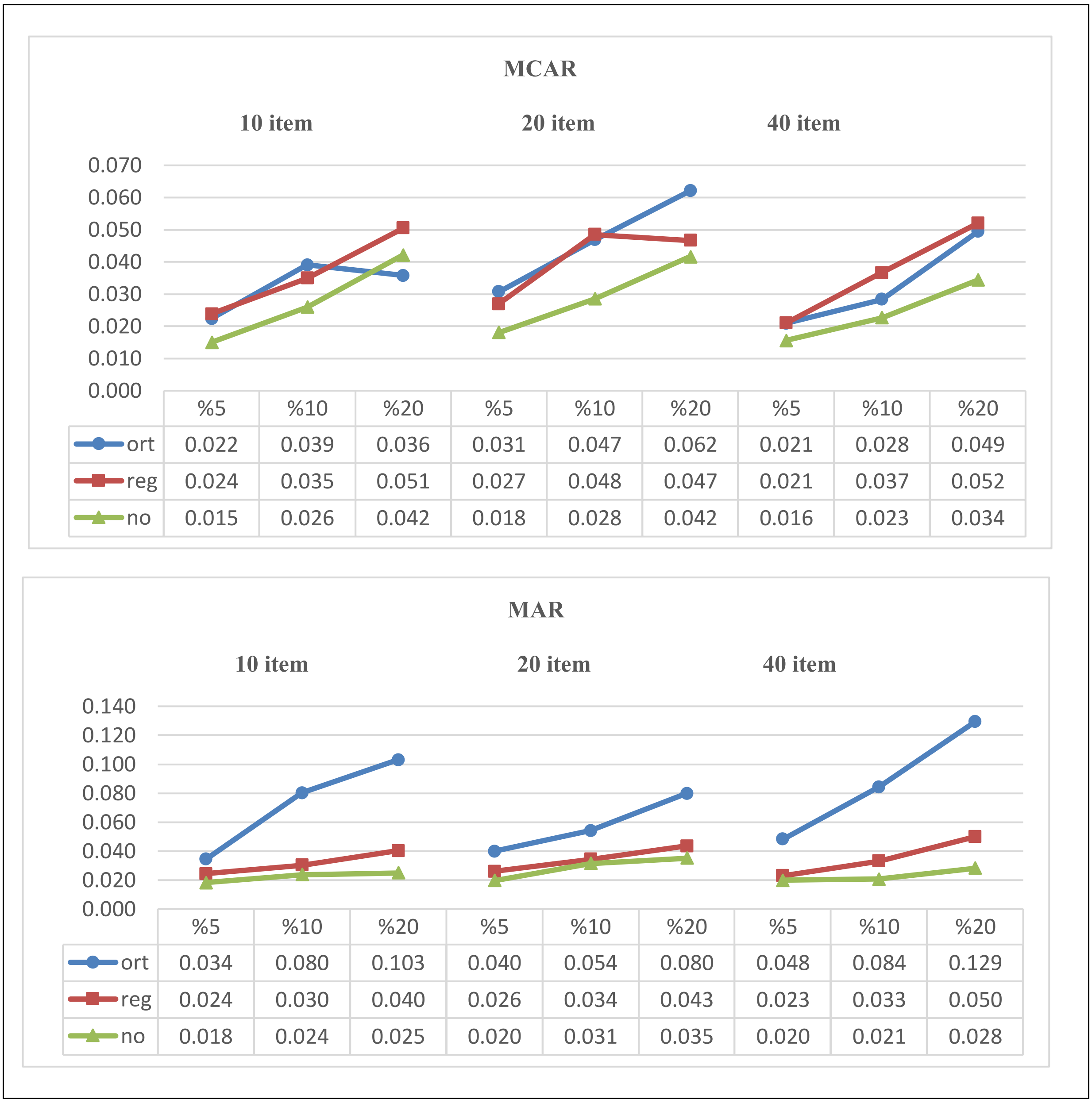
Figure 3. RMSE values of JML Estimations of Item Difficulty Parameter (N=100)

According to Figure 4, estimation errors obtained from three methods are similar to each other for all conditions of item number and missing data rate for N=1000 under MCAR missing data structure while the lowest RMSE values were obtained from the method of leaving the missing data blank. It can be seen that error obtained for every three method did not change much by item number and missing data rate. Although the results obtained for MAR missing data structure for N=1000 were similar, higher RMSE values were calculated by mean imputation method compared to two other methods.

What is the effect of data structures being missing at random and missing completely at random and missing data rates on Pairwise estimations of item difficulty parameter under different sampling size and test length conditions?

According to sample size and missing data structures, RMSE values of pairwise likelihood estimations of item difficulty parameter are presented in Figure 5 and Figure 6.

According to Figure 5, the least erroneous pairwise estimations were obtained from leaving the missing data blank for all conditions of missing data rate and item length for N=100 under MCAR missing data structure. The most erroneous estimation was obtained from mean imputation method under most of the conditions while it was obtained from regression imputation method when item number was 40. Estimation errors obtained from each method increase as missing data rate increases. It can be seen that estimation errors obtained from regression methods increase as item number increases and the least affected method from this case is the method of considering the missing data blank.

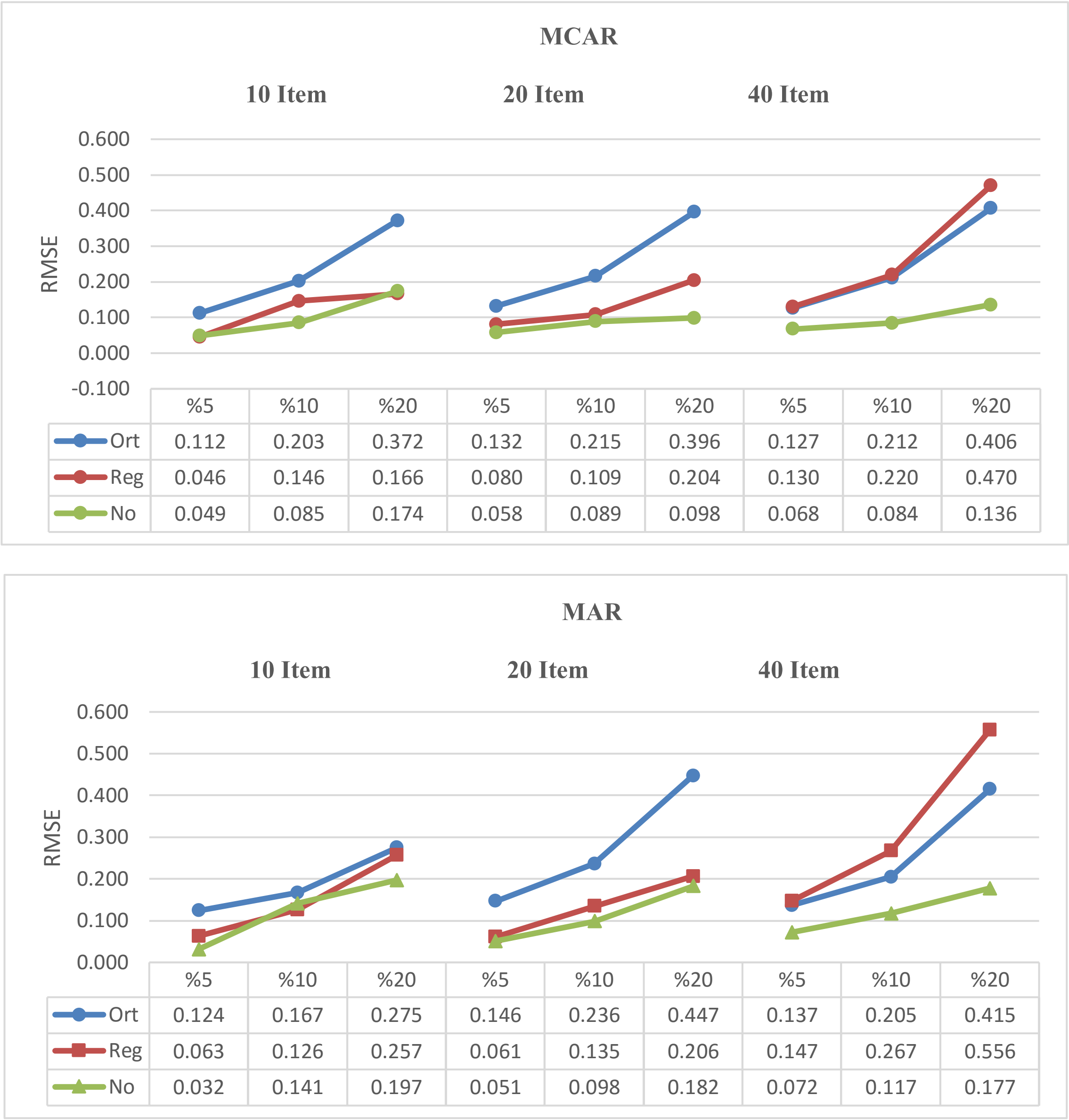


	%5	%10	%20	%5	%10	%20	%5	%10	%20
● ort	0.022	0.039	0.036	0.031	0.047	0.062	0.021	0.028	0.049
■ reg	0.024	0.035	0.051	0.027	0.048	0.047	0.021	0.037	0.052
▲ no	0.015	0.026	0.042	0.018	0.028	0.042	0.016	0.023	0.034

	%5	%10	%20	%5	%10	%20	%5	%10	%20
● ort	0.034	0.080	0.103	0.040	0.054	0.080	0.048	0.084	0.129
■ reg	0.024	0.030	0.040	0.026	0.034	0.043	0.023	0.033	0.050
▲ no	0.018	0.024	0.025	0.020	0.031	0.035	0.020	0.021	0.028

Figure 4. RMSE Values of JML Estimations of Item Difficulty Parameter (N=1000)

It can also be seen the least erroneous estimations are obtained from the method of considering the missing data blank under MAR missing data structure for N=100 as well. Except for the condition having 40 items, the most erroneous estimations were obtained from mean imputation method. It can be seen that estimation errors obtained from regression imputation methods increase as item number increases.



MCAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
Ort	0.112	0.203	0.372	0.132	0.215	0.396	0.127	0.212	0.406
Reg	0.046	0.146	0.166	0.080	0.109	0.204	0.130	0.220	0.470
No	0.049	0.085	0.174	0.058	0.089	0.098	0.068	0.084	0.136

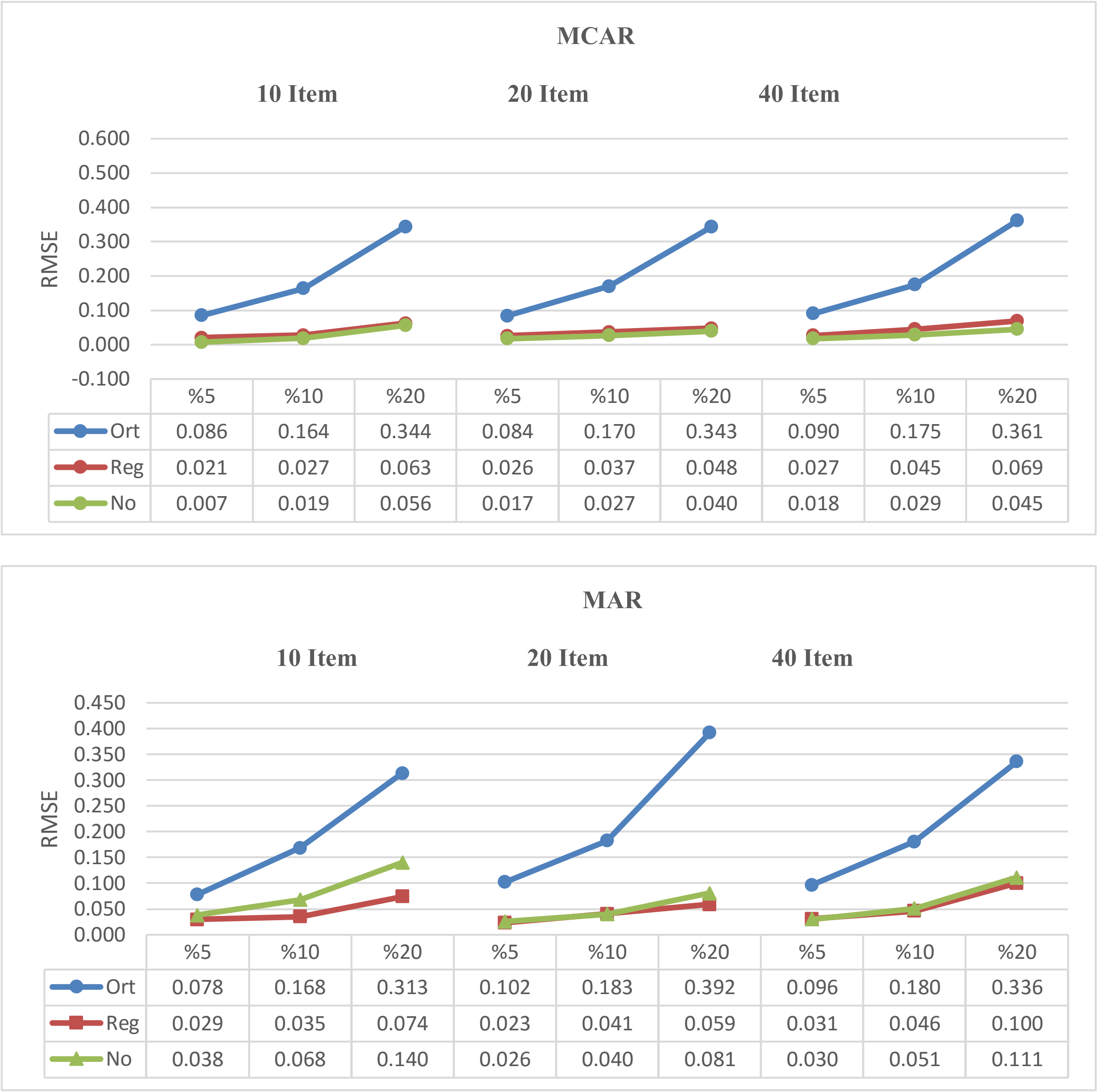
MAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
Ort	0.124	0.167	0.275	0.146	0.236	0.447	0.137	0.205	0.415
Reg	0.063	0.126	0.257	0.061	0.135	0.206	0.147	0.267	0.556
No	0.032	0.141	0.197	0.051	0.098	0.182	0.072	0.117	0.177

Figure 5. RMSE values of Pairwise Estimations of Item Difficulty Parameter (N=100)

According to Figure 6, the least erroneous pairwise estimations were obtained from leaving the missing data blank for all conditions of missing data rate and item length for N=1000 under MCAR missing data structure. Under all conditions, estimations obtained from regression imputation method and the method of considering the missing data blank were similar to each other while the most erroneous estimations were obtained from mean imputation method. Estimation errors obtained from each method increase as missing data rate increases while they are affected by item number at minimum level.

It can be seen that regression imputation method offers similar results with the method of leaving the missing data blank, but less erroneous results under many conditions within MAR missing data structure for N=1000. The most erroneous estimations were obtained from mean imputation method. Estimation errors obtained from each method increase as missing data rate increases while they are affected by item number at minimum level.



MCAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
Ort	0.086	0.164	0.344	0.084	0.170	0.343	0.090	0.175	0.361
Reg	0.021	0.027	0.063	0.026	0.037	0.048	0.027	0.045	0.069
No	0.007	0.019	0.056	0.017	0.027	0.040	0.018	0.029	0.045

MAR

	%5	%10	%20	%5	%10	%20	%5	%10	%20
Ort	0.078	0.168	0.313	0.102	0.183	0.392	0.096	0.180	0.336
Reg	0.029	0.035	0.074	0.023	0.041	0.059	0.031	0.046	0.100
No	0.038	0.068	0.140	0.026	0.040	0.081	0.030	0.051	0.111

Figure 6. RMSE Values of Pairwise Estimations of Item Difficulty Parameter (N=1000)

CONCLUSIONS

This study investigated the effect of missing data on Rasch model estimations under the conditions of missing data structure, missing data rate, methods of dealing with missing data, sample size and test length. In addition to likelihood estimations methods frequently used in the literature, pairwise method was also used as a different approach. It was aimed to attract attention to this method based on constrained pairwise for item categories.

The least erroneous constrained maximum likelihood (CML) estimations of item difficulty parameters were obtained from the method of considering the missing data blank under all conditions of sample size, test length and missing data rates under MCAR and MAR missing data structures. In the majority of the conditions, the most erroneous estimations were obtained from mean imputation method. In small sampling, estimation errors increased for each three methods to deal with missing data as missing data rate increased by item number. In big sampling, estimation errors increased as missing data rate increased in mean imputation method; estimation errors changed in minimal level according to missing data rates in the methods of regression imputation and considering the missing data blank. The increase in item number increased estimation errors in regression imputation and mean imputation methods, respectively only for small sampling; while the effect of item number on estimation errors was minimal under the rest of conditions.

The least erroneous joint maximum likelihood (JML) estimations of item difficulty parameters was obtained from the method of considering the missing data blank under all conditions of sample size, test length and missing data rates under MCAR and MAR missing data structures. In small sampling, it was observed that regression imputation method was most affected by the change in item number while estimation errors increased as item number increased under most of the conditions. In big sampling, on the other hand, regression imputation method was most affected by the increase in item number under MCAR structure while mean imputation method was most affected under MAR structure. Estimation errors increased as missing data rate increased in mean imputation method; estimation errors changed in minimal level according to missing data rates in the methods of regression imputation and considering the missing data blank.

The least erroneous pairwise estimations of item difficulty parameters was obtained from the method of considering the missing data blank under all conditions of test length and missing data rates for small samplings under MCAR and MAR missing data structures. In big samplings, it was found that regression imputation method gave similar, yet better results than the method of leaving the missing data blank under MAR structure and the most erroneous estimations were found from mean method. In small sampling, it was observed that estimation errors obtained from regression imputation method increased as item number increased.

Considering all simulation conditions, it was found that joint maximum likelihood (JML) method offered a better result compared to two other estimation methods. Constrained maximum likelihood (CML) and pairwise methods had similar performances under many conditions.

Estimation errors obtained from the method of leaving the missing data blank were lower than those obtained from mean and regression imputation methods under all conditions except for pairwise estimations under MAR structure and N=1000 condition. In general, the most erroneous estimations were obtained from mean imputation method. It was found that regression imputation method generally gave more biased results compared to JML-based estimations.

Errors of item difficulty parameter estimations obtained through three different estimation methods among three methods to deal with missing data increased as missing data rate increased (Andreis and Ferrari, 2012; Zhang and Walker,2008); and decreased as sample size increased. In big samplings, considering the missing data blank and regression-based estimations offered good results although missing data rate was high. It was observed that CML and Pairwise estimations based on mean and regression imputation were affected by test length under many conditions. However, Heine and Tarnai (2015) reported that Pairwise method gave better results than CML method under MCAR missing data structure. Considering that the study conducted by Heine and Tarnai (2015) was based on real data and depended on the result of a single application, performances CML and Pairwise methods can be investigated through different simulation studies.

According to the research, it can be suggested that mean imputation method should not be used where an imputation method is needed to deal with missing data during the parameter validation studies based on Rasch model and CML, JML and pairwise methods. Instead, regression imputation method which gives similar results as the ones obtained through missing data matrix can be preferred. JML method can give less erroneous results than CML and Pairwise methods in item parameter validation studies in Rasch model. This study showed that Pairwise method has a similar performance with CML method. Therefore, it can be suggested as an alternative estimation method for parameter estimation studies of researchers.

In further studies, the conditions studied in this research can be repeated for individual parameter estimations or for different levels of these conditions. Similarly, the effect of missing data can be examined in various item response theory models. It is assumed that the performance of pairwise method which is based on matrix with or without missing data during parameter validation studies must be investigated in similar or different studies.

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Impact Of The Demographics On Academic Achievement In Architecture Education

Filiz ŞENKAL SEZER
Uludağ University Department of Architecture
filizss@gmail.com

Dilek MURAT
Uludağ University Department of Econometrics
dilekm@uludag.edu.tr

Yasemin ERBİL
yasemin.erbil@bou.edu.tr

ABSTRACT

This study has been designed to show the correlation between academic achievement and the concept of gender. The following were initially examined;

- The relation between general academic achievement and gender,
- The relation between achievement in architecture design classes and gender
- The relation between gender and academic standing of students that pass architecture design classes in their first attempt or that repeat architecture design classes.

In the sample there are 55 students that are enrolled to the Architecture Department of Uludag University. The design point average (DPA), which indicates the academic achievement of architecture students from architecture design classes, and the weighted grade point average (WGPA) of students were calculated via transcripts of students. The statistical information gathered has shown that general academic achievement varies by gender; however design point averages does not. It has been determined that there is a significant and negative correlation between general academic achievement and age. Another finding of this study is that the levels of academic achievement of students who pass their classes in the first time or who repeat their classes vary by their gender.

Keywords: Architectural education, academic achievement, gender, demographics

INTRODUCTION

In Turkey students who receive adequate grades in the YGS (Transition to Higher Education Examination) and LYS (Undergraduate Placement Exam) examinations of ÖSYM (Student Selection and Placement Center) are given the right to enroll at universities. Therefore students who have received very similar grades in these examinations are enrolled to the same departments – especially in state universities. However there are various factors that influence the academic achievement of students throughout their university education.

The academic achievement is both related to the education received by students and the individual skills of the students. In this regard there are various studies in the literature that examine the correlation between academic achievement and various criteria. For example Erbil, (2015), Nazidizajia, Toméa, Regateirob, (2014), Birer, (2012), Fayombo, (2012), Fallahzadeh, 2011; Afolabi, Ogunmwonyi, Okediji, (2009), Newsome, Day, Catano, (2000) examined the correlation between academic achievement and emotional intelligence; Kavcar (2011) examined the correlation between emotional intelligence and various demographics; and Balkıs, Duru, Buluş, Duru, (2011), Balkıs, Duru, (2009) Mecek, Taşlıdere, (2015), Özgüngör, Duru, (2015) examined the correlation between academic achievement and demographics.

When we look at the subject from the architecture point of view undergraduate level architecture education is 4 years in Turkey. In addition to the occupational information and skills gained throughout the education related to the design and production of a building, the students are expected to learn how to analyze the information received. Therefore, Architecture Design Theory and Methods, Building Information, Structure Information, Physical Environmental Control, Architecture History, Restoration, Project and Construction Management classes are provided in Turkish architecture education programs. Architecture design studios aim to create a connection between theory and implementation in the architecture education programs.

Yürekli (2003) has gathered the qualities that are expected from an architect under the categories of design, creativity, emotional intelligence and character development, and intellectual development. Architecture education should be programmed to train students that have all these qualities. The interdisciplinary status of architecture occupation requires architects to be versatile. The academic achievement of undergraduate students in architecture departments can be related to many areas. According to researchers, who examined academic achievement and various criteria, such as Demirbas (2001), Demirbas & Demirkan (2003), Kvan & Yunyan (2005), Uluoglu (2000) the characteristics of learning styles of students that can be used for the enhancement of learning in design, according to Demirbas & Demirkan (2007) there is a significant mean difference in performance scores across gender in technology-based, artistic and fundamental courses, and according to Özyaba, Polat, Erbil, Yurtkuran (2013) five variables have an impact on the academic achievement of architecture students, which are gender, the region that the family lived for the last ten years, education status of the mothers, the median income of the family, and the housemate of students.

THE STUDY

The Purpose of the Study: Although there are many studies examining the academic achievement in architecture education, the limited number of studies taking into consideration the correlation between gender and academic achievement, and the limited information about this is attention grabbing. Therefore a research has been designed to show the correlation between academic achievement (AA) and the concept of gender. The following were initially examined;

- The relation between general academic achievement and gender,
- The relation between achievement in architecture design classes and gender
- The relation between gender and academic standing of students that pass architecture design classes in their first attempt or that repeat architecture design classes.

Methodology: The population of the study is composed of 56 students who enrolled to Uludağ University Architecture Department in the 2011-2012 year and 57 architecture students who enrolled in the 2012-2013 education year. Among these students 55 were selected using convenience sampling method; these were 4th year students during the 2014-2015 and 2015-2016 education year in Uludağ University Architecture Faculty.

The weighted grade point average (WGPA) of students in the sample and their design point average (DPA) received at the Architecture Design I-II-III-IV-V-VI-VII-VIII classes were calculated using the transcripts of students.

FINDINGS

Frequency analysis, correlation analysis, independent-samples t test, and chi-square test were used to analyze the data collected for the students. The frequency statistics related to the demographics of the students and the descriptive statistics related to all classes and design classes are shown in Table 1.

Table 1: Frequency Analysis and Descriptive Statistics

		n	%
Gender	Women	38	69.1
	Men	17	30.9
Age	20-25	53	96.4
	26-31	2	3.6
Architecture design class achievement	Pass in the first attempt	29	52.7
	Repeat	26	47.3
		Mean	Std deviation
(WGPA)		2.52	0.40
(DPA)		69.7	6.50

38 (69,1%) of the students in the study are women, whereas 17 (30,9%) of them are males. Currently there are 368 students receiving education in Uludağ University Architecture Department, of the 368 students 215 are female (58%), and 153 are male (42%). The fewer number of males in the study represent the fewer number of males receiving education in the Architecture department. 53 (96.4%) of the students are aged 20 to 25 and 2 (3.6%) are aged 26 to 31. The number of students, who pass the architecture design class at the first attempt, are 29 (52.7%) and the number of students, who repeat the class are 26 (47.3%).

In this study the relation between academic achievement and gender and the relation between academic achievement in Architecture Design classes and gender is examined. In this regard independent samples t-test was applied to the WGPA and DPA, and gender variables of the students participated in the study. The results of the test are given in Table 2.

Table 2: Results of the independent samples t-test

		Levene's Test for Equality of Variances				t test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
(WGPA)	Eq. var. assumed	0.954	0.333	2.714	53.00	0.009	0.29783	0.10794
	Eq. var. not assumed			2.478	25296.00	0.020	0.29783	0.12020
(DPA)	Eq. var. assumed	0.210	0.648	0.839	53.00	0.405	1,59536	1,90217
	Eq. var. not assumed			0.910	37.724	0.369	1,59536	1,75370

The hypotheses tested are given below. These hypotheses are testing if general academic achievement and achievement in architecture design classes of students differ by gender.

H_0: $\mu_E = \mu_K$ (Academic achievement scores do not differ according to gender.)
H_1: $\mu_E \neq \mu_K$ (Academic achievement scores differ according to gender.)

When the results given in Table 2 are examined it can be seen that the null hypothesis for the WGPA variable is rejected and the alternative hypothesis is accepted, and for the DPA variable the null hypothesis is not rejected. Therefore it has been understood that the general academic achievement of male and female students were significantly different from each other. While the general academic achievement of female students was 2.61 the males had an academic achievement of 2.31, which is a statistically significant difference. However it was seen that the design point averages of males and females did not differ. The design point averages of female students were 70.49 whereas it was 68.89 for males. It has been seen that the statistical difference between those averages were not significant.

The relationship between general academic achievement, achievement in design classes with age was examined with correlation analysis. According to the analysis there is significant negative and weak correlation between age and general academic achievement (r=-0.306; p=0.023) and no relation between achievement in design classes and age was found (r=-0.145; p=0.290). In the phase of the study the relation between gender and student that pass the class in their first attempts and students that repeat the class was examined with the chi-square analysis. The results of the test are given in Table 3.

Table 3: Chi-square Test Results

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	5.366	1	0.021
Continuity Correction	4.098	1	0.043
Likelihood Ratio	5.469	1	0.019
Fisher's Exact Test			
Linear-by-Linear Assoc.	5.269	1	0.022
N of Valid Cases	55		

Symmetric Measures		Value	Approx. Sig.
Nominal by Nominal	Phi	0.312	0.021
	Cramer's V	0.312	0.021
N of Valid Cases		55	

When the results in Table 3 are examined it can be seen that the null hypothesis will be rejected and the alternative hypothesis will be accepted. The alternative hypothesis indicates that there is a relation between gender and students who pass the architectural design classes in their first attempts. Using the Cramer's V value we can see that the level of this relationship is approximately 0.31. Therefore it can be argued that passing architectural design classes in the first attempt and repeating architectural design classes differ according to gender.

In this regard it has been seen important to review the Cross tabulation given in Table 4.

Table 4: Crosstabulation Results

		Academic achievement in architectural design classes		
		Pass in the first attempt	Repeat	Total
Gender	Female	24	14	38
	Male	5	12	17
Total		29	26	55

When the values of the observed frequency in the table are examined it can be seen that the ratio of females that pass the design class in their first attempts is higher than males. Regarding the repeat of design classes no significant difference between males and females were observed.

4. CONCLUSIONS

In this study the impact of demographics on academic achievement was examined in three phases and the following results were obtained:

The relation between general academic achievement and gender: It has been seen that general academic achievement differed based on gender and female students had a higher academic achievement. This is also in line with various researches that indicate academic achievement of females is higher than males. (Duckvvorth and Seligman, 2006; Pomerantz and Altermatt and Saxon, 2002; Mau ve Lynn, 2001; Wilberg and Lynn, 1999)

The relation between achievement in architecture design classed and gender: These statistical findings have shown that the academic achievement scores in architectural design classes does not differ based on gender. In order to analyze the factors that influence academic achievement in architectural design classes features other than demographics that are personal such as critical thinking, investigative personality, being versatile, time management should be taking into consideration.

The relation between gender and academic standing of students that pass architecture design classes in their first attempt or that repeat architecture design classes: Therefore it can be argued that the academic achievement levels of students that pass design classes in the first attempt and that repeat architectural design classes differ according to gender. A possible interpretation of the findings is: "Females passed this course in their first attempt more than males" and "the level of repetition of the class is the same for both genders and none is superior to the other".

It would be beneficial for increasing academic achievement in architecture education to examine factors that might influence academic achievement. In this study demographic features were examined. Additionally the matter should be approached from different angles such as socioeconomic structure, personal features of students, physical environmental conditions, learning styles and the results of such studies should be used to increase the quality of architecture training and success levels.

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Implementation Of Tax Education On Elementary School Students As An Effort To Raise Tax Awareness In Directorate General Of Taxes Regional Office For West Java Ii

Anita Setia WINARTATI
Faculty of Administrative Sciences
Universitas Indonesia, Indonesia
anitawinartati@gmail.com

Milla Sepliana SeETYOWATI
Faculty of Administrative Sciences
Universitas Indonesia, Indonesia
milla.s.setyowati@gmail.com

ABSTRACT

Raising tax awareness in society is an effort to manifesting voluntary tax compliance. Tax Education is the most appropriate strategy in raising level of awareness. Tax education shall be applied since primary school because on that level, children are actually on The Golden Age, the dominant period of character development. If we can embed perfectly the important values of taxation, for sure it would generate effective results in the future. Alongside with that idea, tax education becomes essential to be implemented as an attempt of manifesting voluntary tax compliance. The implementation of early tax education was aimed to internalizing values such as discipline, honesty, obedient, and others. The tax education's policies which are influenced by "content of policy" and "context of policy", basically has done in structured, directed, and measured way, but has not been carried out as sustained way. The implementation of tax education on primary school student did not have high portion. Hence, it needs such a high commitment from Directorate General of Tax (DGT) to carry it out as sustainable strategy. It is not easy to manifesting voluntary tax compliance. Moreover, it clearly requires a quite time to make such a fruitful result. Therefore, tax education on primary school student should be believed as the spearhead efforts to manifesting voluntary tax compliance in the future. Remembering the role of tax become more vital in term of nation-building, it demands early awareness from young generation so they can truly conscious and care about taxation. Due to the fact that without any early internalization concerning the importance values of taxation, the hope of manifesting voluntary tax compliance will be further to be attained. Based on that consideration, implementation of tax education on primary school students is important. For that reason, tax education tax on primary school student must be well planned, so that activity became a process that is structured, targeted, measured, and continued as an effort to manifesting voluntary tax compliance.

Keywords: Tax administration, tax education, tax awareness, voluntary tax compliance

INTRODUCTION

To realize voluntary tax compliance, conjuring awareness towards taxes is of the essence. Tax education is a strategic move to instigate such awareness. Tax education must be initiated from an early stage, to the extent of undergoing it from an elementary level. Psychology experts conveyed that instilling values is best to be done at the early stages of life (Fadlillah and Khorida, 2013, 43) because at that phase a child will go through fundamental progress in terms of character building also known as The Golden Age, a fundamental phase in terms of character building. Utilizing The Golden Age as an instance for development, guidance, counseling, and character building will surely be a rewarding action that will bear its fruit in the future (Fadlillah and Khorida, 2013, 49). Specific for tax related matters, embedding values about collection of taxes and responsibility in taxation will surely build awareness towards the existence of taxes which will be a strong foundation to build obedience towards taxation in the long run. Therefore, tax education for elementary school students held by Indonesia's Directorate General of Taxes must be an organized endeavor, so that it may translate into a structured, accurate, measurable and sustainable process to realize voluntary tax compliance. To realize such goal, we need a continuous effort from Directorate

General of Taxes because tax education needs a long time to build and cannot be measured in sense of result instantenousley. The ever-growing importance of tax for the development of infrastructure demands the attention of youths to know and understand the role of tax since an early age. Tax education that is commenced since The Golden Age is an embedding process that needs to be applied correctly so that we may create adults that are aware and caring toward taxes. This is created to do an early internalization on the importance of tax for the development of infrastructure so that we may achieve voluntary tax compliance.

According to Chan et al (2000), having a higher level of education usually translates into a higher level of moral development and obedience. Educated citizens commonly are more aware of their responsibility in terms of taxes and the consequences that follow should they choose to disregard such obligations. That said, a higher level of education is important in terms of elevating the level of tax obedience throughout the world. One way to increase the degree of voluntary compliance is to make sure that citizens obligated to pay taxes have the qualifications, ability, and confidence to execute their tax related obligations (Mohani, 2001). Citizens who have undergone tax related education and seminar are expected to have a higher amount of knowledge and obedience than their non-undergoing counterparts (Mohd, 2010). Hite and Hasseldine (2001) highlighted the fact that the authorities need to emphazise on the need of tax related training because of its significant impact towards compliance.

Because of their consistent tenacity to realize high levels of tax compliance in the society, especially in the West Java II region, West Java II's Directorate General of Taxes Regional Office was chosen to be the site in this research. This statement was proven by past commencement of tax educations due to increase the level of awareness such as the Tax Goes to School and Early Tax Introduction events which entail them visiting an elementary level sphere ten times in a year. Additional reasons such as them achieving a high performance grade point average in the field of national tax input that made them ranked up to number fifth on a national scale (Susilawati, 2013, 11) and them being a region that encompasses a higher number of elementary school students in comparison to the surrounding regions which totaled into 22,837 schools accommodating 5,179,312 students (*Tinjauan Ekonomi dan Keuangan Daerah Provinsi Jawa Barat*, 2012, 10).

THEORETICAL FRAMEWORK

Grindle mentioned that implementation establishes a link that allows goals of public policies to be realized as outcomes of governmental activity (Purwanto dan Sulistyastuti, 2012, 65). Next, Grindle argued that it involves, therefore, the certain of "policy delivery system", in which specific means are designed and pursued in the expectation of arriving at particular ends (1980, 6). Policy implementation becomes a bridge because it is through this step we do the delivery mechanism, which is when variations of policy output are converted from policy inputs are conveyed to the control group as a real measure to achieve the policies' goals. Grindle states that the implementation of a policy depends on the content of policy and its context (1980,6). The basic idea of Grindle's model is built upon the fact that after the creation of a policy, it will transform into an action program and also an individual project with accommodative budget which will make it eligible to be executed (Wibawa, Purbokusumo, dan Pramusinto, 1994, 22). In light of this, as what Wibawa, Purbokusumo, dan Pramusinto (1994, 23-24) and Agustino (2008, 154-155) summarized, the content of policy includes:

1. *interest affected*
   Interest affected is inclusive of different interests that affect implementation of a policy. The higher number of interests included, the harder for it to be implemented.
2. *types of benefit*
   In a policy there needs to be numerous benefit that show the positive impact of policy implementation. The higher the degree of actual benefits, the easier for it to be implemented.
3. *extent of change envisioned*
   The extent of change envisioned needs to have a clear scale. Policies that dictate a change of behavior firsthand is hard to be implemented.
4. *site of decision making*
   Decision-making in policy plays an important role in the policy implementation. The contents of policy indicate status of the policy-makers, so the policymaker's position influence how policy implemented.
5. *program implementators*
   In running a policy there needs to be the support of a competent and capable program implementator(s) to make sure the success of a policy.
6. *resources commited*
   To optimalize the running of a policy, the resources committed to it must be available preferably in abundance.

Next, the context of the policy that Grindle mentioned which was cited by Agustino (2008, 156) are:

1. *power, interests, strategies of actor involved*
   In a policy there needs to be a calculation of the power, importance, and strategy utilized by the actors involved due to the easement of implementation of said policy.
2. *institutions and regime characteristics*
   The environment where the policy is executed also affects its success, ergo the characteristics of the regime's institutions are a factor to be accounted for.
3. *compliance and responsiveness*
   The compliance and responsiveness of the implementator in responding the policy is also important.

After the implementation plan is executed (which is affected by content and context of policy), then we will know whether the implementators have lived up to the standards expected and whether the policy is affected by its environment, thus showing the level of change expected (Agustino, 2008, 156) in which the intensity of the actors involved, such as the policy makers, implementators, and control group interacted with one another thus compromising the effectivity of implementation (Wibawa, Purbokusumo, dan Pramusinto, 1994, 25). In its turn, the implementation of the policy will be evaluated with a measurement of the outcome of the program in correlation with the goals of the policy (Grindle, 1980, 6).

FINDINGS

Implementation of Tax Education on Elementary School Students as an Effort to Raise Tax Awareness in Directorate General of Taxes Regional Office for West Java II

Generally, the function of an implementation is to build a bridge so that the goal of a public policy can be achieved and translated into an outcome of an acitivty of the government (Gridnle, 1980, 6). Said public policy is then turned into a program set to reach the end goal of that policy (Grindle, 1980, 6). In regards to this, tax education for elementary school students is a program created to be incorporated to be a part of policies made by the Directorate General of Taxes to build awareness on tax related matters.

Essentially, implementation of tax education in elementary school is contingent to several factors in its implementation in order to achieve its ideal goals. Those factors consist of resource availability, intergovernmental structure and the tenacity of executor of the program. In general, those factors could be categorized into two scopes, which are factors that are inherent within the policy called 'content of policy' and factors related to the specific surroundings of implementation called 'context policy'.

In content of policy, the first thing is about the interests affected by the policy, tax education policy targeting future taxpayer especially elementary school students is basically a policy that is not affecting many interests of stakeholders, thereby, this policy should be convenient to be implemented. However, tax education must be regarded as a common interest because the outcome or consequences entailed would be influential for the country, especially tax administration. Since, tax is a matter concerning everyone; be it government, legislative body (DPR), or society in general. Tax education initiated in elementary school is a program to build awareness towards taxes for prospective taxpayer from the early age. This program is a long-term investment as an effort to pursue higher voluntary tax compliance in society. The causal nexus of elevating tax awareness and voluntary tax compliance through this tax education would highly prompt the national tax revenue, it is in alignment with the statements of Simanjutak and Mukhlis saying that the higher number of people paying tax, the bigger number of taxes could be garnered (2012, 163). With regards to higher tax revenue collected by the state, it therefore would directly support the national budget for the national development agenda.

Second, in regards to advantages as the outcome, education is a part of important tax policy to build an awareness upon tax itself and fairness in tax administration system. As given above because through tax education the state fulfills its responsibility to disseminate information related to taxes so that the taxpayers could know their main rights and responsibilities as well as knowing how to comply with it. In the end, it is expected that it would result into fairness within the system of tax administration that encompasses equity, verity, and conformity to the procedures. The advantage of tax education includes providing necessary tax-related information for society to achieve level of fairness expected from tax administration system which comprises of equity, verity, and conformity to the procedures that would then nurture awareness in society. The expected outcome from tax education in elementary school is to instill tax-related information from early age. Subsequently after information about tax is well-understood, there would be a well-preserved awareness towards tax in early age among elementary students.

Level of information introduced in the program is not complex because the target is elementary students as prospective taxpayer in the future. These students should be introduced to tax in early age with simple explanation about the importance of taxes and the role of taxes in relation to daily life that would easy to relive of how important tax is. Consequently, the kids would become aware of their role as citizens in the future within the spirit of togetherness to build the nation. With the embedded awareness, they would not problematize the tax that it is collected based on law and it is compulsory in nature. The action of compliance to tax regulations would not need coercive measure to force the payment because they already understand the importance of tax since early age. The long-term advantage that would be garnered from this tax education program for elementary students is a result of in-depth understanding about tax among future generation. Furthermore, the implementation of tax education for elementary student could become the initial point to achieve voluntary tax compliance in the future. Unfortunately, the implementation of this tax education program has not been done continuously in which the advantage transcended from this program for elementary student is still marginal.

Third, tax education for elementary school student is expected to change level of voluntary tax compliance in the future. The effort to build tax awareness is realized through common values such as value of responsibility, honesty, as well as the importance of tax so that those values would be reflected in the behavior of targeted elementary students as prospective taxpayer with compliance and honest attitude in fulfilling their responsibility as in filling tax return in the future. The expected changing level of voluntary tax compliance is also realized through a more profound tax introduction regarding the philosophical background of tax imposition. Introduce the important of tax is contribution and national spirit to actualize national development, so that when they reach adulthood, there would be no mindset about 'tax as coercive state's imposition' because society is aware and understand benefit of taxation regardless indirect benefits. It is important to note that instilling values as well as changing mindset of society are not an easy job. Therefore, the education process is necessary to be early and meticulously designed to make sure it is being implemented, monitored, and evaluated properly. Parallel with the internalization of religious values, for instance in practice of zakat. People willingly pay zakat because of its long-time internalization. Taxation could also be that way. It could be an action collectively done by society willingly without coercive force.

Fourth, the decision about tax education done by Directorate General of Taxes, especially Public Relations Department (Direktorat P2 Humas), so that the enactment of this policy is nation-wide. This type of decision-making renders tax education to be more structured, well-directed, and measurable. However, the main duty of Office of Directorate General of Taxes as well as West Java's II Regional Office is to accumulate tax revenue. Either in national or regional level, effort to educate society about taxation is heavily focused on those with capacity to pay tax, which are new taxpayers or registered taxpayers. Whereas tax education for prospective taxpayer especially elementary school students is not main focus of DGT.

Fifth, in terms of program implementer, the implementer of tax education is Education and Public Affairs Section. This section is assisted by Tax Educators Team. The establishment of this team is based upon consideration that the vertical authority with outreaching and educating role is not able to maximally execute the program, even in the level of Tax Service Office there is no specific unit with educational function. Further, the long-lasting idea of "all tax officers are tax educators" implicates to two different things. At one side, it is interpreted as if the educational action is responsibility of all Directorate General of Taxes' officers. Nevertheless, in practice it creates unclear share of burden as to who should be the main actor to bear burden and responsible to conduct educational function. In the end, competence fostering process for educators is hampered because of unclear target for intended capacity building. As such, the establishment of Tax Educators Team is necessary to make a clear responsibility regarding educational function of the body and making clear of target of capacity building program. In the enactment of tax education, especially with elementary students, the intensity of activity depends on the implementer. If the implementers have passion in early age tax education, so it can be executed maximally, even to the bigger extent of implementation.

Sixth, it is about resource committed for the program, implementation of tax education for elementary students especially for West Java's II Directorate General of Taxes Regional Office demands considerable amount of resources. It is because the requisite is varied in the process of education. However, West Java's II Directorate General of Taxes Regional Office attempts to maximize the tax education program with limited resources, including human resources.

Continuing to the context of policy, firstly, implementation of certain policy has to consider the power, interests, strategies of actor involved due to the easement of policy implementation. However, tax education policy for elementary school students is basically not involving many actors of power, interests, or other stakeholders' strategy. Nonetheless, it should be noted that this policy would affect all stakeholders; government with its derivative institutions, DPR, and public as a whole. Unfortunately, not all actors are aware of the importance of tax education for early age children. Whereas if this tax education is being implemented properly, the advantages would highly influence society's tax compliance in the future. Because of this, intergovernmental partnership revitalization is immensely needed to maximize the implementation of tax education for elementary school. Intergovernmental partnership revitalization can be initiated with building partnership with Ministry of Education, Ministry of Communication and Information, Ministry of Tourism and Creative Industry, and other ministries. This partnership system could reach out to non-governmental entities such as Corporate Social Responsibility from private companies. The importance of this partnership is to assist the function of Directorate General of Taxes. In fact, the pre-requisite of successful policy implementation is the existence of resources support system, it could be financial, technological, political, information support, qualified human resources, et cetera. The difficult part is those supports are spread among different institutions or entities. Thus the success of implementation is strongly influenced by implementer's ability to consolidate these resources in a way of exchange that legal (allowed by law) (2012, 15). Therefore, with the existence of partnerships, it is expected eventually all will deploy a number of resources that can help the tax education program. Hopefully, with adequate resources, it will further support the success of the education program.

Secondly, in terms of the characteristics of institutions and regimes, in alignment with the characteristics of DGT as the institution that focuses on achieving a targeted tax revenue, DGT created organizational framework that supports achievement of expected values. One part of the organizational framework that supports achievement of these values is implementation of tax education, which its known educational purpose is divided into three, namely Prospective Taxpayer, New Taxpayer, and Registered Tax Payer. The linkage between organizational characteristics of DGT which focus on tax revenues with the implementation of tax education renders a large portion of tax education to be targeted to the New Taxpayer and Registered Taxpayers compared to Prospective Taxpayer including elementary school students. Early tax education activities for elementary school students is deemed necessary, but not as first priority. Since tax revenues is the main focus, the elementary school students are still very young to be able to directly pay tax. Furthermore, basically tax education on elementary school students is solely aimed to build tax awareness, it is quite deviated from the main duties and functions of DGT because it is not part of quick gilding to the State Revenue from tax. However, the implementation of tax education for elementary school students should be deemed as an investment which result would be obtained when the students become the taxpayer, in the form of tax revenue or even in the form of voluntary tax compliance.

Thirdly, in terms of compliance and responsiveness, respond of Regional Office of DGT West Java II, as the operator of tax education at elementary school students, to tax education policies is respectable. Albeit it is recognized that there is also resistance, but implementers still realize that it is part of duty that is necessary to be executed. However, if we examine more deeply, it would be much better if the implementation of tax education for elementary school students is conducted wholeheartedly not only on the basis of solely fulfilling their duties. It is expected that the educators are able to deliver a comprehensive and understandable tax education for the prospective taxpayer. If this education program is based solely on compliance and responsibility of executing policy, not because of the spirit to share their knowledge regarding tax, this tax education program for the elementary school students as a form of voluntary tax compliance efforts embodiment is significantly reduced in essence.

Furthermore, tax education for elementary school students is a manifestation of the efforts in changing the negative stigma and mindset of society in the future about the necessity to pay the tax, the tax is bad, tax is sinister, and taxes that do not provide enough utility in daily life as explained before. Purposes of tax education that targets elementary school students is to build tax awareness. Even more, efforts to build tax awareness is realized by instilling values such as national cooperativeness, social solidarity, contributing to the country, and avoiding free rider to children to help their understanding that the tax is a necessity, not merely a coercive pressure through legislation. After that, we nurture the mindset that tax is part of a national cooperativeness, national solidarity, and also evidence of patriotism, to be cultivated since childhood, since the child is in elementary school. This is because the provision of such understanding is a matter of "flipping the fact" that exists in society nowadays. This understanding could be well-received by the students later on in university level, but later it will be dogmatic understanding. In fact, the expected outcome is internalization of values though tax education that able to provide knowledge and understanding of tax philosophy in more in-depth perspective. Furthermore, tax education for elementary school students is an implementation of a policy that has long-term goals in the realization of voluntary compliance by the public and it should be embodied as reachable outcome. Unfortunately, the outcome of this policy cannot be measured as soon as the policy is being implemented, measurements need about 10-20 years of waiting. Even so, further research is needed to measure the outcome of the tax education program for elementary school students who are part of long-term investments in an effort to foster voluntary tax compliance society. Additional research is also needed about the tax morale that is formed through socialization of taxation to the elementary school students. This is because there is no certainty that a society will be obedient if they have undergone education. There is another factor as subject of matters, namely intrinsic motivation factor related to tax morale that is also believed to be able affect one's motivation in paying taxes. Tax morale will later be able to comprehensively explain the level of tax compliance of a person. This is because "to resolve this puzzle of tax compliance, many Researchers have argued that tax morale, seen as the intrinsic motivation to pay taxes, can help to explain the high degree of tax compliance" (Torgler, 2007, 4).

In the implementation of tax education for elementary school students, there are no significant obstacles. However, if studied further, the Directorate General of Taxes has not had a grand strategy for standard outreach and education management (Annual Report of the Directorate General of Taxes In 2011, 30) that causes monitoring and evaluation process of the effectiveness of counseling in the form of survey is not functioning optimally. Especially tax education for elementary school students, there is no specific provisions that regulates the program. Probably, that is the reason underlying unsustainable enactment of tax education.

Tax education for elementary school students that has been implemented by the Directorate General of Taxes has to be improved optimally. Therefore, tax education for elementary school students should be meticulously designed, so that the tax education activities not only become structured, well-directed, measurable, but also become sustainable. Education must also be enacted in three approaches, namely multimedia, multichannel and multiplatform. In a multimedia approach, assisted by the print media in order to create and provide information in multiple formats text, photos, graphics, animation, audio, and video. Whereas for multichannel approach, enacted by using and maximizing various methods and channels of information distribution. While the multiplatform approach, is executed using variety of tools and devices to access information, such as paper, computers, smartphones and televisions (Pandu Pajak, 2013, para.14).

Tax education for elementary school students can be optimized by building an integrated environment in the future, so it is necessary to have inclusions of taxation information to educational curriculum materials, and collaboration with the Ministry of Communication, Ministry of Tourism and Creative Industry, and other ministries in order to build the expected integrated environment. Last but not least, there should be an evaluation of each education program by distributing questionnaires to students. It can be used as input in enhancing the quality and effectiveness of the implementation of tax education in elementary school in the future.

CONCLUSIONS

Implementation of the tax education that specifically aims to build early age tax awareness is done through character building of students with internalization of values such as honesty, discipline, mutual cooperation, and so forth. The policy is highly influenced by the content of the policy and the context of this policy, essentially has been conducted in a structured, targeted and measurable manner. However, it has not been conducted continuously for sustainable result. Tax education program for elementary school students has marginal portion in its implementation. Therefore, it takes a considerable big amount of commitment from the Directorate General of Taxes to implement it in an ongoing basis. Tax education is not a policy that would obtain results immediately. It takes about 10-20 years to be able to reap the results of the implementation of the socialization of taxation on these elementary school students. Subsequently, there needs to be constant effort both in terms of implementation, monitoring and evaluation not solely to improve the quality and effectiveness of education tax on elementary school students, but also to surely be able to build tax awareness within the elementary students. In the end, the tax education for elementary school students should be conceived as one of the activities for the realization of voluntary tax compliance in the future society.

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Implementing Didactic Measuring Technology Joined With Inquiry Approach – A Way To Enhance Students Understanding Of Photosynthesis.

Ryplova RENATA
University of South Bohemia in Ceske Budejovice, czech republic
RYPLOVA@PF.JCU.CZ

Cekal TOMAS
Faculty of Education, University of South Bohemia
in Ceske Budejovice, czech republic
TCEKAL@SEZNAM.CZ

ABSTRACT

The topic of photosynthesis is considered by students as one of the most difficult and unpopular in biology learning. Inquiry learning as well as didactic technology are believed to attract the students to study and to increase their achievement. From this reason we have conducted a study aimed to the impact of inquiry based and by didactic measuring technology supported teaching programme for learning photosynthesis on students' knowledge. An inquiry based teaching programme concluding the use of didactic measuring sets was constructed and tested at Czech basic schools. To study an influence of this programme on students' achievement a pre-test – post-test experimental design was used. The students of 7 th grade were divided into 2 groups. Focus group was taught by using this inquiry teaching programme while control group by frontal teaching.

Inquiry approach supported by technology was accepted enthusiastic by students. According to the results of our research this approach lead to higher increase of students' knowledge compared to the classical frontal teaching. We concluded, that the use of didactic measuring technology together with inquiry approach seemed suitable and efficient method for enhancing students' knowledge of photosynthesis.

INTRODUCTION:

Photosynthesis is a core process of plant physiology highly influencing human environment. It influences the whole life being on the Earth due to the photosynthetic release of oxygen, stays on the beginning of the food chains, influences significantly the total CO_2 budget of the atmosphere due to photosynthetic carbon fixation and thus impact significantly the greenhouse effect (Lawlor, 1990, Taiz & Zeiger, 2002). The basic processes are already well understood (Lawlor, 1990; Taiz & Zeiger, 2002; Govindjee & Krogmann, 2003), and further research aimed to deeper understanding of the photosynthetic regulatory mechanisms still continues. Certainly, because of its great significance, also a big attention is given to the learning of photosynthesis starting already from the basic school.

Unfortunately, previous studies indicated, that most of the students still have difficulties and confusion in understanding not only the photosynthetic processes, but also the ecological circumstances of photosynthesis in our environment (Canal, 1999, Carlsson, 2002, Marmaroti & Galanopoulou 2006). Possible explanation of the students' difficulties in learning and understanding of photosynthesis could be abstract photosynthetic concepts and processes which are not visible by eyes and hence lend often to misconceptions. (Hershey, 2005). Therefore lot of authors are reporting the necessity to change the educating approach during teaching photosynthesis from just words explaining the concepts to new innovative methods (Barak et al., 1999, Tytler & Peterson, 2003, Vikström 2008).

Among these methods, inquiry approach is regarded internationally in last decades as alternative strategy attracting students to study of science and suitable for improvement of students' achievement in science education (Bybee, 2004, Rochard et al., 2007, Uno, 2009) Inquiry based science education (IBSE) is a learner – centred strategy, having a potential to engage students into the learning process (NRC, 1996). During inquiry learning students come to the findings on their own by the similar process like scientists do their research work (Edelson et al., 1999, Bybee, 2004). By this way, students earn the experience in identifying questions, formulating hypothesis, planning experiments, collecting and analysing data, concluding and formulating explanations, and also communicating and interpreting their conclusions (Rochard et al., 2007, NRC, 2012). IBSE has been implemented into the science education in Czech Republic just during several last years (Papacek, 2010). The Czech teachers are trained at universities to use properly inquiry in science education. For the purposes of the implementation of the inquiry approach into science education also new according to the inquiry principles correctly constructed model lessons are needed.

Several previous studies documented, that to enhance and facilitate inquiry learning, the introduction of modern technologies into inquiry is highly recommended (Higgins & Spitulnik, 2008, Lee et al., 2010). Teaching supported by technology is mostly very good accepted by children (Lee et al., 2010). The children are attracted by modern technologies. They are used to get information prevailingly from digital media, smart technologies are the part of their everyday life, (JWT, 2012).
In the field of photosynthesis modern technologies are used for the measurement of CO_2/O_2 gas exchange. Modern measuring devices enables an output of the measuring signal via computer. Hence, visualisation of not visible abstract processes of photosynthetic gas exchange is possible. This could be use with an advantage in education.

From all these reasons we have conducted a study aimed to the impact of inquiry based and by didactic measuring technology supported teaching program for learning photosynthesis on students' knowledge. An inquiry based teaching program including the use of didactic measuring set for photosynthetic CO_2/O_2 gas exchange (Vernier Software & Technology, Beaverton,USA) was constructed and implemented into the education at Czech basic schools. This contribution brings the results of our didactic survey made with an aim to find an answer to the main research question: Does technology supported inquiry learning improve students' achievement in understanding to photosynthesis?

INQUIRY BASED AND TECHNOLOGY SUPPORTED LESSON ON PHOTOSYNTHESIS

The teaching programme on photosynthesis used in this study was designed to meet the recommendation of National Research Council (NRC, 2012) and involved by this recommendation mentioned processes, which are crucial for the implementation of inquiry approach into science education: asking questions, planning and carrying out investigations, analysing and interpreting data, constructing explanations and obtaining, evaluating and communicating information. The programme was constructed with regard to reach two main goals in students' understanding of photosynthesis:

1) Proper understanding of CO_2/O_2 gas exchange

2) Students should find out, that beside the mineral nutrition, also carbon dioxide and sun energy are the sources for the nourishments of plants.

These two topics were found by previous research as most difficult and bringing serious misconceptions in the field of learning photosynthesis (Cannal,1999, Marmaroti & Galanopoulou 2006).

The programme intended for the 7 th grade of Czech basic schools took 90 minutes and consisted of steps designed according to the rules of inquiry learning mentioned above (NRC, 2012). Contradictory to the traditional photosynthetic experiments, where students follows explicit, step-by-step instruction, in this programme, students were provided by the set of questions or situation from which they concluded the inquiry questions. Under the control of teacher, students constructed the hypothesis and proved them by the experiments planed by them own with the use of device for CO_2 and O_2 gas exchange measurement.

Basic steps of the programme used in this study:
1) Initial motivation - a problem solving situation: Two pea plants prepared by teacher in advance – one of them grown under full light, second one grown under dark in carton box. Students were asked to answer the introductory question: What all need the plants for healthy growth? Brainstorming.
2) Further motivation – a mystery story: Imagine yourself, that there are plants sitting in the school benches in your classroom instead of children. What will happen with the air in the classroom after 15 minutes? What will happen under the dark? What will happen under the light?
3) Introduction of the didactic measuring set, equipped with CO_2 sensor to the children. The students were asked to breathe deeply near of the CO_2 sensor and to observe the response of the sensor displayed on graph by data projector. The student could see the significant CO_2 increase. This activity was included

to engage the students into the learning and to learn, how to use the measuring device. Question: What will happen with the air in your classroom after 15 minutes, if you consider, that all of your schoolmates are breathing similarly like you? Conclusion of the answer from the foregoing activity.

4) Return to the step 2, creating of the hypothesis
5) Planning of the experiments to prove the hypothesis
6) Carrying out of the experiments (measurement of CO_2 and O_2 exchange of living pea plants under light and dark conditions, output – graph displayed by data projector, collecting the data, writing down of the data into the prepared tabs
7) Writing scientific paper (work in group): Conclusion of the findings, communicating them with the colleagues
8) Students' presentation of the findings, discussion
9) Answer to the initial question from step 1, final conclusion and summary done by teacher.

During the experiment the students worked with living pea plants, which allowed them to see the real reaction of the plant to the changing environmental condition (light/ dark). The use of living plant was documented as crucial in students photosynthetic experiments already by Vikström (2008), who pointed out, that the use of living material provide the good opportunity to students to understand ecological circumstances of photosynthesis,

METHODOLOGY OF DIDACTIC RESEARCH

The inquiry and technology supported teaching programme on photosynthesis described above was put into the practice at three different Czech basic schools in four different classes. Together 107 students of 7 th grade (12 - 13 years) were tested. Each class was divided into two groups, which were taught always by the same teacher. The focus group absolved the inquiry and technology supported lecture, while control group was taught by classical frontal teaching without use of technology. To study an influence of the teaching programme on students' achievement a pre-test – post-test experimental design was used. The pre-test was conducted before the lessons to compare the level of the knowledge of the both tested groups before the teaching. The post- test was realized in each class in 7 – 10 days after the lessons. The testing of the students' knowledge level was done by using the test consisting of 10 question. The average test score of the both tested groups was compared and the differences were tested statistically by using Students' t- test. Beside the general test score special attention was given to the questions testing students' understanding of the sources of plants nourishment, and relationship between plants and atmosphere in this contribution.

FINDINGS AND DISCUSSION:

The students worked very actively during the inquiry lessons and were attracted significantly by the measuring technic. We found like a big disadvantage to have just one measuring device available in the classroom, because most of children wanted to do the measurement with sensors on their own, which was not possible during the limited time with just one measuring device. According to this experience it is recommended for the future to use more devices simultaneously and to work with students in groups. Unfortunately, the use of more devices could be limited by the financial possibilities of the school.

According to the results of our didactic survey we can concluded, that the used inquiry based and technology supported programme affected positively students' achievement in learning photosynthesis. The general average test score reached by students taught by using this programme was higher than the general average test score reached by students taught by frontal teaching, (Fig.1). Because the results of the pre-test did not show any significant difference between the levels of the knowledge among the both tested groups before the lectures, the better results of the focus group must be caused by the type of teaching approach.

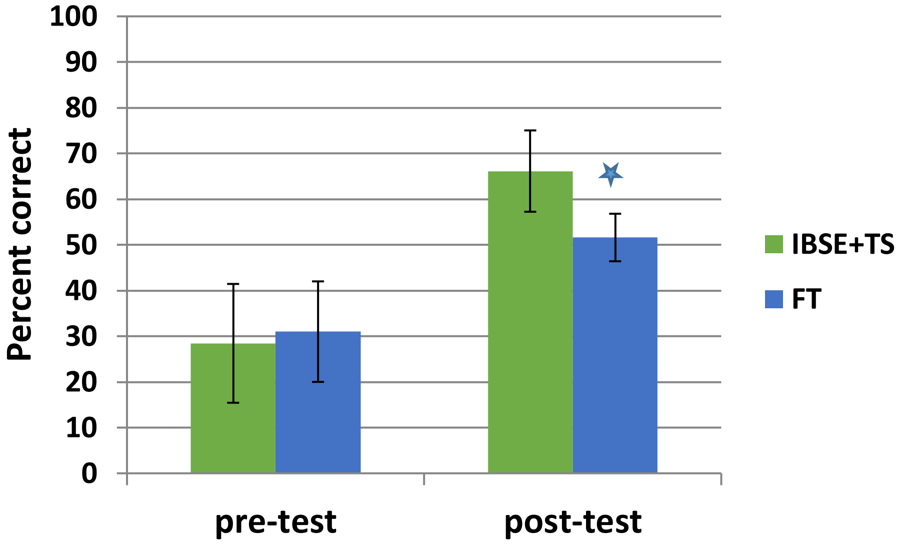

Figure 1: Comparison of the student achievement expressed as average percentage of the maximum test score between the students taught by inquiry based and technology supported learning (IBSE+TS) and students taught by frontal teaching (FT). Statistically significant differences are marked by an asterisk (n=107, Students' t- test, $p \leq 0,05$)

Special attention was given to the proper understanding of the photosynthetic gas exchange. Three of the ten questions were aimed to this topic. According to the analysis of these results, in this field the positive influence of inquiry based and technology supported education was even more significant (Fig.2). According to the results of the pre-test, the level of the knowledge of the CO_2/O_2 gas exchange was the same in both groups and very low before the lessons, despite the basic processes were explained to the pupils already at the elementary school. Difficulties in understanding of photosynthetic gas exchange were discovered also by previous works (Cannal, 1999, Keles & Kefeli, 2010). In the post- test, the results of the both groups were improved, but the increase in the test score of these questions was much higher in the case of group taught by inquiry and technology supported education. The students of the focus group had an advantage of the visualisation of the gas exchange during the measurement with CO_2 and O_2 sensors and the inquiry approach helped them probably to understand better these processes.

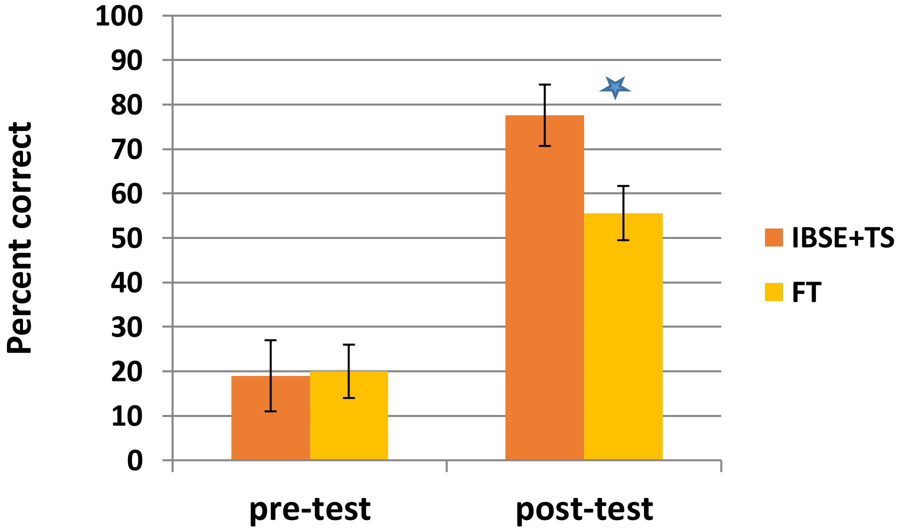

Figure 2: Comparison of the students' achievement in the questions aimed to the photosynthetic gas exchange, expressed as average percentage of the maximum obtainable score in these questions between the students taught by inquiry based and technology supported learning (IBSE+TS) and students taught by frontal teaching (FT). Statistically significant differences are marked by an asterisk (n=107, Students' t- test, $p \leq 0,05$)

Similar trend was evident in the case of questions related to the understanding of the sources of plant nutrition. Also in this field reached the students of the focus group better results that the control group (Fig.3). The inquiry approach and the use of measuring technology helped them to understand better the mechanisms between photosynthetic processes and nutrition of the plant. In the focus group more students considered the solar energy and carbon dioxide as sources for plant nutrition. On the other hand, in the control group, more students believed, that the only source of plant nutrition is mineral nutrition obtained by roots from soil. This is considered by previous work as one of the most serious misconceptions in photosynthesis (Cannal, 1999).

Hence, it seems possible, that using inquiry approach supported by technology is a way to avoid misconceptions in students' understanding of photosynthesis. This is to be proved by further research.

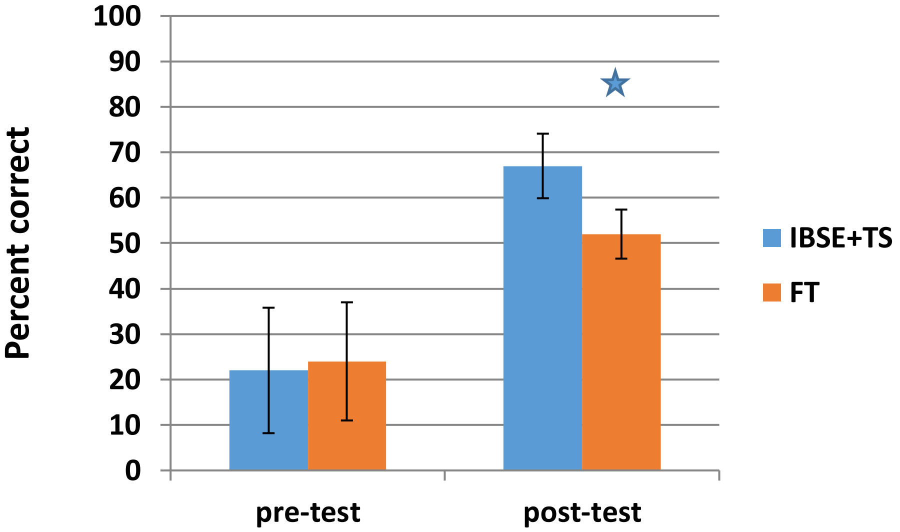

Figure 3: Comparison of the students' achievement in the questions aimed to sources of plant nutrition, expressed as average percentage of the maximum obtainable score in these questions between the students taught by inquiry based and technology supported learning (IBSE+TS) and students taught by frontal teaching (FT). Statistically significant differences are marked by an asterisk (n=107, Students' t- test, p≤0,05)

CONCLUSIONS:

1) Inquiry based and technology supported programme on photosynthesis improved students' achievement in learning photosynthesis
2) The use of measuring technology during inquiry learning was attractive for students
3) It is recommended for the future to work with more measuring devices simultaneously with students in the groups

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Importance Of Ethical Principles In Advertising And Board Of Advertisement's Function As A Method Of Administrative Control

Abdullah ÖZKAN
Faculty of Communication
İstanbul University, Turkey
abdullahozkan@istanbul.edu.tr

ABSTRACT

Advertising, which plays an important role in the promotion of products and services, as well as in the purchase decisions made by a target audience, aims to draw attention to a brand or organization or to address a particular thought at the same time it convinces people to act a certain way of their own accord. Advertisement aims to change the target audience's views and habits and to also ensure they adopt a certain opinion or attitude through the message it gives. Advertisers can sometimes sponsor ads that are not in accordance with ethical principles and that are incompatible with the values of integrity and honesty; they can advocate while also sheltering these improper behaviors behind a variety of excuses. This article, in examining how important ethical principles (which advertisers can sometimes ignore) are for the advertising industry and profession, emphasizes the importance for the development of the advertising industry to advertise while abiding by ethical principles. Ads that are carried out in accordance with ethical principles increase trust in the brand and their message's credibility. Monitoring ads that don't comply with ethical principles or the law carries importance in terms of protecting society and individuals. In this article, the method of executive control is examined in detail from these methods of control, and the Board of Advertising's function within this control mechanism is discussed.

INTRODUCTION

Advertisement in the new millennium plays a very important role in the promotion of products and services produced by the industry of culture; thus, it occupies a large part of individuals' daily lives. Brands and businesses, in conveying to consumers through advertisement the most comprehensive information about their products and services, also benefit again from the, if it may be said, magical world of advertising in order to convince their audiences to carry out their purchases. The advertising sector is fed by creativity, makes a difference while protecting originality, and fulfills the task of convincing the masses while also laying claim to their independence. The elements of creativity, originality, and independence, which are very important capital of the sector, become more significant when supported and surrounded by the rule of law and by ethical principles. This is because advertisements and advertisers are expected to have a sense of social responsibility, to respect the public's rights, and to comply with the principles of honesty and integrity. The boundaries of the ethical principles of advertising have been drawn by the International Chamber of Commerce Code on Advertising Practice; ads that are made in accordance with these guidelines are accepted as ads that are appropriate to ethical values and have a sense of responsibility.

Although there are many scientific publications regarding the technical aspects of the advertising profession in the literature, only a limited number of publications have addressed the ethical dimensions of advertisement. Advertising ethics and the importance of moral values in advertising are mostly discussed in brief in books on advertising. In this regard, *Advertising Ethics in Turkey: Problems and Solutions* fills this gap as a recently published book that features a comprehensive scientific study. This article, therefore, aims to draw attention to the ethical dimension (which has been mostly unmentioned) that remains in the background, yet is an important factor. Furthermore, the structure and resolutions of the Board of Advertisement, as a method of administrative control that exhibits significance because it is closely concerned with both the sector and society, deserve an examination and discussion.

The Board of Advertisement was established by law with the purpose of auditing advertisements through the method of administration and is a control mechanism that has the power of sanction. While supervising, the Board of Advertisement looks at compliance with the principles of public morality, accuracy, and honesty; it aims to protect against social violence, abuse, and other adverse conditions.

This article discusses why ethical principles are important for ads and advertisers; it investigates how to respond to the need for the Board of Advertising to control this while putting emphasis on advertisement's sense of control. In order to detect how the function is viewed in the administration of the Board of Advertising, this article discusses one decision that has been made by the Board.

THE CONCEPT OF ADVERTISING

Advertisement can be defined as the entirety of efforts to introduce a product or service to the public, who will certainly pay the cost of the product or service by buying space and time from mass media (Elden, Ulukök, &Yeygel, 2005, p. 62). The scope of advertisement consists of the act of introducing and adopting people, institutions, goods, and services to the public. When considered from the perspective of marketing, advertising is presented to the target audience through non-personal methods in the exchange of ideas, institutions, goods, and services for a certain fee that is paid to the advertising medium (Okay, 2009, p. 6). Advertisement aims to convince people to perform a particular behavior of their own accord; address a particular thought; or draw attention to a product, service, idea, or organization. Advertisement conveys the information that it wants to give the target audience and also a message by drawing their attention; it precedes the change of opinion and habit, ensuring they adopt a particular view or attitude (Gülsoy, 1999, p. 9). Advertising has two main goal; sales and communication (Kocabaş & Elden, 2009. P. 77).

The American Marketing Association's definition of advertising, meanwhile, is as follows: "Advertising is the placement of messages and announcements to the tools of mass media by purchasing time and space to entice companies, non-profit organizations, public institutions, and individuals for the purpose of informing and/or persuading the members or viewers that form a specific target market about products, services, organizations, or thoughts" (Elden, 2009, p. 136). In this definition, two main features of advertising draw the attention: to inform and to persuade. Advertisement primarily involves informing consumers about a product. In particular, advertisement plays a strategic role in informing consumers about a product that has been put on the market for the first time. Persuasion is also another key feature of advertising. Consumers need to be convinced to able to decide to buy something. In order to convince, it is essential to obtain enough information and find the answer to the questions that are on one's mind. Advertisement plays a facilitating role in consumer decisions in the complex and arduous process of persuasion. No matter how believable or reliable a product is, no matter how robust, high quality, or affordable it is, the message of advertising is easy to the extent that persuasion also occurs (Özkan, 2014b, p. 38).

SOCIAL EFFECTS OF ADVERTISING

Advertisement has a significant effect on society, characterized by sending a message to the public aimed at convincing a target audience. Advertising must use this power on society with a sense of responsibility; it must act in accordance with ethical values and the principles of law. Irresponsible behaviors related to the message and rhetoric of advertising can cause attitudes that oversee the general morality of society to perceive ads negatively; this undoubtedly damages the brand and overshadows the prestige and reputation of the brand in the eyes of the consumer (Özkan, Tandaçgüneş, & Doğan, 2015, p. 4).

Ads closely affect the lives of individuals in society in four important ways (Kavas, 1988, p. 69; Özkan, 2014b, p. 147):

Power of persuasive advertising: Firstly, accurate information needs to be transferred to convince the target audience. Through information, consumer and target audiences form a conviction about a product. However, there is a need in the creative aspect of advertising to turn that conviction into a decision to purchase. Advertising performs a strategic function in turning information passed to the consumer into the decision to buy.

Conformity of advertising to the principles of honesty: Ads must convey true and accurate information when transferring information to the target audience, because the slightest insecurity that is created in the target audience will injure both the product and company's image and reputation. Conveying information that hides something from the consumer or isn't true is definitely not proper behavior.

Aesthetic and visual dimension of advertising: Society closely follows the visual presentation of the message that ads give. Mankind has always trended towards the aesthetic and the beautiful. Ads that are visually attractive and aesthetic carry value in terms of persuasion. As much as they can be truthfully used, aesthetics and visual elements also realize positive social effects.

Relationship of advertising with value judgments and lifestyle: Social values and cultural assets are the main elements of advertisement communications. The more the message of advertisement hosts elements that are generally accepted in society, the more its influence increases. Ads also offer a way of life to society; at the same time the message is given that people who have the products and brands that an ad shows will also have that lifestyle.

IMPORTANCE OF ETHICS PRINCIPLES IN ADVERTISING

Ethics, which analyzes the rules and values of morality as an indicator of ideals and abstractions, is the art of specifying what is proper and decent (Dedeoğlu, 2004). The concept of ethics (which defines what is good or bad and what is true or false) seeks the good, the beautiful, and the true through the principles it forms. Mass media has the power to direct and influence society. For this reason, mass media needs to act with a sense of absolute responsibility and behave appropriately within the limits of the law. The same thing is valid for advertisements that give messages and try to persuade society. Advertising messages are no different from a report or commentary printed in the newspaper or from a program broadcast on television. The responsibility and understanding of publishing within the legal limits in accordance with the ethical values that are expected from mass media are also similarly expected from advertisers. When ethics in the advertising industry is spoken of, first to come to the fore is the personal ethics of advertising, then come the concepts of organizational ethics and professional ethics (Özkan, 2014b, p. 151).

The source of personal ethics is primarily formed through an individual's own conscience. The positive and negative effects of advertised messages that are presented to society must be determined individually for the structure of the society where each advertiser is found (Yeygel, 2007, p. 357). Organizational ethics includes the principles that allow the same type of behaviors to be placed on those who are active in a legal framework and that indicate some social responsibilities that organizations are assumed to fulfill while performing the services they bring to a community (Yeygel, 2007, p. 358). Professional ethics is the set of principles that a particular professional group creates, maintains, and complies with regarding the profession. It limits personal tendencies, expects certain patterns of behavior from the ones who perform the profession, and regulates competition within the profession (Aydın, 2002, p. 4).

Through the existence of ads that deceive and mislead consumers, public critiques on the content of ads have made the creation of ethical principles mandatory. Ethical principles have formed ad suppliers, advertisers, and media representatives together. The demands of associations and foundations that represent the consumer have been taken into account in determining ethical principles. The International Advertising Practice Guidelines (IAPG) that determined the International Chamber of Commerce (ICC), which is internationally accepted as the basic text on the subject of ethics principles in advertising, was issued in 1937. The IAPG have also been adopted in Turkey (Çelik, 2013, p. 156). The ethics principles in the IAPG cover important issues in advertising such as compliance with morals; accuracy; honesty; social responsibility; the protection of children and youth; respect for individual rights and health; environmental awareness; and consumer protection (Özkan, 2014a, p. 5). When looking at the contents of the basic ethics principles located in the IAPG, protection of the individual and society are observed to have been given priority (Özkan, 2014b, p. 190). The IAPG shows sensitivity on the topic of ads that are prepared and published in accordance with the values of ethics; they emphasize the importance of advertisements that are prepared with an awareness of social responsibility and that protect the individual.

MAIN SOURCES OF ADVERTISING LAW

In Turkey, the sources of advertising law show the variability of advertising regulations that have been collected in different texts. Relevant provisions of the Commercial Code that apply to unfair acts of competition that were perpetrated through ads, together with those that were not directly associated with ads, form the classic and oldest source of advertising law. Legal regulations regarding ads are situated in two main sources of the legislation: Consumer Law Legislation and the Legislation of Radio and Television Law (İnal & Baysal, 2008, p. 10).

Commercial advertising and unfair commercial practices are discussed in Section 6 of Law no. 6502 on the protection of consumers (2013), one of the main sources of advertising law. Arrangements made regarding commercial ads are listed in detail in Article 61 of this same law. When looking at the content of the article, the principles of "compliance with the law, public morality, accuracy, and fairness" are observed to come to the fore among the general principles to be followed in ads. Also, ads that promote violence; endanger life or property; abuse children, the elderly, or the disabled; deceive or mislead; imply; or disrupt public health are observed to be illegal. Article 63 of the Law on Consumer Protection also regulated the establishment of an Advertising Board that works under the Customs and Trade Ministry; the Board's wide powers are recognized by this law (GTB, 2014). The second main source of advertising law is Articles 9 through 13 of Law no. 6112, regarding the Establishment and Broadcasting of Radios and Televisions. Also, Regulations on the Principles and Procedures of Radio and Television, published by the Radio and Television Supreme Council (RTÜK), was established by this law, which includes provisions relating to ads and regulations on how to implement articles related to this law.

PHENOMENON OF ADVERTISING CONTROL AND ADVERTISING BOARD

Ads are controlled judicially in the following four ways: administrative control, private litigation, prosecution, and self-regulation (Avşar & Elden, 2004, p. 85; İnal & Baysal, 2008, p. 10). The method of administrative control of ads and the Board of Advertisement's practices that operate this control mechanism are discussed within the scope of this article. The Board of Advertisement, which was established under the Ministry of Customs and Trade due to Article 63 in the Law on Consumer Protection, has the authority "to determine the principles to be followed in commercial advertising, to make arrangements to protect consumers against unfair commercial practices, to conduct audits within the framework of these issues, to investigate when necessary, to have them stopped in accordance with the audit results, to use necessary correction methods, and to punish through administrative fines, or if deemed necessary, bring it to a halt" (İnal & Baysal, 2008, p. 80). Fitting the Board of Advertisement with extensive powers and appointing the Chairman of the Board by the Ministry also bring the debate together. The most important discussion on this issue is the claim that political power can negatively guide the advertising sector in several ways through the board.

EXAMPLE OF A DECISION FROM THE ADVERTISING BOARD

An example of a board decision will be examined to understand better the duties of the Board of Advertising. What follows is one of the 238 decisions made during a board meeting on July 14, 2015. These decisions were published on the Customs and Trade Ministry's website (www.gtb.gov.tr) and are available to the public.
File No: 2015/12
Complainant: Vodafone Telecommunications A.Ş.
Complainant's Ad: *"Vodafone Supernet Phoneless ADSL"* banner ads
Ad Publishing Date: January-April 2015
Publishing Channels: TV, Newspaper, Internet
Observations: In ads published in various media, *"No Internet at home? Nope. I kept saying they said connect a home phone. How's there no internet at home? How amazing, be brave, buddy, the internet thing you said, how slow. What's becoming slow, come on, let's go; let's get on our horse and grab our sword. (...) During this period, a home without internet appears (taaaa). Vodaphone Supernet phoneless ADSL comes home. Homes are catching the times. Vodaphone, only 49.90 per month with no extra charge, giving you unlimited internet at home. It's so easy to bring in the internet at home in the New Year."* These words were found to be given.
Evaluation/Decision: subject of the review in the ads, *"No internet at home? Nope. I kept saying they said to connect a home phone. How's there no internet at home. How amazing, be brave, buddy. The internet thing you said, how slow. What's becoming slow, come on, let's go, let's get on our horse and grab our sword. (...)During this period, a home without internet appears (taaaa). Vodaphone Supernet phoneless ADSL comes home. Homes are catching the times. Vodaphone Supernet phoneless ADSL comes home. Homes are catching the times. Vodaphone, only 49.90 per month with no extra charge, giving you unlimited internet at home. It's so easy to bring in the internet at home in the New Year."* This statement gives the impression to consumers that a home phone connection is necessary in order for the company that offered internet service to be able to provide internet service. However, as of 12/3/2010, customers who want to receive internet service were offered a bare DSL service; customers were not required to get a home phone along with internet service; this reason was not reflected factually in the cited ads.
Therefore, which of the ad's words misled customers and which ones constitute a violation of the principles of fair competition in this situation:
-in the period of reflection of the examination of the subject of the ad, in force are Articles 5a, 5e, 7a, 7c, and 21 of the Principles Related to the Commercial Advertising and Notices and the Regulation on the Implementation of Principles.
- Articles 5, 7, and 32 of the Commercial Advertising and Unfair Commercial Practices, 1/10/2015 and enacted while printed in no. 29,232 of the Official Gazette.
- Contrary to the provisions of Article 61 in Law about Consumer Protection no. 6502
Accordingly, in regard to Vodafone Telecommunications, Inc., who provided the advertisement, in accordance with Articles 77 and 12 of Law no. 63, the *punishment of halting the ad* has been decreed."

As was seen, the Board of Advertisement evaluated by itself the reference that was made in the field of communication services, and they concluded that the ad, which had been posted on television, in newspapers, and on Internet channels, had misled customers; they concluded that it was contrary to the principles of fair competition. Using the authority given to them by the law, they had the ad suspended.

As previously stated, the International Chamber of Commerce Code on Advertising Practice has stated that ads are required to comply with the principles of integrity and honesty and be willing to respect consumers' rights. Ads that mislead consumers, that deceive, and that bear elements which are contrary to the principles of honesty and integrity are not only a violation of law but are also contrary to ethical values. The Board of Advertisement monitored whether or not the ad had complied with ethical principles while checking its legality. Advertisements that deceive consumers and violate the conditions of competition are not only a violation of law, but they also exhibit unethical attitudes. The announcement to the public and raising of consumer awareness by the Board of Advertisement about organizations and brands that don't exercise due diligence on these sensitive issues and habitually breach legal and ethical values are important in terms of creating the necessary resistance to this kind of behavior. Consumers who sympathize towards and also choose the brands and institutions that are careful to take laws, ethics, and societal values into account are essential for reducing negative examples.

CONCLUSIONS

In the advertising sector, first advertisers' own sense of personal ethics, and later, their organizational and professional understanding of ethics stand out. As much as advertisers improve the strength and health of the personal ethics that they create in their own conscience, so can they perform their profession by depending on ethical values. The understanding of organizational ethics that determines the relationship between an advertising agency and ad provider forms the main condition that can be performed in the advertising professions' principle framework of trust, transparency, and honesty. The strength of the trust-bond between these two factors will also appear in the ads that come out. The understanding of professional ethics expects that employees adhere to specific behavior patterns, excludes those that don't, and contributes to professional development. If the principles of professional ethics in the advertising sector can be healthily operated and successfully internalized, events that exceed legal limits can be minimized. If these events comply with the principles of professional ethics and at the same time remain within the legal framework, they will clearly be far removed from illegal practices. If the seriousness of the media's impact on society can influence the public, then advertising also has this same power. The message of advertising, which adheres to ethical principles, uses mass communication, and can even enter the capillaries of society through social media, carries great importance. If advertising messages carry elements that can adversely affect the community, the consequences can be more severe than predicted; ethical principles that are violated through too much greed for profit may lead to results that could harm society. These days, when a business concept that adheres to ethical principles excels, those who do not adhere to these principles are excluded (Özkan, 2014b, p. 153).

One condition that is expected and requested is to advertise in accordance with the legal rules of the advertising sector and with ethical values. When this is done, the mechanisms of control circuitry enter. From among the mechanisms of advertising control, the most important and most frequently used method in Turkey is administrative control. Administrative control, which is conducted by the Board of Advertisement as established by law, oversees that ads comply with morals, comply with the principles of straightforwardness and truth, and are socially responsible; it aims to protect society and individuals. The Board of Advertisement is based on principles that are specified in the International Chamber of Commerce Code on Advertising Practice in its audits and is not just the legal rules of advertisement. It also encourages preparations appropriate to ethical principles. When the Board of Advertisement is evaluated as a necessary institution from the perspective of its visible function, its control mechanism is found to be important in terms of protecting individuals and society against violence, abuse, hate speech, and more. However, the board's location close to the political power structure brings with it the anxiety that there may be some traces of political influence in its decisions. To eliminate these feelings, the structure of the Board should be rearranged and the number of its members who come from industry, academia, and civil society organizations should be increased.

The advertising sector can not be left unchecked, for it performs a function that affects society. However, instead of the control mechanism of administrative control, strengthening the industry's self-regulating model of self-control will be the most accurate and reliable method for realizing this. The most important task in ensuring the independence of advertising communications is related to the advertising self-regulatory boards. The effective and healthy operation of these establishments will mitigate the legal control mechanisms over the advertising sector and will also provide an important contribution to the production of ads that are more appropriate to ethical values. It is necessary to help individuals who conform to the legal rules, emphasize ethical values, and move with social responsibility to internalize ethical principles while taking ownership of a brand.

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Influences Of Physics Education Supported By Computer Simulations On Motivation Levels And Teaching Strategies Of Teacher Candidates

Mustafa KAHYAOĞLU
Siirt University, Faculty of Education Siirt, Turkey
mustafa.kahyaoglu56@gmail.com

Veysel ÇELİK
Siirt University, Faculty of Education Siirt, Turkey
veysel3@gmail.com

ABSTRACT

This study is performed for the purpose of determining the influence of physics education supported by computer simulations on motivation levels and learning strategies of teacher candidates. Sample of the study consists of total 19 teacher candidates who are studying in university of Siirt, Faculty of Education, department of Elementary Mathematics Teaching and taking the course of General Physics I in 2015-2016 academic year. In the study, single group pretest-posttest weak experimental design model is used. In scope of this study, so as to determine motivation levels and learning strategies of teacher candidates; it is used the "motivation and learning strategies" questionnaire which is developed by Pintrich et al. (1991) and adopted to Turkish by Buyukozturk et al. (2004) by doing effectiveness and reliability studies. Wilcoxon signed ranks test which is not one of the parametric tests, is used for data analysis. SPSS 22.0 statistical package program is used for data analysis. In performed study, it is determined that there is a meaningful difference in task value dimensions which is one of the motivation sub-dimensions of teacher candidates; while there is no meaningful difference between internal target, external target, control belief for learning, self-sufficiency related to learning and performance, motivation levels related to exam anxiety dimensions. In addition, when examining the sub-dimension Wilcoxon test results of learning strategies of teacher candidates; it is determined that there is no meaningful difference among repetition, arrangement, dissection, critical thinking, help search, peer-collaboration, meta-cognitive , effort method, time and working environment.

Keywords: Physics teaching, computer simulations, motivation teaching strategies

INTRODUCTION

Physics is a branch of science, which takes part in all event and case encountered almost every day in all fields of daily life from turning electrons to galaxies, from electric currency to buoyancy of water, from electromagnetic waves to the gravity. It is a branch of science which searches the reason of natural event and examine these events depend on which rules or laws (Inan, 1988). In other words, physics is a branch of science which tries to explain the laws of our universe (Tatar, 2010). On one hand, it is in cooperation with natural sciences such as Biology, Chemistry, Geology; on the other hand, it is a close cooperation with engineering fields such as Computer, Electric and Electronics. For this reason; teaching physics is one of the most important fields of teaching physical sciences. It takes part in many academic programs (such as Biology, Chemistry, Engineering, Medical, Pharmacy) in high school and university level starting from the fourth grade in elementary school. The main purpose of teaching physics, is to develop scientific literacy in students. So as to reach the purpose, it is aimed students to show progress in both mental and affective and psychomotor fields. (MEB, 2013) In this framework, the purposes of teaching physics course are;

- To arouse interest in students for physics science and encourage them to discover.
- To understand the nature of scientific inquiry, produce scientific information by using scientific process skills and solve the problems.
- To understand the contribution of historical and cultural process to the physics science.
- To use the scientific information and methods to explain an event or apply in new situations.
- To gain awareness for the nature of science.
- To provide justification about claims depending on the proofs and demonstration, evaluate it and share the scientific information.
- To take decisions having scientific bases related to applications of physics by considering the ethical and social influences (MEB, 2013).

On the contrary, it is determined that teachers have difficulties in teaching physics, students cannot comprehend the physics subjects, they cannot make mathematical operation related to physic subjects and they have many misconceptions (Aydogan, Gunes and Gulcicek, 2003; Bayrak and Bezen, 2013; Demirci and Efe, 2007; Karakuyu, 2008; Tunc, Akcam and Dokme, 2012). It is also stated that success rates are considerably low, of students for physics courses in high school entrance and university entrance exams (Marulcu and Dogan, 2010). Motivation and learning strategies of students are one of the most important factors providing the active attendance to course and affecting the success. Motivation is one of the most important factors which start and sustain the attitude, and provide to be successful (Dilekmen and Ada, 2005). It affects the direction, intensity and stability of an attitude (Fidan, 1996). Learning strategies are defined as scientific plans created so as to fulfill a task successfully (Wienstein and Mayer, 1986) or a whole of tactics of individuals that they have related to a certain learning state (Derry and Murphy, 1986) (Quoted by: Oral, 2011). It is each of the techniques which make self-learning of a student easier (Erdem, 2005). It provide the student to process the information and learn easily and permanently. Furthermore, it increases learning efficiency by providing students to control their self-learnings and to direct if necessary. In body of literature, there many studies on academical motivation levels and learning strategies of teachers and teacher candidates, factors affecting motivation and learning strategies, influence of motivation and learning strategies on academical success (Demir and Ari, 2013; Kiziltepe, 2011; Sahin and Cakar, 2011).

In addition, computer aided simulations are utilized in increasing academic success of students, teaching complex information, getting them comprehended, clearing misconceptions, practice and repetitions recently. According to dictionary of Turkish Language Association (TDK); simulation means “simulation (benzetim)” (http://www.tdk.gov.tr). It is to design or imitate models resembling their real ones. Simulations are softwares prepared to show the operating mechanism of a system or how it works (Kuzu, 2007). It is defined as representing events of real life in a controlled way (Demirel, 2005). Educational simulations are computer aided educational type which is risky, dangerous in real life, and which provide to show events that is impossible to be shown in time context, provide individual differences to be taken into consideration with its economic and repetitive features and with its interesting and motivative features its usage increases day by day (Ozdener and Erdogan, 2001).

When examining the body of literature, Akkagit and Tekin (2012) stated that simulation based education has an influence on academic success of high school students. Atam and Tekdal (2010) stated that simulation based softwares prepared for Science and Technology courses have influences on academic success of elementary students; Ulukok, Celik and Sari (2013) stated that simulation aided Science and Technology laboratory applications have a meaningful influence on experimental process skills of students. Emrahoglu and Bulbul (2010) stated in their study that simulation aided computer education in physics course of high school 9th grade, have a positive influence on academic success of students. In the study where influence of simulation aided cooperative learning in Biology education on student’s team success; Efe et al. (2011) stated that simulation aided cooperative learning method influence more on academic success in comparison to traditional learning method. When examining the body of literature, there are a lot of studies about usage of simulation in education process. However, it is seen that most of performed studies are focused on academic success of students. On the other hand, there are no study related to influence of simulations on motivation and learning strategies of students. When considering the importance of motivation and learning strategies in education, it is considered that to reveal the influence of using computer aided simulation in physic teaching on motivation and learning strategies of students will provide contribution to both educators and academicians who will perform study in this field.

The Aim of the Study

This study is performed for the purpose of determining influences of computer simulation aided physics course education on usage levels of motivation and learning strategies of teacher candidates. An answer is seeked for the following questions in this respect.

1. What is the influence of computer simulations aided physics course education on motivation levels of teacher candidates?

2. What is the influence of computer simulations aided physics course education on usage levels of learning strategies of teacher candidates?

METHOD

Research Model

In this study, single group pretest-protest weak experimental design model is used. In this design, the influence of experimental process via the study performed on a single group Measurements of experimental subjects related to dependent variable are obtained by using the same subjects and measuring devices as of pretest before the application and protest after the application. There is no randomness and matching in this design (Buyukozturk, 2007). The design of study is presented in Table 1.

Table-1. Design of the Study

Groups	Pretest	Application	Protest
Single sample	Motivation and Learning strategies' scale	Computer aided simulation model	Motivation and Learning strategies' scale

In this study, a motivation and learning strategy the pretest is applied to sample and the same test is applied to sample as a protest. Computer aided simulation technique is used for the application.

Working Group

Working group of the study consists of total 19 teacher candidates who are studying in university of Siirt, Faculty of Education, in 2nd grade in department of Elementary Mathematics Teaching in 2015-2016 academic year. 10 candidates are women and 9 candidates are men. Attendance of students to pretest and protest measurements and their class attendance states are taken into consideration in determining teacher candidates.

Data Collection Tool

In scope of this study, so as to determine motivation and learning strategies of teacher candidates; it is used the "motivation and learning strategies" scale which is developed by Pintrich et al. (1991) and adopted to Turkish by Buyukozturk et al. (2004) by doing effectiveness and reliability studies. The scale consists of two sub-scales as of motivation and learning strategies, and total 81 articles. Motivation scale consists of 7 factors and 31 articles. These are respectively consist of sub-dimensions of internal target arrangement (4 articles), external target arrangement (4 articles), task value (6 articles), control belief for learning (4 articles), self-efficiency related to learning and performance (8 articles) and exam anxiety (5 articles). Findings of scale related to Cronbach alpha values are given in Table-2.

Table-2. Cronbach alpha coefficient of motivation scale

Factor name	Cronbach alpha value		
	Original	Turkish	In performed study
Internal target arrangement	,74	,59	,78
External target arrangement	,62	,63	,59
Task value	,90	,80	,71
Control belief for learning	,68	,52	,68
Self-efficiency related to learning and performance	,93	,86	,90
Exam anxiety	,80	,69	,49

As is seen in the Table-2; in performed study, for sub-scales of motivation scale, Cronbach alpha internal reliability coefficient is determined as .78 for internal target arrangement, .59 for external target arrangement, .71 for task value, .68 for control belief for learning, .90 for self-efficiency related to learning and performance, and .49 for exam anxiety. The sub-scale used for determining learning strategies of teacher candidates, consists of 9 factors and 50 articles. Each of factors respectively consists of dimensions of repetition (4 articles), arrangement (4 articles), dissection (6 articles), critical thinking (5 articles), help search (4 articles), peer-collaboration (3 articles), meta-cognitive strategies (12 articles), effort management (4 articles), time and working environment (8 articles). Findings of scale related to Cronbach alpha reliability values are given in Table-3.

Table-3. Cronbach alpha coefficient of learning strategies

Factor name	Cronbach alpha value		
	Original	Turkish	In performed study
Repetition	,69	,62	,75
Arrangement	,64	,61	,69
Dissection	,75	,74	,74
Critical thinking	,80	,74	,69
Help search	,52	,49	,29
Peer-collaboration	,76	,46	,66
Meta-cognitive	,79	,75	,13
Effort management	,69	,41	,28
Time and working environment	,76	,61	,44

As is seen in the Table-3; in performed study, for sub-scales of learning strategies scale, Cronbach alpha internal reliability coefficient is determined as .75 for repetition, .69 for arrangement, .74 for dissection, .69 for critical thinking, .29 for help search, .66 for peer-collaboration, .13 for meta-cognitive, .28 for effort management and .44 for time and working environment.

Application Process and Data Analysis

Application process of the study started in January 2015. In this process; it came into effect after completing theoretical preparation conducted in way of literature review, method construct, scale determination and simulation determination to be used in applications. In application process; before starting to experimental process, course executive made necessary statements to the students about how the course will be tought and usage of computer aided simulations. Before starting computer aided simulation application, motivation and learning strategies scale is applied to teacher candidates as a pretest. During the application, in scope of the General Physics I course, it is performed for experiment group teacher candidates, in guidance of instructor in a way to cover the subjects of "Work Power and Energy". In this study, it is used the open access simulations which are developed by Colarado university (http://phet.colorado.edu). Application of simulations carried out through smart board and application lasted for four weeks in total. After completing experimental process, the same data collection tool is applied to the same group as a protest.

Wilcoxon signed ranks test which is not one of the parametric tests, is used for data analysis; because of the facts that as single sample pretest-protest research design is carried out for determining the influence of computer aided simulations on motivation levels of teacher candidates and their learning strategies, it does not show normal distribution, and attendant number of experiment group consists of 19 teacher candidates, and this sample number falls short of the expectations about sample number of parametric tests. SPSS 22.0 statistical package program is used for data analysis.

FINDINGS

Findings obtained from the study are presented below according to sub-problems of research. Wilcoxon test results related to intragroup comparisons of pretest-protest average motivation sub-dimension points of experiment group, are given in Table-4.

Table-4. Wilcoxon test results of motivation scale sub-dimension pretest/protest average points of experiment group

		N	Mean rank	Rank sum	Z	Sig (p)
Internal target Protest-pretest	Negative rank	6	7,33	44,00	-,536	,562*
	Positive rank	8	7,63	61,00		
	Ties	5				
External target Protest-pretest	Negative rank	9	8,17	73,50	-,768	,442*
	Positive rank	6	7,75	46,50		
	Ties	4				
Task value Protest-pretest	Negative rank	12	8,42	101,00	-2,343	,019**
	Positive rank	3	6,33	19,00		
	Ties	4				
Control belief for learning Protest-pretest	Negative rank	11	9,77	107,50	-964	,335*
	Positive rank	7	9,07	63,50		
	Ties	1				
Self-efficiency related to learning and performance Protest-pretest	Negative rank	9	9,11	82,00	-,725	,468*
	Positive rank	7	7,71	54,00		
	Ties	3				
Exam anxiety Protest-pretest	Negative rank	7	11,86	83,00	-,308	,758*
	Positive rank	10	7,00	70,00		
	Ties	2				

* p >.05; **p<.05

As is seen in Table-4, when examining Wilcoxon test results related to motivation scale sub-dimension of students in experiment group; while there is a meaningful difference (Z=-2,343; p<0.5) in task value dimension, there are no meaningful differences between pretest-protest point averages of internal target (Z=-,536; p>.05), external target (Z=-,768; p>0.5), control belief related to learning (Z=-,964; p>0.5), self-efficiency for learning and performance (Z=-,725; p>0.5), exam anxiety (Z=-,308; p>0.5). Wilcoxon test results related to pretest-protest average of learning strategies scale sub-dimension points of experiment group, are given in Table-5.

Table-5 Wilcoxon test results related to pretest/protest average of learning strategies scale sub-dimension points of experiment group

		N	Mean rank	Rank sum	Z	Sig (p)
Repetition	Negative rank	8	9,19	73,50	-,285	,775*
	Positive rank	8	7,81	62,50		
	Ties	3				
Arrangement	Negative rank	10	8,90	89,00	-,593	,553*
	Positive rank	7	9,14	64,00		
	Ties	2				
Dissection	Negative rank	12	10,38	124,50	-1,708	,088*
	Positive rank	6	7,75	46,50		
	Ties	1				
Critical thinking	Negative rank	8	9,00	72,00	-,683	,495*
	Positive rank	7	6,86	48,00		
	Ties	4				
Help search	Negative rank	6	10,50	63,00	-,642	,521*
	Positive rank	11	8,18	90,00		
	Ties	2				
Peer-collaboration	Negative rank	8	8,75	70,00	-,682	,495*
	Positive rank	10	10,10	101,00		
	Ties	1				
Meta-cognitive	Negative rank	12	9,75	117,00	-1,374	,169*
	Positive rank	6	9,00	54,00		
	Ties	1				
Effort management	Negative rank	11	9,73	107,00	-1,450	,147*
	Positive rank	6	7,67	46,00		
	Ties	2				
Time and working environment	Negative rank	14	10,18	142,50	-1,917	,055*
	Positive rank	5	9,50	47,50		
	Ties	0				

* p >.05; **p<.05

As is seen in Table-4, when examining Wilcoxon test results related to learning strategies scale sub-dimension of teacher candidates in experiment group; it is determined that there are no meaningful differences between pretest-protest point averages of repetition (Z=-,285; p>.05), arrangement (Z=-,593; p>0.5), dissection (Z=-1,708; p>0.5), critical thinking (Z=-,683; p>0.5), help search (Z=-,642; p>0.5), peer-collaboration (Z=-,682; p>0.5), meta-cognitive (Z=-1,374; p>0.5), effort management (Z=-1,450; p>0.5), time and working environment (Z=-1,917; p>0.5).

DISCUSSION AND RESULT

In this study, it is examined the influence of physics course education supported by computer simulations on motivation and learning strategies of teacher candidates. The study is limited to 19 teacher candidates who are studying in university of Siirt, faculty of Education, department of Elementary Mathematics Teaching. In carrying out an effective physics teaching; active attendance of students to learning environment and being enthusiastic about learning namely being motivated are considerable important. In the performed study, it is determined that there is a meaningful difference in dimension of task value from motivation sub-dimensions of teacher candidates attended to the study, while there are no meaningful differences between motivation levels related to internal target, external target, control belief for learning, self-efficiency for learning and performance, exam anxiety dimensions. According to this, it can be said that computer aided simulation technique conducted in matter of work, power and energy partaking in scope of General Physics I course, increases and influences the task value motivation levels of teacher candidates; while it does not influence the dimensions of internal target, external target, control belief for learning, self-efficiency for learning and performance, time and working environment. In addition, when examining the influence computer aided simulation technique of teacher candidates on their learning strategies; it is determined that there are no meaningful differences between repetition, arrangement, dissection, critical thinking, help search, peer-collaboration, meta-cognitive, effort management, time and working environment dimensions from learning strategies sub-dimensions. According to this, it can be said that there are no influence of repetition, arrangement, dissection, critical thinking, help search, peer-collaboration, meta-cognitive, effort management, time and working environment which are sub-dimensions of learning strategies of experiment group students of physics education supported by computer simulations.

It is stated in literature that computer aided simulations help students to imagine the concepts (Griffiths and Preston, 1992), remove misconceptions (Hameed, Hacking and Garnett, 1993), make conceptual learning easier (Pekdag, 2010), increase academic success (Buyukkara, 2011; Akkagit and Tekin, 2009; Tatli and Ayas, 2011) and develop scientific thinking skills (Abdullah and Shariff, 2008). Similarly, Yilmaz and Eren (2014) stated that school teaching program increase considerably successes of teacher candidates in physics course where computer aided simulations are used. In addition, Civelek (2008) stated that there is a meaningful influence of computer aided simulation technique on learning and motivations of students, in study where the influence is examined of computer aided simulation technique on learning and motivation level of students. In our study, it is determined that computer aided simulation technique does not influence enough the motivation levels and learning strategies of teacher candidates. This situation may take its source from difference of sample or subjects of events (Work-Power-Energy).

As a result, more researches should be performed on computer aided simulation technique in physics teaching. To perform studies in levels (elementary education, secondary education, higher education) of different samples especially in different physics subjects, may reveal applicability of computer aided simulation technique in physics education more clearly.

Motivation is a considerably important factor in many fields especially in education. Although influences of motivation on learning and teaching are known; it is not laid an emphasis on how it is used in class environment.

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Innovative Teaching In Higher Education: The Big Data Approach

Miftachul HUDA
Sultan Omar 'Ali Saifuddien Centre of Islamic Studies, Universiti Brunei Darussalam, Brunei Darussalam
halimelhuda@gmail.com

Muhammad ANSHARI
Continuing Education Centre, Universiti Brunei Darussalam, Brunei Darussalam
anshari.ali@ubd.edu.bn

Mohammad Nabil ALMUNAWAR
UBD School of Business and Economics, Universiti Brunei Darussalam, Brunei Darussalam
nabil.almunawar@ubd.edu.bn

Masitah SHAHRILL
Sultan Hassanal Bolkiah Institute of Education, Universiti Brunei Darussalam, Brunei Darussalam
masitah.shahrill@ubd.edu.bn

Abby TAN
Faculty of Science, Universiti Brunei Darussalam, Brunei Darussalam
abby.tan@ubd.edu.bn

Jainatul Halida JAIDIN
Sultan Hassanal Bolkiah Institute of Education, Universiti Brunei Darussalam, Brunei Darussalam
halida.jaidin@ubd.edu.bn

Sabrina DAUD
UBD School of Business and Economics, Universiti Brunei Darussalam, Brunei Darussalam
sabrina.daud@ubd.edu.bn

Masairol MASRI
UBD School of Business and Economics, Universiti Brunei Darussalam, Brunei Darussalam
masairol.masri@ubd.edu.bn

ABSTRACT

Across the Internet where massive amounts of data are being created every second. Widely known as the big data, this tool can be signified as the techniques to capture, store and analyse data of resources. It enables us to provide instrumental means in formulating data such as for communication, sending information and online activities purpose. Moreover, it can also offer innovative teaching and learning for higher learning institution. This study aims to discuss the teaching based on big data application and practices to enhance innovation in teaching, learning, sociality, and technology for students. In this study, we deploy thematic analysis to construct a model for higher institutions to regulate their scenario on big data application. The findings reveal that it can be used to improve decision-makings, provide insights, knowledge discoveries, and optimise learning processes. Higher learning institution can adopt big data analytics-based teaching and learning strategy to sustain in providing innovative teaching and learning experience to the students with opportunities to improve learning experiences to them with big data analytics. In fact, students nowadays rely on online resources and at the same time they produce data for sharing purposes.

Keywords: Big data, Innovative teaching, Pedagogical instrument, Higher education

INTRODUCTION

Many universities have begun to take benefit of the recent development in Information and Communication Technology (ICT) by embracing innovation in online learning (Livingstone, 2012). These higher educational institutions are aware that ICT is currently a major component in reforming teaching and learning. The role of ICT is to formulate and to enhance mobile teaching and learning process and it drives student-centred learning (Williams et al., 2000). For instance, a teacher can manage the delivery of teaching and support materials with minimum cost and simultaneously interact with students at any time by using a Learning Management System (LMS) (Weaver et al., 2008). The students can also actively participate in online discussion forums moderated by the teacher or a tutor. This may bring the innovation in the teaching and learning activities. Besides investing in ICT, higher learning institutions have made a lot of investments for teachers in integrating technologies into their teaching and learning practices (Palak & Walls, 2009). For instance, introducing multimedia into a problem-based learning environment makes students think critically and become active participants in the learning process. Furthermore, multimedia-based projects can be used alternatively as an innovative and effective tool in a problem-based learning environment for the acquisition of problem-solving skills (Neo & Neo, 2001).

To be innovative in one's teaching, we need to take into account the advancement of ICT like smartphones, social media, LMS, etc. Smart mobile devices are not limited to just making calls, but students can send text messages to anyone around the world (Shin et al., 2011). There are many Apps in smartphones, which make sending text messages and calling even easier, and at a lower or no cost at all. Students can even make groups using one of the available Apps in their smartphones and send messages instantly to everyone within the group. These functions are useful for students, as they can use it to discuss their coursework. Social media is another innovative invention used by majority of students (Dabbagh & Kitsantas, 2012). The use of smartphones enables students to do their work on their phones which 5 years ago was only possible on computers. Word documents can now be accessed and used from the smartphones. If a student is on the go and does not have access to a computer or a laptop, the student can just work on a task on his or her phone. These are just some examples where ICT has made an impact in learning innovation. Information from multiple sources is needed to enhance it and this can be supported easily with the big data framework (Levin & Wadmany, 2006). And especially in providing feedback for enhancing innovative teaching performance to enable students to search for resources with borderless space (Ertmer, 2005).

Adopted as a new technological approach, the big data framework can incorporate many aspects related to massive data generation and its growth in supporting and enhancing innovative teaching and learning. Big data is a new generation of data analytical approach designed from collecting, aggregating and analysing very large amounts of data (Mayer-Schönberger & Cukier, 2013; Villars et al., 2011). Big data is a utilization of massive amounts of data which is created every second across the Internet (Villars et al., 2011) and subsequently, it is extracted to gain its potential and value for the user (Mayer-Schönberger & Cukier, 2013). Since teaching and learning involve data in every stage, it is interesting to assess big data application in contributing to the innovative teaching. In order to deliver innovative teaching, numerous sources provide complex of data like social networks, surveys, newspapers, magazines, volume and assortment. The question of what do we want to accomplish from these data then arise. This study attempts to propose a model in enhancing innovative teaching and learning by incorporating big data framework in a higher education setting. The model is expected to contribute by considering multi-channels of sources of knowledge.

INNOVATIVE TEACHING IN HIGHER EDUCATION

There are many theories and application for innovative teaching related to students' behaviours, methods, approaches, and strategies (Anderson, 2008). Teacher competency plays an important factor in delivering innovative teaching in higher education. Those competencies are professional certification, cognitive abilities, affective-motivational characteristics, mastery of teaching and learning contents, and pedagogical approach (Blömeke & Delaney, 2014; Harris et al., 2009). There are four core competencies to deliver innovative teaching; innovative learning competence, innovative social competency, innovative educational competency, and innovative technological competency (Zhu et al., 2013).

Innovative learning competence refers to the knowledge on how teachers update subject knowledge and contents enhance methods to gather new knowledge, improve ways in getting learning materials, and solve learning problems through self-reflection (Soto Gómez et al., 2015). This competence aims to improve individual knowledge competencies so that the teacher can deliver knowledge effectively to his or her students. In addition, the ability to access reliable data can help the teacher enhance innovative learning (Livingstone, 2012).

Innovative social competence is an ability to communicate socially with students from different backgrounds (Jeffrey & Craft, 2004). In online learning, this refers to the innovative skills of the teacher's ability to tolerate the social aspect of the digital nature of communication where students are absent from physical interaction and expression. Therefore, innovative social competence must have a presence in order to avoid confusion, frustration, miscommunication, and the challenging behaviour of online users. Teachers need innovative social competence in online teaching and learning environments (Runco, 2003).

Innovative educational competency refers to the ability of integrating subject knowledge, pedagogical aspect, and learning psychology to achieve the development of students in understanding the topics taught (Runesson & Runesson, 2015). In online learning context, the teaching facilitators need to guide students effectively with the passion of encouraging active learning in virtual teaching effectively (Asyari et al., 2016).

Innovative technological competency helps teachers to find reliable and comprehensive information from online sources to enhance teaching and learning activities (Lawless & Pellegrino, 2007). This also refers to the method in data gathering from a multitude of data sources to use effectively in supporting innovative teaching (Salleh, 2016). In fact, ICT has been used often as a tool to support innovative teaching (McPherson & Nunes, 2004). For instance, ICT has been used to develop creative learning for cognitive abilities and emotional aspects of students (Anderson, 2008; Bates & Poole, 2003; McPherson & Nunes, 2004; Smith & Hardaker, 2000). According to Shin et al. (2011), a teacher uses a smartphone to share online resources directly to students. Utilizing smartphones in a class setting combines technological competency and interactive contents' delivery to promote innovative teaching (Bates & Poole, 2003; Salleh, 2016). Additionally, combining technological competency to promote innovative teaching can help teachers develop their students' learning abilities (Bates & Poole, 2003; Salleh, 2016).

In this study, we focus on innovative teaching, which is driven by the advancement in ICT such as big data as a new concept. The application of data analytics can incorporate many aspects related to massive data generation and its growth in supporting and enhancing innovative teaching and learning. These are the benefits that are expected to encourage students to enrich their learning experiences as well as to generate value for students' development, performance, and achievement during the learning process.

BIG DATA AND EDUCATION

With huge amounts of data created every second across the Internet, big data is a new approach in data analytics for discovery, analysis, and also to extract value from large volumes of data (Villars et al., 2011). The capabilities of big data range from transferring and sharing, predicting, visualizing, capturing and searching data. It is known as the fourth generation of computing (Kitchin, 2014). Due to the growth and evolution of ICT, big data extends its capacity in terms of volume, velocity, and variety (Anshari et al., 2015). In fact, educational institutions produce large amount of data daily, which can be extracted for its value added functions for its stakeholders. For instance, big data can the support learning process by providing the access to reliable data sources. Furthermore, it can help students' engagement, interaction, and pervasive knowledge delivery to the students and community at large. Big data is in real time with the ability to explore data and understand students' behaviour and is able to offer personalized and customized services to each student.

Moreover, Anshari et al. (2015) stated that the concept of big data provides new opportunities to maximize the potential of data collection to gain its value in online learning systems. Through these opportunities, big data could offer customization and personalization of knowledge delivery with more precision for each student from the perspectives of its stakeholders. For example, students would undergo online learning from the materials provided by the instructor. Subsequently, for each topic of discussion the system would supply relevant and reliable links to resources (Hoi et al., 2012). Students may generate records of their lives by frequently posting details of activities they undertake to understand various students' blogs so that the instructor understands the students' quality to develop the course structure or make decisions based on this context (Lyon, 2014).

Figure 1: Big data analytic process

Figure 1 shows a general concept on how big data generates value for education. Big data analytics is the process of extracting raw data either from structured or unstructured data sources. Structured data sources in education can come from students' records, students' financial records, e-library records, web click behaviours, enterprise resource planning (ERP) records, etc. Whereas, unstructured data sources can originate from CCTV, audio, social networks interactions, etc. The outcome of the data analytic is the prediction and pattern of each student.

Prediction and pattern for each student is important in delivering better service for students because, it offers personalization of service, customization of modules, and intervention to ensure performance and quality control. Customization refers to the ability of students to choose and pick any module or topic that fits their interests. Meanwhile, intervention is needed when the performance of students is declining. For example, notification or alert can be sent to students when the student cannot perform well in a specific course or topic.

PHASES OF ANALYSES

This paper focuses on the phases of literature analysis to the reference model. We build on recent reviews of big data and innovative teaching in higher education settings. The Google Scholar was used to search keywords on innovative teaching, big data and online learning. After removing duplicates and articles beyond the scope of this study, 40 peer-reviewed journals and books were then selected for the subsequent review. We employed meta-synthesis to integrate, evaluate and interpret the findings of multiple research studies so that phenomenological and grounded theories can be integrated and used. The ideas were extracted to identify their common features, elements, and functionalities. We then analyse and synthesize key elements into new interpretations, conceptualizations, and modelling of innovative teaching with big data approach.

DISCUSSION

Big data is a large amount of data, which capture, link, collect, store and organize data into meaningful information. Many organizations stressed the needs to apply big data in their operations. Merely collecting and storing data only in educational institutions are not useful without proper analysis. Through proper analysis, one can reap the benefits of big data.

However, how is value being created from big data? Big data can capture patterns, trends, and students' behaviour and habits. Big data are gathered from structured data sources and unstructured data sources. Structured data sources can be from social networks and Internet messenger activities. While, unstructured sources can be gathered from CCTV at the library or even, vehicle registration numbers. From those data sources, big data analytic works to form patterns, trends or even forecasting. The analytic results can be presented to users through push message, alert, notification or suggestion based on their patterns.

Using big data is one of the major breakthrough, which saw the advancement since 2014, and seeing how businesses frequently practice this method and yet there were some reactions predicted happening in the year after, that is 2015 (Chen et al., 2014). Attempting better approaches to delivering innovative teaching and learning could expand potential outcomes and break up limits through the utilization of big data analytics. In this section, we assess some considerations of big data from the aspects of innovative teaching as discussed above (learning, teaching, social, and technology).

LEARNING RESOURCES

Figure 2 below shows the business process on how big data can become an alternative approach to offer innovative teaching for higher learning institutions. Learners generate data from many sources such as smartphones, social networks, LMS and so on. At the same time, an institution has data and records of students from their systems (library information systems, academic records, financial records, etc.). All the data sources are analysed and thus forming a profile for each and every student.

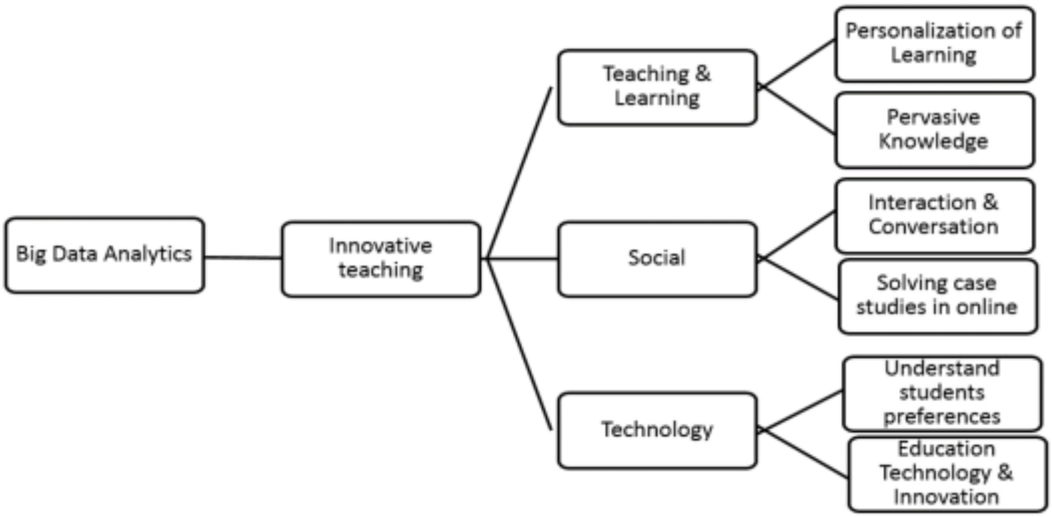

Figure 2: Big data and innovative teaching process

A student's profile is based on real data of the student's behaviour. Big data analytic can come up with prediction about their teaching and learning preference like content materials, subject preferences, library visit habits, and others. Understanding the student's profile based on the students' habit can provide them personalization of services. A student can receive alerts from the big data systems when there are deviations from his usual pattern. For instance, a student can get notifications on his smartphone when he has not visited the library for some time, or has not downloaded any journal articles for a couple of days, or never participated in any online discussions about the subject.

INNOVATIVE SOCIAL

The advancement of online learning has introduced many aspects of innovative teaching competency including student learning activities. Students can work through the same online activities, distribute online surveys, share web-based searches, interact in online discussions, solve case studies, watched online videos, and published articles on the web. In addition, conversations from social networks as one of big data's source could improve the trust of the community at large from reading the positive comments. Social media analytics are the analysis of data from social media channels such as blogs, Facebook, twitter and forums, which are used to analyze the stakeholders' responses on the new course being introduced. This is much faster as compared to using a conventional method, such as waiting for the survey's reports.

INNOVATIVE TEACHING

The innovation in teaching has improved from class-based activities where students are occupied with note-taking activities to searching for rich content materials, which is easily more accessible than before. However, when students get a huge amount of data then it is very challenging to refine the materials within the time constraint. Here, big data offers the ability to extract value from a big volume and large varieties of data, and within the velocity of analytic, this could help students utilize those resource knowledge. In order to successfully apply big data in innovative teaching, support from the stakeholders should be involved. The Government need to fund more research regarding this matter. In addition, researchers and educational practitioners need to start providing more data into the media, social networks and any websites so that big data can analyse the valuable information. Similarly, higher learning institutions need to invest into big data analytic for innovative teaching.

INNOVATIVE TECHNOLOGY

Big data can be used to detect future trends and issues such as educational technology trends and product preference. This is due to its capabilities to gather data at a massive speed and able to distinguish the value of the data. For instance, with the aid of data generated from smartphones like social networks or IM (Instant Messaging) or news updates, higher learning institutions have the capability to understand the preferences and expectations of stakeholders including its students. It also provides useful insights on how the organization should improve their educational technology component. Data analytics can come from the students' behavioural patterns based on their clicks, comments, sharing contents, and conversations (Anshari et al., 2015). Another notable benefit of data analytics is that the organization will be able to know their students' preferences and personalities as well as predict what their next expectations might be, hence can consider fulfilling the stakeholders' expectations. Big data can also be used to detect future problems in education systems like innovative teaching delivery. Big data can gather data at an immense speed and is able to distinguish the value of the data. Moreover big data, when captured, formatted, stored and analysed, can help an organization to gain useful insights to improve its operation, especially to education institutions and society.

CONCLUSION

The explosion of big data emerges from variety of data sources. This includes excessively using the Internet. Its benefit can be extended to higher education institutions in terms of offering innovative teaching experiences to their students. The adoption of big data in innovative teaching has been a promising new experience to the students, education providers, instructors, and the community. In fact, learning technological innovations will continue to have major effects on teaching approaches over the coming years. It provides useful guidelines for incorporating big data into innovative teaching from different perspectives for guiding teachers in effective integration of big data into teaching and learning. Thus, being more attractive to motivate and engage learners, the pedagogy, social interaction and technology could become the critical components of an innovative enhanced learning environment. It is important for higher learning institutions to explore the future impact of deploying big data by extending the learning experiences to students. In short, with their efforts to integrate pedagogical skills and big data approach, this model is supposed to enhance the development of innovative teaching performance for teacher as an insightful standard of making curriculum design in teacher education in particular and for schools in general.

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Integrating Responsible Research And Innovation In Primary School Project-Based Learning - The "Lotus Effect" Activity

Gabriela Alina ANGHEL
Teacher Training Department
Valahia University of Targoviste, Romania
anghelalina2002@yahoo.com

Gabriel GORGHIU
Teacher Training Department
Valahia University of Targoviste, Romania
ggorghiu@gmail.com

ABSTRACT

The paper aims to identify key issues, as best educational practices, for science lessons, at the primary school level - more precisely, its last grade -, based on the introducing of *Responsible Research and Innovation* (*RRI*) in project-based learning activities. In this respect, the paper analyzes the formal educational activity called "*Lotus Effect*", which had as main objective to develop the students' conscious and responsible attitude towards the importance of using natural properties of nanomaterials in practice.

The specific objectives of the proposed research are: (a) measuring the level of students' satisfaction concerning the learning methods used; (b) measuring the learning methods importance and efficacy, as that was perceived by the students. The following working hypothesis has been considered: a method is considered a best educational practice when the students' satisfaction is positively correlated with the teacher's satisfaction related to its implementation. It is also known that the project-based learning method actively engages the students in the scientific investigation and supports the development of higher level of cognitive skills. The proposed research was a qualitative type-one and the results confirmed the working hypothesis and indicated the conditions needed to consider particular issues as "best educational practices" in project-based learning activities.

INTRODUCTION

Responsible Research and Innovation projected early, is like an ascendant activator and facilitator of the sustainable social development. In this sense, the education centered on RRI is to be found successfully in the educational formal and non-formal environments (Gorghiu, Anghel, Ion, 2015, p.602)

Project based learning identifies itself as a model of training by which students are involved in activities investigating a problem with the purpose of obtaining answers that are part of the research.

Project based learning is a training model principally based on the students' involvement in investigative activities in order to obtain learning products. This is realized in the context of a specific teaching strategy described as follows: it uses collaborative learning methods, it maximally uses the potential of each student, it encourages the development of an autonomous management for the student in relation to the actions in the project. (Cerghit, 2002, Neacşu, 2015).

Project based learning is closely correlated to investigation based learning, and especially to scientific investigation. Therefore, the specified teaching strategy successfully integrates the characteristics bound to the aspects of Research and Responsible Innovation. In this case, this project method supports active teaching and successfully develops the students' cognitive, behavioral and attitudinal skills at a superior level. Project-based learning strategy includes: information, planning, decision, implementation, monitoring, and evaluation. Its educational methods and procedures are: discovery learning, heuristic conversation, explanation, exposure, problem solving, case study, experiment, demonstration, scientific investigation, brainstorming, systematic observation, and portfolio. Its forms of activity organization**:** frontal, in groups, and individual Its educational means**:** piece of fir wood, pine wood fragment treated with protective varnish, natural wax fine film, aluminium foil, glass pane, cabbage leaf, vine leaf, lotus leaf; pane of glass, stainless steel spoon, 100% cotton fabric, polyester fabric (at least 80%), nanotex material, vegetable oil, natural berry juice, chocolate, stain solution (vanish), window cleaner, water; microscope, fixed microscopic preparations; projector, laptop, digital images.

The educational activities included in the theme *Lotus Effect* offer to the students the opportunity to learn this effect from the perspective of the nanotechnologies. The **aim** of these educational activities is to develop the pupils' conscious and responsible attitude towards the importance of using the natural properties of nanomaterials in various industries. In this regard, experiments will be developed to show the structural and functional properties of several natural nanomaterials and discussions centred on topics related to responsible research will be organized.

The proposed experiments' aim is to analyse a series of innovative materials completely hydrophobic or stainless, as a result of nanotechnology which uses nature as an inspirational source, in this case, the lotus leaf. It will be analysed the property of super-hydrophobicity of these leaves, as a result of surface chemistry and macro and nano topography. The proposed experiments aims to: study and test lotus leaf properties (from the perspective of biology, physics and chemistry); highlight the properties of nanomaterials that are applications of Lotus effect, both in terms of strengths and limits of nanotechnology and in terms of responsible research and innovation.

RESEARCH METHODOLOGY

The paper aims to identify key issues, as best educational practices, for science lessons, at primary school level - more precisely, its last grade -, based on the introducing of Responsible Research and Innovation (RRI) in project-based learning activities. In this respect, the paper analyzes the formal educational activity called "*Lotus Effect*", whose main objective has been to develop the students' conscious and responsible attitude towards the importance of using natural properties of nanomaterials in practice. In this sense, the specific objectives is:

(a) measuring the level of students' satisfaction concerning the used learning methods; (b) measuring the learning methods importance and efficacy, as that was perceived by the students.

We considered the following working hypothesis: a method is considered a best educational practice when the students' satisfaction is positively correlated with the teacher's satisfaction related to its implementation.

In this framework, the design of Learning Activities based on the integration of RRI was projected in correlation with the model of the 6E (Engage, Explore, Explain, Elaborate, Expose, Evaluate).

The specific of the implementation of each stage had in view active teaching strategies mainly based on the use of collaborative teaching methods. Their design can be described as follows: during the first stage, *Engage:* students develop a ppt presentation and a small exhibition to present the uses, at industrial level, of Lotus effect; create an account on Facebook – ProLotus – to state their opinion about Lotus effect applications in nanotechnology, to promote new findings in the field, to present limits and benefits of using nanotechnology. The teaching results were: presentation PPT, posters, mini-models of lotus leaf epidermal papillae, Facebook account, knowledge related to novelties in the nanotechnology field, technical skills (of using, handling media tools).

The second stage, namely *Explore*, includes: handle laboratory instruments, emit hypotheses, make experiments, record collected data, fill tables, charts and check the solutions. In this stage, the teaching results were: knowledge – related to morphology / anatomy of several leafs of different plant species, knowledge related to the existence of several types of forces acting on a drop of water, related to the behaviour of various materials under the action of water. In the activity were conducted as follows: images, pictures made during the experiments, microscopic observations; skills of handling laboratory instruments. During the stage *Explain* were used: check theories, fill-in sheets, tables, disseminate in group/class the scientific knowledge identified, provide feedback to peers, restructure/ complete / correct knowledge in relation to the feedback received and socio-scientific value, with the following teaching results (tables, questionnaires).

The stage called *Elaborate* organizes a motivating learning environment, stimulating, likely to place the student in the position of responsible researcher; students, "experts" in various scientific problems, consult the opinions of scientists, learning (before preparing reports). The results of the learning activity were: "Teaching results - experts" reports, supporting documentation.

During the stage Disseminate /Share/Present/*Expose* were carried out: designs, together with students, an exhibition that will be open in Museums and / or libraries. The exhibition will include posters, videos, models and other items made by students; the teachers will coordinate the selection process of the most relevant/representative student's works, with the following results of the learning activity: "expert" reports, reports supporting documentation.

In the stage called *Evaluate*, the following activities were carried out: evaluate portfolios, check the extent to which students have achieved sustainable procurement, in terms of targeted finality; assure joining of assessment with self-assessment and peer-assessment.

RESULTS AND DISCUSSIONS

After having analyzed the specific of each stage, the following specific educational methods and procedures were identified (Table 1)

RRI STAGES	*TEACHING METHODS USED*
Engage	conversation, explanation, questioning, brainstorming
Explore	brainstorming , experiment, explanation, questioning, discovery learning, scientific investigation
Explaine	conversation, explanation, questioning
Elaborate	questioning, conversation, discussion
Disseminate /Share/Present/Expose	explanation, case study, problem solving, debate
Evaluate	questionnaires fbk

Table 1. Distribution teaching methods

Lotus Effect teaching activities involve valorisation of basic knowledge specific to the following school subjects: biology, physics and chemistry.

By the promoted teaching strategies, especially inductive, deductive and heuristic ones, students will form / develop skills / abilities of exploration, investigation, communication and work effectively in groups, analysis and synthesis, evaluation and anticipation etc. Students will also realize the need to respect ethical principles and values in making research and innovation.

Regarding the measuring of the learning methods' importance and efficacy, as it was perceived by the students, the distibution of the answers appears as follows (Fig.1)

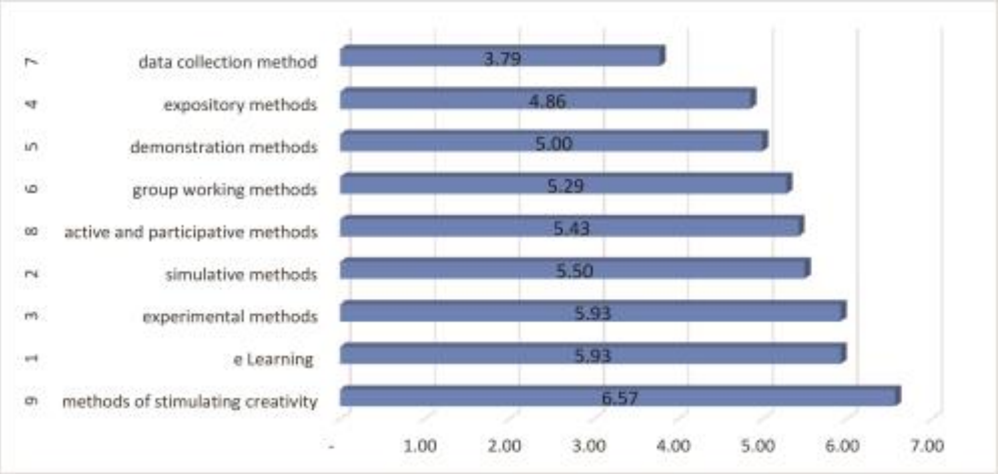

Fig.1 Perception Importance of students before teaching methods

One can notice that, in project based learning, the methods stimulating the students' creativity are appreciated as being the most important, along with the e learning and experimental ones (Fig. 2). This is explained in the logical context of the role and place of the project in learning. Project based learning, being an active learning method, fully valorises creative learning methods in the "Lotus Effect" lesson.

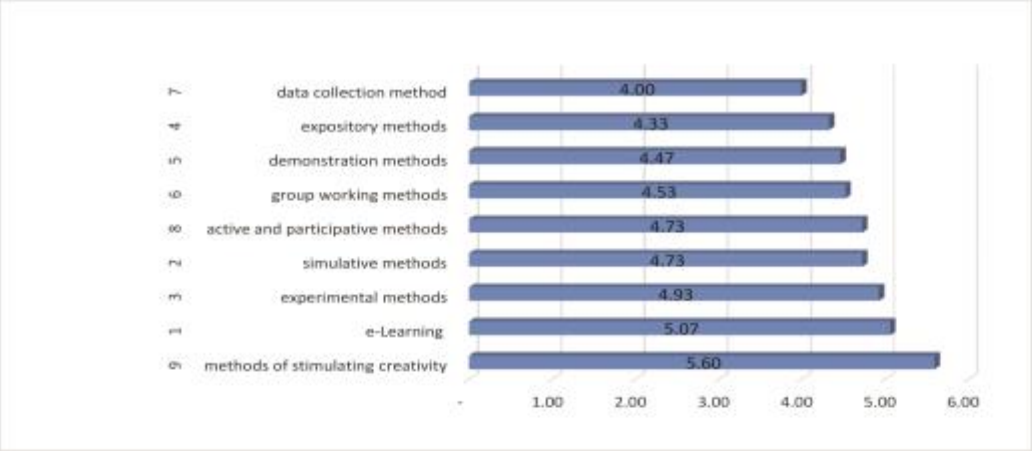

Fig. 2. Perception satisfaction of students before teaching methods

Concerning the students' satisfaction in relation to the methods used by the teachers, one can notice that the highest scores also go to the methods stimulating creativity, the expository then the experimental ones, which leads to the following conclusion: the methods appreciated as being important by the teacher also record a higher score on the level of the students' satisfaction concerning their use in the instructive educative process and are considered efficient learning methods (Fig 3).

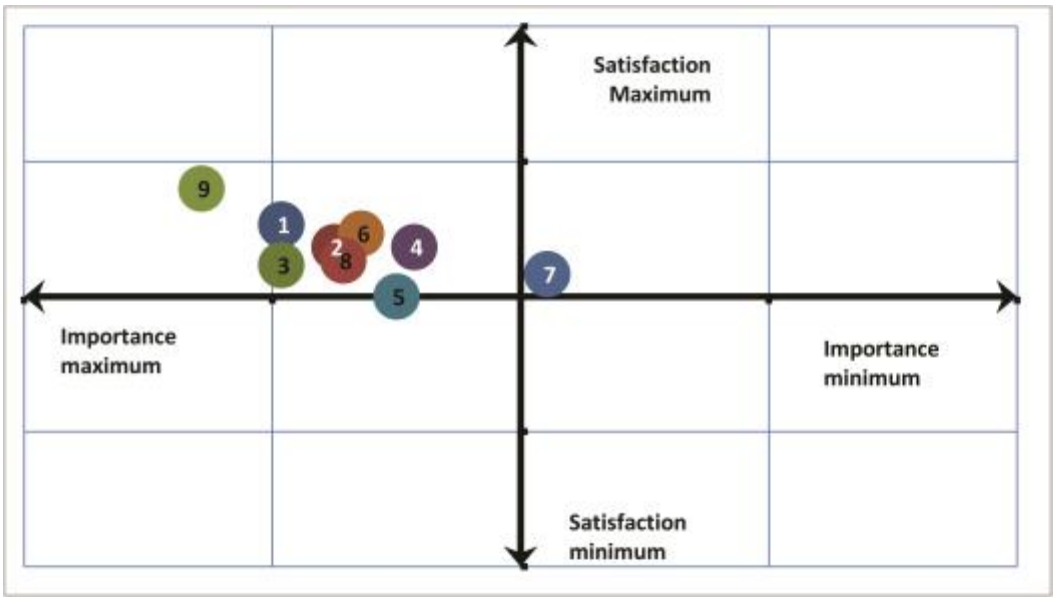

Fig.3 The bidimensional Nice &Gaps

CONCLUSION

All training methods used by a teacher are considered by the students to be important by declaring their satisfaction about the teaching results being reported to the method that the teacher applied. The diagram above demonstrates that the expository method is the least attractive.

This method makes students to have a passive participation in the learning process, a situation that represents an obstacle in their success of learning. Beside that, the teaching methods responsible for stimulating creativeness generated the highest score. This score is considered efficient and supporting learning success.

This aspect is considered relevant also by the teachers and they approve the students' perception regarding the satisfaction upon the used teaching methods. The results confirmed the working hypothesis and indicated the conditions needed to consider particular issues as "best educational practices" in project-based learning activities.

ACKNOWLEDGEMENTS

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Intellectual Structure Of Stem Education In Educational Research

Mutlu Tahsin ÜSTÜNDAĞ
Gazi University, Gazi Faculty of Education,
Computer Education and Instructional Technologies, Turkey
mutlutahsin@gmail.com

Haydar YALÇIN
İzmir Katip Çelebi University,
Faculty of Humanities and Social Sciences,
Information Management and Technologies, Turkey
haydar.yalcin@gmail.com

Erhan GÜNEŞ
Ahi Evran University, Faculty of Education,
Computer Education and Instructional Technologies, Turkey
guneserhan@gmail.com

ABSTRACT

The aim of this research is to put forward the intellectual structure of STEM (Science, Technology, Engineering and Mathematics) education concept in educational research. STEM education has emerged as a highly accepted paradigm in education especially in the USA and European countries in recent years. The theoretical substructure of STEM education that is seen as an important factor in attaining the expected qualities in human profile for the changing conditions of the 21st century has started to be formed. STEM education prioritizes team study and interdisciplinary approach. It is of great importance to put forward the intellectual structure of STEM education, that will play an important role in training people for the conditions of the present day, for better comprehension by the researchers, curriculum developers and practitioners. Moreover, when the literature on this concept is investigated, lack of comprehension of the concept and vision is seen. For this reason, the investigation of the development and current status of STEM education will contribute to literature in terms of understanding the intellectual structure of the concept. The dataset of the study is composed of all types of studies in at least one of the categories of Education & Educational Research and "Education, Scientific Disciplines" published in Web of Science (WoS). Basing on WoS categories the relationship of the concept with other disciplines have been examined and visualized with web graphics on the accessed publications. It has been possible to refer to which focus the scientific data has been developed nourishing via the journals by mapping the journals in the dataset as citation giving and citation attaining. In addition to these, contribution of disciplines and countries to STEM education has been compared.

Keywords: Scientometrics, STEM education, knowledge diffusion

INTRODUCTION

In recent years STEM education that is shaped by science, technology, engineering and mathematics disciplines altogether has emerged as a new paradigm instead of a traditional science education. Bybee (2010b) defines STEM education as "although focusing on science and mathematics disciplines including technology and engineering fields". For Dugger (2010) STEM education which advocates the integration of information and skills on science, technology, engineering and mathematics fields by including engineering design processes into science education aims to educate students as individuals who are open to communication, systematical thinkers, creative, possessing ethical values and ones who can present the most convenient solutions to problems by directing them to cooperation to different disciplines like an engineer. Lacey and Wright (2009) sees STEM education -that aims to attain individuals the required knowledge and skills to see the problems with an interdisciplinary point of view- important for leadership in scientific field and economic growth.

The responsibility of countries to raise and train the individuals according to the necessities of today's fast changing and developing technology brings forward a must. Because qualified human resource means a strong economy. At this point it can be said that individuals should attain skills such as critical and analytical thinking, investigate, inquiry, problem solving and decision making. It is a reality in the competitive business World that countries producing information and technology establish superiority on the other countries in economic and social domains. Furthermore, technology education or technology literacy is of great importance at this point. Sanders (2008) states this situation as: "*Technology education has a key role to play in integrative STEM education, and could play a significant role in twenty-first century American education if it can demonstrate relevance in this way.".* Miaoulis (2009) points out that today when the country economies are determined by information and innovations it is very important to train engineers and scientists and increase science and technology literacy. The reality that qualified human resource can only be achieved via qualified education proves itself day by day. Countries producing information and technology place great importance to their people's mathematics and science educations. For these reasons, in the USA necessity for a science education based on engineering design has been emphasized (Çavaş, Bulut, Holbrook & Rannikmae, 2013). In a science education based on engineering design, the design process correlate with the real life. Furthermore, this kind of education provides the learners to realize that there is more than one solution to problems and understand the importance of cooperative work (Ercan & Bozkurt, 2013; National Research Council, 2012).

It is possible to say that there is hereupon an apparent critical concentration in countries that pay attention to STEM education. At this point the report written by Marginson, Tytler, Freeman, and Roberts (2013) titled *STEM: country comparisons: international comparisons of science, technology, engineering and mathematics (STEM) education*" shows that some countries have started to receive the fruits of this education. The emergence of these kinds of comparison and evaluation reports show that there has been some amount of concentration in STEM education. However, some studies in the literature reveal that although some countries have comprehended the philosophy of STEM education, they have not realized it fully or there is still need to research on this concept. The study conducted by Brown, Brown, Reardon, and Merrill (2011) starts as follows: *"Many in the field of technology education have embraced STEM education, but there is a lack of understanding of STEM education in schools.".* These statements imply that there is a need for the serious support of the academic community for the practitioners in schools and model practices that will help the comprehension of STEM education that is coherent with the internal dynamics and cultures of each country. To shortly summarize the study and its results we can say that the study aimed to find out whether teachers, students and school principals could comprehend STEM education or not. A questionnaire composed of open-ended questions have been used as data collection tool as well as observations and interviews have been conducted. According to the findings of the study it has been seen that STEM education has not been comprehended. Another result is that STEM education has no vision. Yet another study has been carried out by Breiner, Harkness, Johnson, and Koehler (2012). The title of the study summarizes the situation best by stating "*What Is STEM?".* The results of the study titled "*A Discussion About Conceptions of STEM in Education and Partnerships"* indicated that there is not a consensus on STEM concept. Bybee (2010a) has tried to set forth a 2020 vision for STEM education. This study implies that there is still much more to be done. Yet it is seen in literature that there is a need for understanding STEM education and concept. When we examine the situation in our country, STEM education should be defined specific to our country within the scope of the aims in 2023 Vision and Ministry of National Education (MEB) strategic documents (Çorlu, Adıgüzel, Ayar, Çorlu, Özel, 2012). However, studies on STEM education in our country seem to be in the preparation phase. The findings of the study conducted by Marulcu and Sungur (2012) indicate that studies on STEM education are in the preparation phase even in teacher training system and teacher candidates are not prepared to STEM education.

As seen from the literature that there is not a concept integrity but also lack of vision; this study is thought to contribute to this field. And as revealing the intellectual structure of STEM concept will help STEM concept and STEM education to be better understood and offer a solution and guidance for researchers and practitioners shows the importance of this study. It would be useful to include some research done in this context. The study conducted by Greenseid and Lawrenz (2011) investigated a less studied field; they studied the usage of citation analysis on the influence of program evaluations in STEM education. Their citation analysis has been focused on three STEM education program evaluations' products. The aim of the study was comparing the influence of the STEM education evaluations. In analyzing the citations; single-level Poisson regression analysis, content analysis and network analysis have been conducted. With the purpose of whether citation data usage is functional in comprehending the evaluation impacts; the result has been although with limited extent, methods of citation data analysis supports the comprehension of the influence of extensive scale and multi-site STEM education and evaluation fields.

Another research by Assefa and Rorissa (2013) titled "*A bibliometric mapping of the structure of STEM education using co-word analysis"* sought to define the structure that underlies STEM education and its main areas as well as the relationship between them by using co-word analysis, visualization and bibliometric mapping tools. The authors used co-occurrence analysis in order to organize bibliometric maps. With this "word association method" there has been a significant relationship between word that "co-occur" has been figured. Composed of two databases 7265 documents have formed the data of the study.

We are in the opinion that an increase in the studies that will help better understanding of STEM education concept in literature will provide better formation and practices of the concept in the future.

THE AIM OF THE STUDY

The aim of this research is to put forward the intellectual structure of STEM (Science, Technology, Engineering and Mathematics) concept in educational research. The investigation of the emergence, development and current situation of the concept will contribute to the literature in terms of understanding the intellectual structure of the concept. Our research questions that will serve for this aim are as follows:

1. How is the distribution of STEM research according to countries?
2. How is the distribution of STEM research according to WoS categories?
3. How is the distribution of STEM research according to WoS research domains?
4. How is the distribution of keywords WoS and the authors give to STEM researches?
5. What are the prominent disciplines that STEM researches nourish from?
6. From which disciplines is the knowledge dissemination in STEM researches provided?

METHOD

In this research the current situation of STEM education research in WoS publications has been tried to be put forward; so it is a descriptive research. In descriptive research the situations are presented wholly and exactly as far as possible (Fraenkel, Wallen and Hyun, 2014)

The Dataset of the Study

The dataset of the study was obtained by querying from Web of Science (WoS). "Topic research" code that makes searches in abstract, title and key words of the publications in WoS was used. At this stage it was seen that the concept "STEM" is used frequently in field of medicine. For this reason in order to exclude the publications in medicine field NOT=(TS=("stem cell") statement was added to the query. The final version of the query to reach the dataset is thus: (TS=("Science, Technology, Engineering and Mathematics" OR "STEM" or "STEM EDUCATION") AND TS=(education)) NOT=(TS=("stem cell")). Via this query all types of publications in SCI-E, SSCI, A&HCI, CPCI-S, CPCI-SSH and ESCI indexes between 1945 and 2016 were accessed. The total number of the accessed publications is 1985. First, the accessed 1985 publications were analyzed via "Vantage Point" and "SciMAT" software and publications that have no relation with STEM education or those published in the field of medicine were filtered and a separate dataset was formed from publications that have at least one of the "Education & Educational Research" and "Education, Scientific Disciplines" categories. The final number of the publications was 908. In all the analyses and visualizations dataset that has been composed of these 908 study was used.

Data Analysis

As the dataset of the study was very big and complex, data mining techniques were used in the analysis of the data obtained. One of the definitions of data mining in literature has been made by Larose (2014) as "the process of discovering useful patterns and trends in large datasets". Bibliometric analysis was used in the study for providing to seeing the trends and patterns. According to Pritchard (1969) bibliometrics is "the application of mathematical and statistical methods to books and other media of communication". Glanzel (2003) states that in bibliometric studies of scientific publications the information types to be used are as follows: title of the journal, authors' names, corporate addresses, references used, type of the documents, publication title, abstract, keywords, acknowledgements and subject headings. Again for Glanzel (2003) bibliometric method has been widely used for research management and science policy for more than 10 years. Data of the study has been analyzed via "Vantage Point" and "SciMAT" software and "Pajek" software has also been used for analysis results.

FINDINGS

This study sought answers to six questions. Findings of these six research questions were presented with separate titles according to their orders in the aim section.

1. How is the distribution of STEM research according to countries?

Concerning the research question, Figure 1 is presented:

Figure 1. Distribution of STEM Research According to Countries

The publication distribution according to the country published in, according to author address is seen in Figure 1. It is possible to state that North America countries are pioneers for STEM studies according to Figure 1. They are seen to be followed respectively by European countries, Australia and Turkey. When the literature is examined, the starting time of the USA for STEM education studies go back to 1990s and have accelerated since the last decade.

2. How is the distribution of STEM research according to WoS categories?

Created by using Aduna algorithm, when Figure 2 is examined it is seen that the biggest cluster of WoS categories related to STEM education are respectively *Education & Educational Research* and *Education, Scientific Disciplines*. When the relations of the publications with other categories are investigated it is easily observed that they are related with many WoS categories.

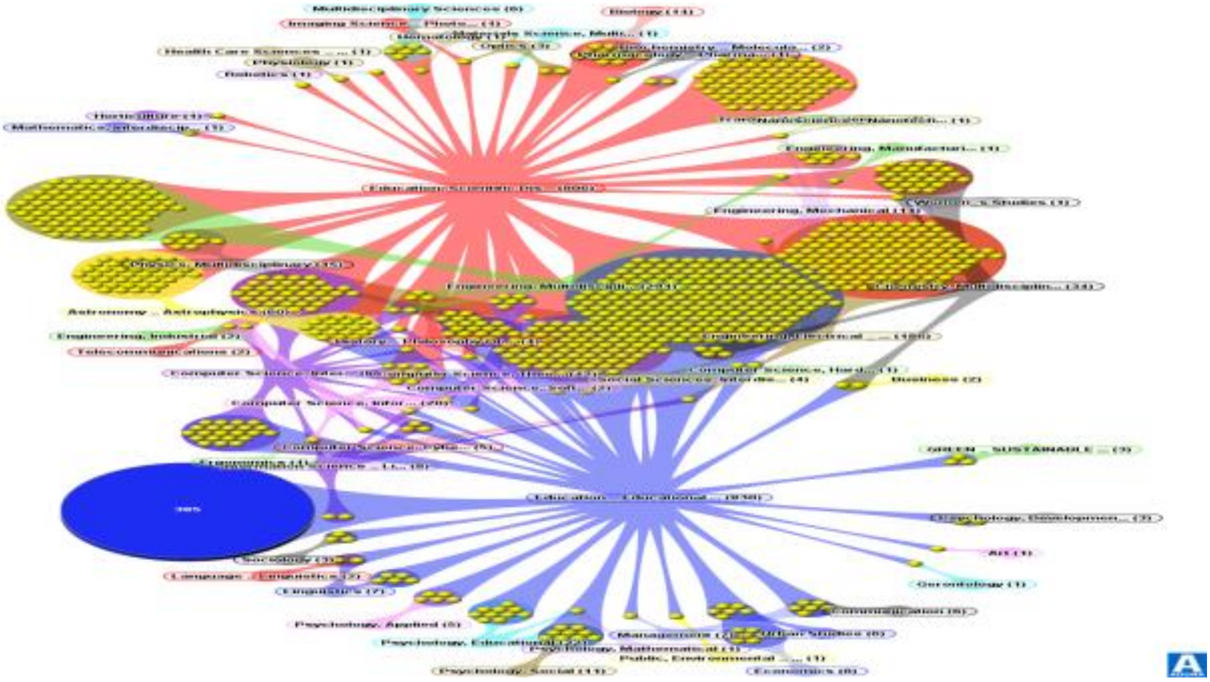

Figure 2. The Distribution of STEM Research According to WoS Categories and the Relationship Status (Aduna Alg.)

When Figure 3, created by Pajek, is examined the categories and the proximity to the center can be seen more clearly:

Figure 3. The Distribution of STEM Research According to WoS Categories and the Relation Status (Pajek)

When Figure 3 is analyzed again *Education & Educational Research* ile *Education, Scientific Disciplines* Categories show themselves. Just beside them appears *Engineering, Multidisciplinary* category as the biggest node. We could say that they are followed respectively by the other categories of *Engineering* fields with *Astronomy & Astrophysics, Interdisciplinary Applications, Computer Science, Cybernetics, Information Management, Social Sciences* categories. These all reveal how large amount of discipline STEM concept addresses and studies. In other words, it is possible to say that the concept that is thought to be about just 4 disciplines is in fact examined by researchers studying in many disciplines.

3. How is the distribution of STEM research according to WoS research domains?

It is possible to say after the analysis of STEM education studies in WoS according to the research domains with Figure 4 created by Aduna algorithm that, studies indexed under *Education & Educational Research* study field are published more in journals that are indexed in *Science* ve *Technology Research, Astronomy & Astrophysics* study fields. Cluster with the largest ratio of publication is again seen to belong to journals in *Education & Educational Research* research domains.

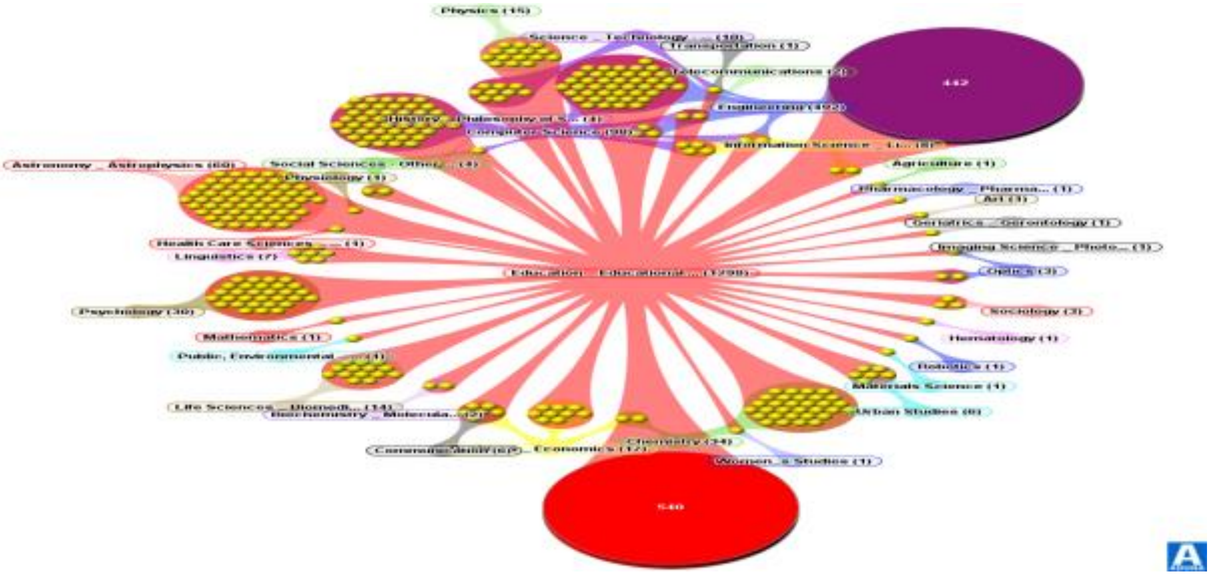

Figure 4. The Distribution of STEM Research According to WoS Research Domains and The Relationship Status (Aduna Alg.)

Figure 5 prepared by using Pajek in the analyses is presented to closely examine the relationship among WoS research domains:

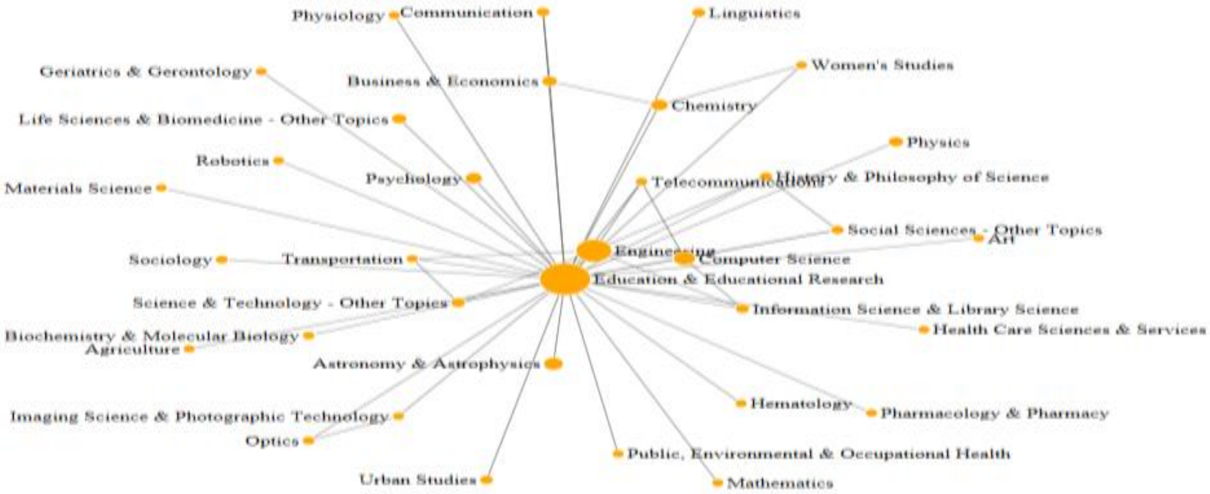

Figure 5. The Distribution of STEM Research According to WoS Research Domains and The Relationship Status (Pajek)

Education & Educational Research research domain could be possibly stated as the biggest node in the center when Figure 5 is examined. It is followed respectively by *Engineering, Computer Science, Astronomy & Astrophysics* and *Psychology.*

4. How is the distribution of keywords WoS and the authors give to STEM research?
The visual created by Aduna algorithm related with the key words WoS gives to the studies is presented in Figure 6:

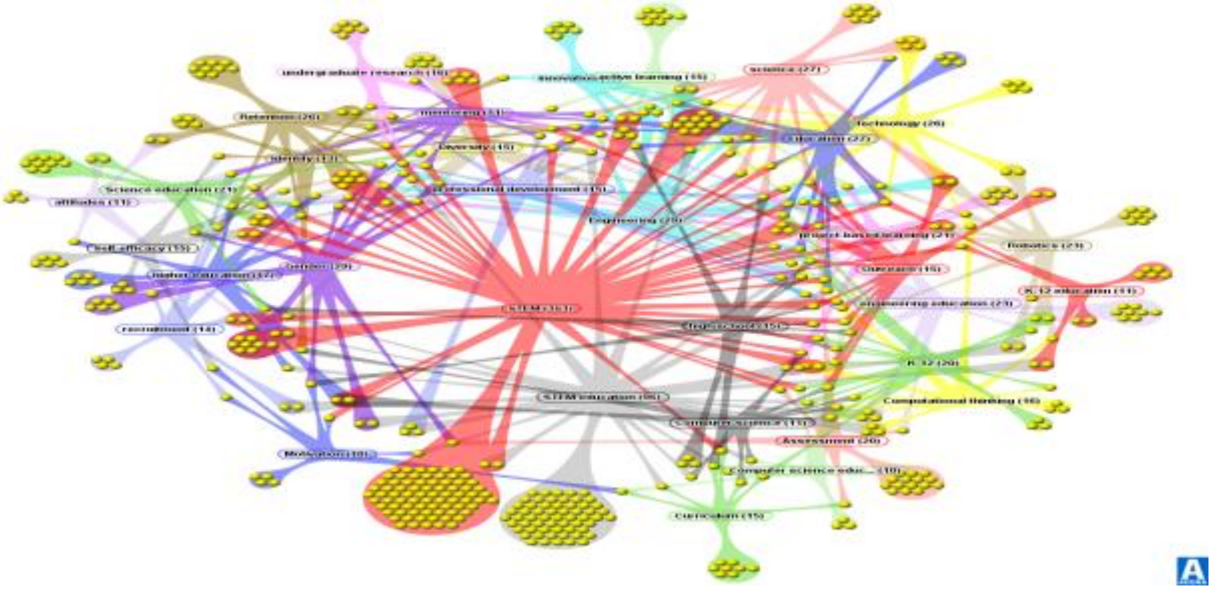

Figure 6. The Distribution of Keywords WoS Gives To STEM Research (Aduna Alg.)

It is seen that research fields such as *science education, higher education, motivation, robotics, computational thinking, innovation active learning* and *curriculum* will increasingly have a research field in the forthcoming period when Figure 6 is examined and STEM field is closely looked at. It is again possible to state that the field is in a close relationship with disciplines such as *computer science, technology, engineering* and etc. considerably.

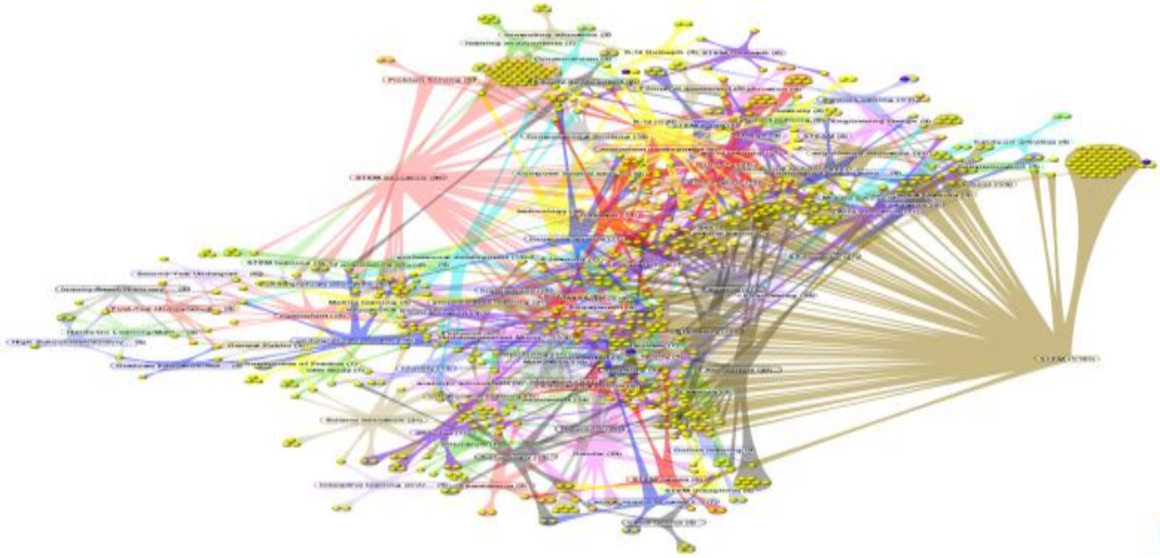

Figure 7. The Distribution of Keywords (100+) The Authors Give to STEM Research (Aduna Alg.)

When Figure 7, illustrating the keywords given to the articles by the authors, is examined it is seen that the starting point of all articles in STEM field is STEM. When we examine how the discipline is shaped under STEM we see that the studies are stated with rather different words. A more systematic way is seen to be followed in classifying the studies the keywords of which are given by WoS.

5. What are the prominent disciplines that STEM research nourish from?

Journal based science map is one of the scientific presentation methods provided by Sci2 program depending on University California San Diego science map system. This map has been created by using 2001-2010 Web of Science and 2001-2008 SCOPUS dataset. There are 13 main research fields on the map. The main aim of the map is to demonstrate which research fields do the journals in the examined dataset focus on. Circle caliber in the presentation illustrates the size of the publication in the research field.

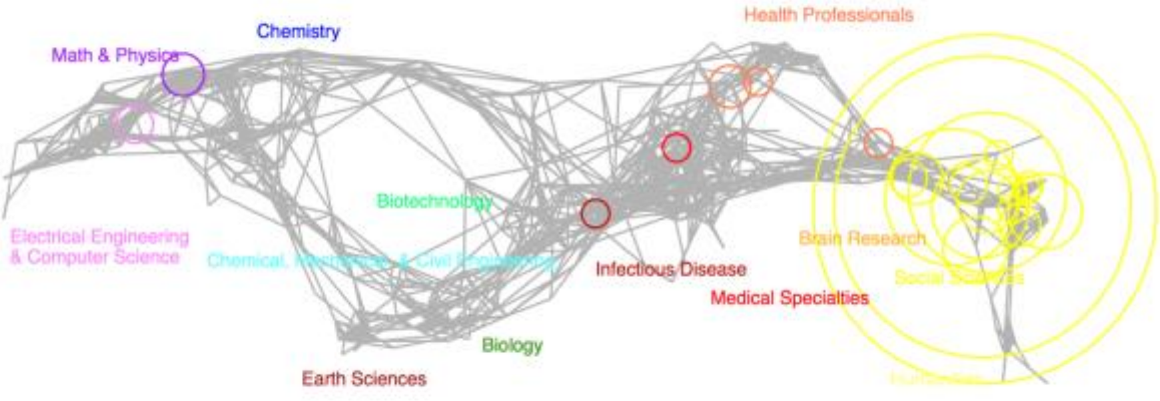

Figure 8. Prominent Disciplines That Nourish STEM Research (Journal Reconcile)

Even though science, engineering, mathematics fields seem to be the top priority for STEM education; the number of the publications towards social sciences and human sciences attract attention as concepts about psychology like cognitive structure, perception, self-realization and etc. still have an important place in educational practices. It is possible to say that the volume stems from the journals oriented towards psychology and educational sciences. In addition to the journals towards social and human sciences, it is observed that a remarkable publication volume has started also in journals published in especially Mathematics and Physics (Figure 8).

6. From which disciplines is knowledge dissemination in STEM researches provided?

Binary map presentation has been developed for the aim of visualizing the citation process in the scientific journals according to the database format included in CiteSpace software. The visual design covers the journals in 2011 Journal Citation Report (10.546 journals). Dual binary map is composed of two sub-maps. Map in the right side expresses the publications cited whereas the map in the left side expresses the publications that give citations. Scientific research fields are clustered with VOS or Blondel Algortym for specifying the study fields. Publications in the general presentation dataset form connections towards the cited journals according to their citation numbers and frequency in the dataset. Whether this flow is meaningful or not can be controlled via the help of normalized Z-values.

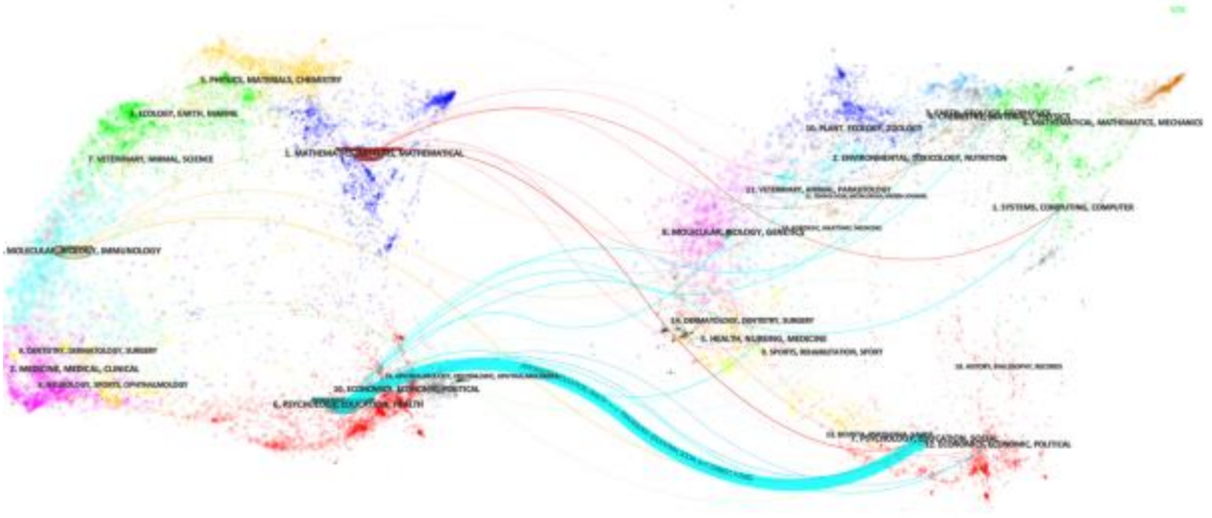

Figure 9. Knowledge Dissemination of STEM Researches

It is observed from the visualization made for the aim of knowledge dissemination to STEM field that there is a knowledge dissemination towards *psychology, education* and *social science* field from *psychology, education* and *health* field. In other words; in forming STEM literature *psychology* and *health* literature especially nourishes *psychology, education* and *social science* fields.

CONCLUSIONS

Among the results of our research; the first is that even though STEM field seems to be related with four fields, as a result of our analyses, arising by the basic principles and methods used in STEM education, the intensive effect of concepts that are directed to psychology's investigation areas can be reported. According to another result it is possible to state that basic distinctive qualities about STEM field has not arisen yet. However, the fact that publications about the concept are still published in especially social and human sciences journals could be a guiding information for decision and policy makers. Yet it is possible to say that this information is important for researchers and graduate students in order to follow the related literature.

Being able to visualize the subject fields, the related literature nourishes from could be guiding in determining the competences needed to give the training stated in the literature. On the other hand, it is obvious that it will contribute to see whether STEM education has developed as it should be or is following the traditional ways as seen in the other education literatures. The quantitative contribution to the related literature is seen to be made from the USA and it is possible to state that the studies go back to the beginning of 90s.

In our study we have tried to provide the big Picture of the field by putting forward the intellectual structure of the field. Among the future research to be conducted, especially on which sub-subjects are concentrated via the analyses made in article abstracts should be established. Moreover, with citation analysis studies, determining the basic reading list towards the field and identifying the Pioneer author and institutions of the field could be provided.

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Inter-Cultural Professional Competence As A Key Aspect Of Translators Training

Leila Yu. MIRZOYEVA
Suleyman Demirel University, Kazakhstan
mirzoeva@list.ru

Aigul K. ZHUMABEKOVA
Kazakh National University, Kazakhstan
aigzhum@mail.ru

ABSTRACT

In the frame of implementation of tri-lingualism strategy in Kazakhstan the reliance on integrated course aimed at development of intercultural translators' competence is quite obvious. That discipline fits the situation in Kazakhstani higher education as a few years ago multilingual groups for all undergraduate majors were founded. This subject should be treated as a "bridge" that links language study (in Kazakhstan, primary focus is on such languages as Kazakh, Russian and English) and major-specific disciplines in the field of translation studies. Therefore, the principles of theoretical knowledge representation and practical tasks solution are designed to combine multi-lingual specialists training with their prospective work as mediators in intercultural communication process (both in our country and abroad). In our viewpoint, the key aspects in that field are the following:

- first of all, intercultural competence development requires both scientific approach to communication and study of translation as intercultural communication process. Also, would-be translators should be familiar with structural characteristics of culture and cultural values.
- secondly,intercultural translators competence requires specific knowledge about different types of communicative failures in the field of translation as well as retention of key strategies of acculturation. Special emphasis is placed on intercultural communication in business and science (especially in the field of abstracting and referring).

Keywords: intercultural professional competence, translators training, multi-lingualism,

INTRODUCTION

One of challenges in contemporary world as well as one of current tendencies in teaching translation is the development of intercultural competence of would-be translators. On the other hand, in accordance with language policy in Kazakhstan, the whole range of translators' competences should be developed for tri-lingual communication. Thus, in his Message President of Kazakhstan N. A. Nazarbayev pointed out that our country follows the traditions of multi-lingual and multi-cultural community. So that, one of the most important purposes for Kazakhstani people is to learn Kazakh (for all of them), Russian (for 95% of them); also, it is necessary for at least to 25% of our commonwealth to use English language as a means of intercultural communication. Moreover, at three National Universities in Kazakhstan, from 2013 year we have multilingual groups on different specialties at the level of both Bachelor and Master programs. Finally, in 2016 Ministry of Education is going to start the implementation of tri-lingualism strategy in secondary (and even in primary!) schools.

All aforementioned circumstances presuppose the relevancy of skills in intercultural communication; in course of its development, our programmes are being adopted for changing language reality. So that, our research consisted of three stages:
- pre-experimental analysis of the situation; which was aimed at choosing relevant topics for working out the appropriate content of the course;
- conducting one-year experiment in the frame of the discipline "Intercultural communication in translaTion";
- elaboration of the electronic manual which comprises specific teaching materials in intercultural/cross-cultural communication.

At all stages of our experiment we kept in mind that our students are inhabitants of Cyber-space; so our classes as well as course book were supplemented with video materials.

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OBJECTIVES OF RESEARCH IN THE AFOREMENTIONED FIELD are the following**:**

- to analyze current status of the discipline and teaching experience in the field of intercultural communication;
- to reveal the specificity of those translators' competences development in multilingual environment;
- to elaborate a system of interactive tasks motivating students to learn the course;
- to work out the appropriate materials for manual designing.

In our opinion, peculiar situation of multi-lingual community presupposes specificity of application of ICC principles that is why future translators should be familiar with such kind of information.

RESEARCH QUESTIONS

In order to study current status of ICC course in Kazakhstani education system as well as main ways of its implementation and prospective application, the following research questions were stated:

- Which problems of Intercultural communications are considered as the most topical for would-be translators training in the Republic of Kazakhstan?

- How to represent those problems in the most attractive and interesting way in order to motivate our students for studying courses in intercultural professional communication?

LITERATURE REVIEW

INTERCULTURAL COMMUNICATIVE COMPETENCE AS ESSENTIAL COMPONENT OF INTERPRETERS' PROFESSIONAL TRAINING

First of all, the definition of intercultural communication in contemporary science is indistinct. Also, there is an ambiguity in the field of terminology: in Russian and Kazakh scientific tradition, *intercultural communication* is used much more frequently than *cross-cultural* communication. In accordance with it

As it was stated by the Indonesian scholar Morin, I., "before an interpreter steps up on stage he should equip himself with some adequate linguistic and non-linguistic knowledge and skills as a part of strategies he has to take into account" (Morin, 2005). The relevance of such translators competences is also underlined in lingua-cultural studies, i.e. by Lustig, Myron W., and Koester, J. (2010) who argued: "Cultures look, think, and communicate as they do for very practical reasons: to have a common frame of reference that provides a widely shared understanding of the world and of their identities within it; to organize and coordinate their actions, activities, and social relationships; and to accommodate and adapt to the pressures and forces that influence the culture as a whole" (Lustig, Myron W., and Koester, J., 2010: 16). Hereafter, they said that culture is a set of shared interpretations: "Shared interpretations establish the very important link between communication and culture. Cultures exist in the minds of people, not just in external or tangible objects or behaviors. Integral to our discussion of communication is an emphasis on symbols as the means *by* which all communication takes place. The meanings of symbols exist in the minds of the individual communicators; when those symbolic ideas are shared with others, they form the basis for culture" (Lustig, Myron W., and Koester, J., 2010: 16). There is no doubt that such competences in the field of translation should be included in general models of translators' and interpreters' competences. Thus, analyzing various competence models, Omar Ali Fraihat (2013) focused on 5 main ones, which include different competences. On the other hand, Neubert (1994: 412) offers three main components of competence: language competence, subject competence and transfer competence.

PACTE model is also mentioned as one of the most effective in many scientific papers. The PACTE group is very active in finding out the answers for three questions (1) what translation competence is, (2) how translation competence can be acquired (3) and how translation sub-competences integrate and amalgamate with each other. The PACTE scholars use mostly procedural process based methodology rather than product oriented in finding out answers to these questions. Unlike Campbell's model, the PACTE model (2003) (as cited in PACTE, 2011: 4) is based on the empirical-research approach and concludes that the translation competence includes five sub-competences, as well as, psycho-physiological components: 1) Bilingual sub-competence – predominantly procedural knowledge required to communicate in two languages. It comprises pragmatic, socio-linguistic, textual, grammatical and lexical knowledge. 2) Extra-linguistic sub-competence – predominantly declarative knowledge, both implicit and explicit. It comprises general world knowledge, domain-specific knowledge, bicultural and encyclopedic knowledge. 3) Knowledge about translation – predominantly declarative knowledge, both implicit and explicit, about translation and aspects of the profession. It comprises knowledge about how translation functions and knowledge about professional translation practice. 4) Instrumental sub-competence – predominantly procedural knowledge related to the use of documentation resources and information and communication technologies applied to translation (dictionaries of all kinds, encyclopedias, grammars, style books, parallel texts, electronic corpora, search engines, etc.). 5) Strategic sub-competence – procedural knowledge to guarantee the efficiency of the translation process and solve problems encountered. This sub-competence serves to control the translation process. Its function is to plan the process and carry out the translation project (selecting the most appropriate method); evaluate the process and the partial results obtained in relation to the final purpose; activate the different sub-competences and compensate for any shortcomings;

identify translation problems and apply procedures to solve them. 6) Psycho-physiological components – different types of cognitive and attitudinal components and psycho-motor mechanisms, including cognitive components such as memory, perception, attention and emotion; attitudinal aspects such as intellectual curiosity, perseverance, rigor, the ability to think critically, etc.; abilities such as creativity, logical reasoning, analysis and synthesis, and so forth (PACTE, 2011: 4-5)

As it is shown above, intercultural professional competence is treated as one of crucial aspects of would-be translators training because of being one of priority problems in contemporary world.

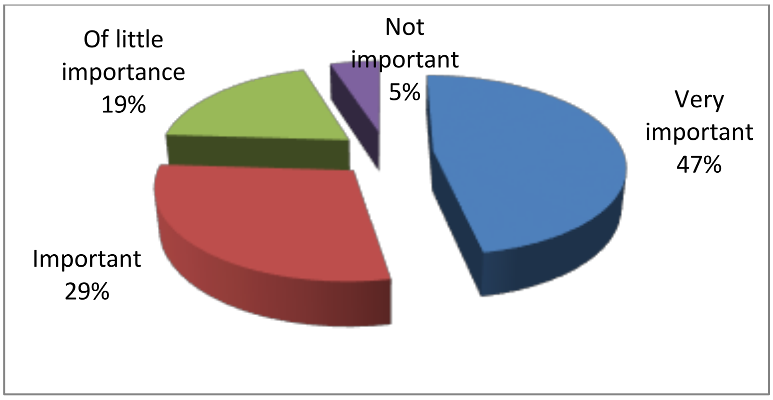
PRE-EXPERIMENTAL STAGE

As is was stated before, one of essential stages of our experiment consisted in survey of instructors' opinion concerning the aforementioned discipline, i.e. its purposes, key concept, and components. The survey was conducted among 67 instructors who worked for different institutions in Kazakhstan in the field of translators' training; the main purpose of the survey was to clarify their viewpoints concerning key terms of the discipline and to range those terms in accordance with their preferences. After introductory questions concerning age groups and scientific degree (it should be pointed out that most of our target audience was highly-skilled professionals), they were asked to range the following components of suggested course as very important, important, of little importance, and not important.

Samples of answers are represented on Figures 1-3 and, as it is shown below, most of the manual components were well-received by instructors working in the field of translators' training.

Figure 1. Respondents attitude concerning translation theory as a component of manual in Intercultural Communication

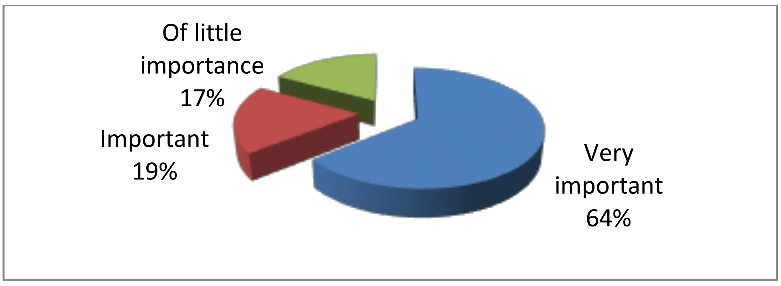
Question 1. In your opinion, representation of main statements of translation theory in Intercultural Communication manual is…



Answering the question most of instructors (47%) highlighted the importance of main statements of translation theory as a part special professional training in the field of intercultural professional competence, and only 5% of them characterized that aspect as a not important one.

Figure 2. Respondents' attitude concerning the relevance of communicative strategies related to various cultures, for the course in Intercultural Communication

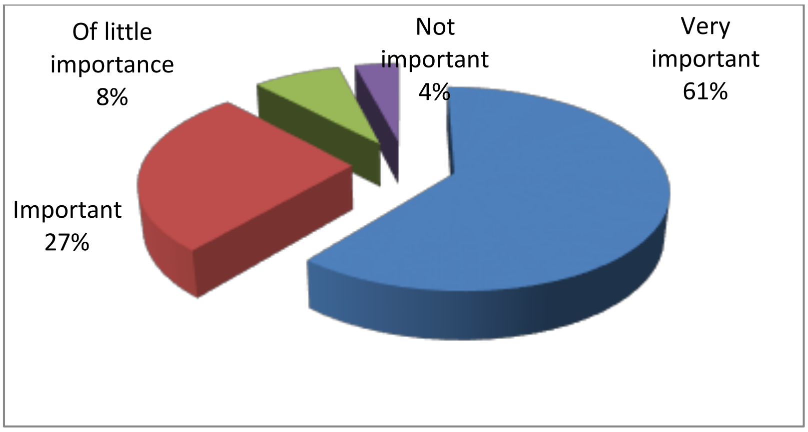
Question 2. Your consider representation of communicative strategies related to various cultures as…



It is not surprising that the target audience considered the representation of communicative strategies related to various cultures as a preferable task of the discipline (64% of respondents pointed out that it is key aspect of translators' training; 19% treated this part of the course as an important one whereas just 17% of them evaluated it as a problem of little substance).

Figure 3. Respondents' attitude concerning would-be translators' abstracting skills as an aspect of the course in Intercultural Communication

Question 3. For future translators, abstracting skills are…



By means of that question we made an attempt to estimate how important it was for the respondents to improve would-be translators' abstracting skills. The results showed that 61% of the respondents consider this aspect as very important (56%), or important (27%), whereas 8% considered such kind of information to be "of little importance" for translators' work, and, finally, 4 % of respondents did not realize the necessity of translators work in that sphere.

So, as it was shown above the results of the survey proved the necessity of the aforementioned aspects for special translators training in the field of intercultural communication.

EXPERIMENTAL STAGE: PRINCIPLES OF MANUAL DESIGN AND SAMPLES OF TASKS

On the basis of the given survey, main parts of the manual were designed. Thus, the principles of presentation of theoretical knowledge and practical tasks introduced in this manual are aimed at combining professional needs of future multilingual specialists with their duties to act as mediators in intercultural communication (both in our country and abroad). The first section provides fundamentals and a brief history of formation of intercultural communication theory; the role of translation in social sciences and humanities; also, definitions of such basic terms as intercultural communication, inter-ethnic communication, translation are represented here. The manual contains scientific definitions of communication as well as translation as a form of intercultural communication; different forms and types of translation are under consideration, too. The second section of the manual lists the types of intercultural communication and describes the types of communicative failures in the field of translation. Also, it examines the concept of acculturation and settles the problem of intercultural competence formation for multi-lingual specialists. It should be noted that this part describes the main strategies of acculturation as well as key characteristics of intercultural competence. The next section of the manual explains the concept of professional communication and specific requirements for a specialist in the field of intercultural communication. At the same time, this part of the manual deals with peculiarities of scientific texts translation. The main aim of the fourth section is to familiarize would-be translators with the main rules and techniques of abstracting and annotating because it is also a specific kind of activity in the field of intercultural communication. Furthermore, each section of the manual contains control questions and tasks for self-study.

As it was stated before, all parts of manual are supplemented with the appropriate video and audio materials. Some of them are authentic whereas others are considered as special materials for training in the field of intercultural communication. So that the authors made a point of presentation of some tasks related to supplementary materials. Thus, Part 1 is extended by the video which represents cultural differences between English people and Americans. Sample questions aimed at students' cultural competence and critical thinking development, are the following:

1. What cultural differences are related to lexical variants represented in the video?
2. Speak on the discrepancies between British and American cultures
3. What kind of social antitheses is represented in the video?
4. Speak on your impressions concerning the process of communication represented on the video.

Also, for Part 2, we have designed specific questions in order to identify cultural negotiations errors committed in the context of cultural conflict resolution:

1. Which cultural peculiarities of Italian and German people are represented in the video?
2. Define the most important factors which presuppose successful business communication between representatives of different communicative cultures.

3. Is it possible to use the terms “cultural shock” or “culture clash” in order to describe that situation? Why/why not?

Since many students consider abstracting and annotating as a very boring and impractical part of the course, the authors make an attempt to motivate them. Some problem tasks related to video about Parts of Paragraphs are represented below:

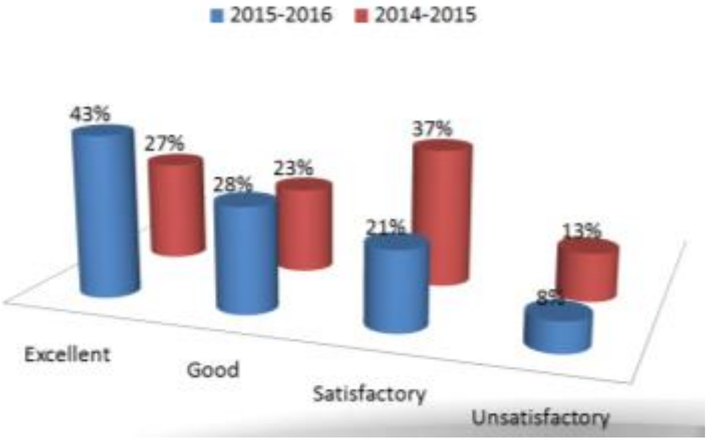
1. Are there any specific elements of paragraphing in different cultures?
2. North American Style is characterized by…
3. An effective topic sentence is based on…
4. The “heart of your paragraph” is … because…
5. The two ways of the details ordering are…
6. What are the functions of the closing sentence?
7. Topic sentence is also named as…
8. Analyze the sample from the point of view of the Russian and Kazakh traditions of essays composing. What are the difference between Russian and Kazakh traditions, on the one hand, and the North American Style? On the other?

In our opinion, all those tasks are motivating (both in form and content), so that the electronic manual can also be considered as the appropriate way of teaching Cyber-space inhabitants.

SOME RESULTS OF OUR EXPERIMENT

Figure 4 shows the students results of this academic year in comparison to the previous one. In is necessary to point out that during 2015-2016 academic year the manual was used in teaching process.

Figure 4. Exam results in 2014/2015 in comparison to 2015/2016



As observed in Figure 4, the amount of excellent marks rose dramatically (from 27% to 43%) whereas number of satisfactory and unsatisfactory marks showed an opposite tendency (thus, in 2014-2015 academic year we had 13% of unsatisfactory marks in Intercultural Professional Communication in contrast to 2015-2016 academic year when the amount of such marks decreased to 8%). In our opinion, the progress is closely associated with the manual materials implementation in teaching process.

REFLECTIONS OF THE LEARNERS

Analysis of the students’ answers indicated that 79% of the students found the aforementioned activities based on the implementation of specific tasks related to intercultural competence development more useful and practical in comparison to traditional approach to translators training. Use of the aforementioned tasks was described by the participants as “practical, “enhancing translators’ adaptability and flexibility”, “exciting”. None of the students reported negative opinions about using those tasks in would be translators/interpreters training. Only 7% of the participants favoured traditional methods and exercises compared to using of materials.

Detailed analysis revealed that there were three factors that influenced the learners’ opinions as to the use of authentic videos in the classroom: practicality, the contribution of the authentic videos to the communication and discussion among the students in course of peer-evaluation and the contribution of authentic video materials to the motivation of the students.

CONCLUSION

In terms of ongoing state language policy of tri-lingualism in Kazakhstan, future development of multi-lingual and multi-cultural personality of a translator is a factor of paramount importance. So, we cannot underestimate the value of translators' intercultural communicative competence as they are the mediators in the process of intercultural communication.

Using various materials included in our electronic manual, we predetermine formation of such interpreters' competencies as:

- skills in Intercultural Business Communication on the basis of patterns represented in innovative form;
- linguistic competence, because work with such materials provide a lot of opportunities for language skills improvement;
- competence in the field of text formation on the basis of rules and linguistic characteristics of a genre, stereotypes of language communities;
- communicative competence including intercultural communicative skills in the field of rendering text with specific national color, stylistic peculiarities and different extra-linguistic factors;
- theoretical translator/interpreter's competence lying in the sphere of key translation studies concepts
- operational competence aimed at adequate translation obtaining;
- strategic competence based on knowledge in the field of culture, tradition; skills of extrapolation, conceptual foresight and their appropriate use in the process of intercultural communication.

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Intercultural Awareness Of Czech Students At Secondary Schools

Lucie CVIKLOVA
Charles University, Czech Republic
lucie.cviklova@yahoo.com

ABSTRACT

Social science research shows that intercultural awareness and intercultural communicative competence are developed throughout one's life and shaped by various factors, including informal and formal socialization and schooling practices that in turn influence the development of social capital. Cultural differences have become the object of study within a growing interdisciplinary field, including by cultural anthropologists and psychologists. This study is theoretical and rooted in five cultural dimensions by means of which the degree of cultural awareness can be measured: power distance, particularism versus universalism, uncertainty avoidance, collectivism versus universalism and, finally, achieved versus ascribed status. The sample was constituted on the basis of these five dimensions and the cultural awareness of Czech students at selected secondary schools in Prague was measured. Items in the semi-structured questionnaire included statements such as: differences are dangerous, authority is comforting, decisions are made by consensus, people believe that conflict clears the air, etc. In the conclusion, data obtained by means of empirical research at several Czech secondary schools are compared to those publicly available regarding the economically active population in order to show differences regarding cultural awareness between segments of Czech youth and Czech adults.

INTRODUCTION

European integration has been considered important in the Czech educational system mainly at institutions of higher education, and the influence of common European policies as well as Czech national reforms at primary and secondary schools has only existed at the level of competences in mathematics, science and languages. Nevertheless, educational specialists and employers have found that the low performance of Czech high school and university graduates is related to a lack of intercultural communicative competence and that this can be explained by deficiencies in the curricula at Czech secondary schools and universities (Storti, 1990, pp. 99- 103). In addition, the answer to the question 'how can the average Czech student can acquire intercultural communicative competence?' is to a large degree complicated by the fragmentation of curricula and teaching methods at various types of Czech secondary schools. To put it differently, the current condition is determined by the coexistence of various secondary schools, vocational schools, and different types of international schools administered by national ministries, such as the Lycée Français, Waldorf high schools, etc. Nevertheless, intercultural communicative competence is rarely taught at Czech secondary schools.

Intercultural communicative competence can be defined as comprising various types of communication, including code switching, by means of which individuals who share more than one culture express their values and worldviews on different occasions, verbally as well as non-verbally (Bennett, 1998, p.1-35). Intercultural communicative competence is related to intercultural cultural awareness that can be measured by different dimensions/variables and particularly their individual values (Peterson, 2004.) One can find various cultural dimensions, such as the conception of time, low context versus high context cultures, emotional versus neutral cultures, etc. (Gannon, 1994). Nevertheless, for my research objective and namely the necessity to operationalize the issues, the number of cultural dimensions was reduced to five: high versus low power distance, particularism versus universalism, high versus low uncertainty avoidance, collectivism versus individualism and achieved versus ascribed status. For example, power distance can be examined through the answers yes/no to attitudes such as 'people are less likely to question the boss', 'freedom of thought could get you into trouble', 'management style is authoritarian and paternalistic', etc. Universalism and particularism can be measured by yes/no answers to attitudes such as 'objectivity, not letting personal feelings affect decision making, is possible and desirable', 'principles have to get bent once in a while', 'people tend to hire friends and associates', etc. High and low uncertainty avoidance can be evaluated using yes/no answers to attitudes such as 'people expect more formality in interactions', 'rules can be broken if it makes sense, for pragmatic reasons', 'people should keep emotions under control', etc. Collectivism and individualism can be examined by yes/no answers to attitudes such as 'people answer the phone by giving the name of the organization', 'it's okay to stand out', 'face saving is important', etc. Ascribed and achieved status can be measured by yes/no answers to attitudes such as 'people adhere to tradition', 'people are promoted based on productivity and results', 'I expect people to judge me by my affiliations', etc.

THE STUDY

Under the global condition actors have been more and more often confronted with various cultural patterns that have been acquired at individual stages of socialization processes by means of the official school system as well as through channels of informal learning originating in family structures, peer groups, work units in seasonal summer jobs as well as in the framework of other interactions. How can one identify the intercultural awareness of students at Czech secondary schools and the most important variables relevant for prospective intercultural training? Are these cultural variables separate or can one identify any clustering of similar values concerning two or more of them?

The first principle, power distance - omnipresent not only in educational institutions but also in political life, at workplaces and in families - is reflective of the fact that actors in specific cultural environments accept and respect the superiority of power structures over legal principles and justification arguments. Power distance is particularly reflective of the stance on inequality of institutions/organizations and of expectations concerning the conduct of the superior on the one hand and the subordinate on the other.

While particularism as the first principle of the second dimension prefers orientation to given roles and neglect of specific actors as well as relationships among them, the opposite particularism emphasizes personal relations and approaches to individual actors. To put it differently, particularism and universalism explain contradictory principles of this dichotomy, i.e. conflict or tension between obligations to family, friends and colleagues and to society/community.

The third cultural dimension deals with the issue of uncertainty avoidance and points to the fact that in some cultural and social environments actors accept uncertainty as something common and consider it part of everyday life, while in others they adopt a negative attitude to risk and uncertainty and strive for those norms and regulations that can eliminate them. More concretely, uncertainty avoidance explains the degree to which societies/communities feel threatened by uncertainty and anxiety and why some feel more threatened by it than others: it also presents specific ways in which different communities invented various strategies for dealing with the phenomenon.

The fourth dimension, collectivism versus individualism. differentiates between communities/societies where actors prefer group to individual interest and those where individual actors hold themselves responsible for their deeds and relations among them are more or less loose. Collectivism versus individualism also points to the orientation of every community/society concerning collective and individual motivation for decision-making and actions: in individualist societies the social action of the individual is more motivated by the satisfaction of his or her needs than by that of the group, while in collectivist societies one's identity is to a large degree a function of his or her membership in the whole system/group.

The fifth dimension, achieved versus ascribed status, divides cultural environments into those where actors justify their social status by their own efforts and have constantly to confirm it and those where social rank is derived from social origin, education, employment, age, membership of some social group, etc.

Data based on the semi-structured questionnaire were collected at several secondary schools in Prague and 50% of the Czech students were male and 50% of the Czech students were female (Giddens, 1997, pp. 530 - 558). Data were analyzed for evidence of intercultural awareness regarding perception of power structures, cleavages between universalist and particularist values, efforts to avoid uncertainty or strategies how to confront it, tendencies to collectivist or individual behaviour and, finally, justification of his or her status by either achievement or ascription principles.

The sociological analysis draws on an approach to cultural differences that takes into account the above mentioned cultural dimensions. Statements concerning the cultural dimensions in the semi-structured questionnaire were formulated on the basis of a preliminary questionnaire that had previously been distributed to several students of Prague secondary schools (Booth, W., Colomb, G. & Williams, J., pp. 10 - 56). During the preliminary research some questions had not been answered and were therefore omitted in the final version, while some new statements were included. Data presented here regarding the intercultural awareness of Czech students at secondary schools are the result of original research into one hundred students at several Czech secondary schools. In addition, the data collection for this research draws on contemporary knowledge concerning ethnic stereotyping in schools (Stevens and Görgöz, 2010, pp. 1350- 1371). For example, it has been found that differences concerning stereotyping in educational institutions can in part be explained by the influence of nationally specific regulations.

FINDINGS

1. INTERCULTURAL AWARENESS OF CZECH STUDENTS AT SECONDARY SCHOOLS THROUGH THE PERSPECTIVE OF POWER DISTANCE

Specific double or pair attitudes were introduced in order to measure the power distance index of Czech students at selected Czech secondary schools and students were asked about their preferences. These double or pair attitudes reflect whether Czech students accept unequal influence and different roles of students and teachers at their secondary schools as well as in other parts of their lives. They reveal whether Czech students perceive power and status as artificial and to what degree they would like to de-emphasize or minimize differences between teachers and students (Aronhime, 1997, p. 112).

(1a) Students don't question teachers (since there is more fear of displeasing the teacher in high power distance cultures); 1b) Students question teachers (since teachers don't have to be deferred to). (2a) Elitism is the norm (since emphasizing distinctions between teacher and students is the norm); (2b) Teachers have no special privileges (since rank does not bring about privileges). (3a) Freedom of thought is encouraged (since no one is threatened by the independence of thinking for oneself); (3b) Freedom of thought could get you into trouble (since independence is not valued in students). (4a) The chain of command is mainly for convenience (since power differences among teachers and students are not emphasized); (4b) The chain of command is sacred (since rank must be respected and you should not go around people). (5a) Students prefer precise instructions from teachers (since close supervision or the visible exercise of power is common to their culture); (5b) Students prefer only general instructions (since autonomy and an invisible exercise of power is common to their culture). (6a) Interaction between teacher and students is more informal (because the distance is minimized); (6b) Interaction between teacher and students is formal (because it is necessary to emphasize the power gap). (7a)The teaching style is authoritarian (because teachers are supposed to exercise their power); (7b) The teaching style is consultative and democratic (because we are all in this together and power distance is de-emphasized).

Table 1: High Power Distance versus Low Power Distance

Statement	Supporters of it	Non-Response
High power distance 1a, 2a, 3b, 4a, 5a, 6b, 7b	241 (35%)	4
Low power distance 1b, 2b, 3a, 4b, 5b, 6a, 7a	448 (65%)	7
Total	689 (99%)	11 (1%)

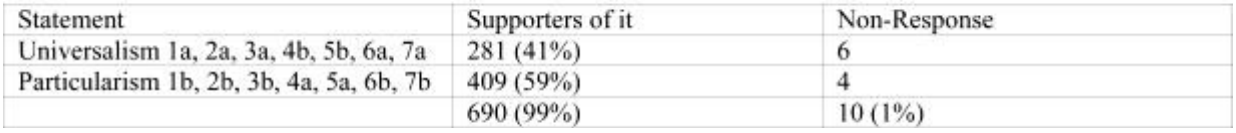
2. INTERCULTURAL AWARENESS OF CZECH STUDENTS AT SECONDARY SCHOOLS THROUGH THE PERSPECTIVE OF PARTICULARISM AND UNIVERSALISM

Specific double or pair attitudes were introduced in order to measure the degree of universalism and particularism at selected Czech secondary schools and students were asked about their preferences. These double or pair attitudes are reflective of whether Czech students respect universal values at their secondary schools as well as in other parts of their lives. While one cannot claim that specific cultural environments are totally particularistic or universalistic, one can speak about certain attitudes or tendencies of individual societies/communities to treat family, friends and their in-groups the best they can and let the rest of the world protect alternative in-groups. On the other hand, members of other individual societies are convinced that at least certain absolute moral standards can be applied everywhere in the world, regardless of specific circumstances (Aronhime, 1997, p. 68).

(1a) The law is the law (since for universalists the law does not depend on who you are); (1b) Principles get bent once in a while (since particularists would say that principles can be adjusted to circumstances). (2a) You don't compromise on principles (since universalists are convinced that certain principles apply regardless of the particular situation); (2b) Decision making can be affected by personal feelings (particularists would say personal feelings would have to be taken into account). (3a) Exceptions to the rule should be minimized (universalists avoid exceptions since they believe in absolutes); (3b) People tend to hire friends and associates (because particularist logic says a bond is more important than the facts of the case). (4a) The logic of the heart is what counts (since particularist logic is of the heart); (4b) Logic of the head is important (since universalist logic is of the head). (5a) Subjectivity is the rule (since particularists are subjective/universalists are objective); (5b) Consistency is desirable and possible (universalists like consistency because principles are absolute). (6a) Contracts guarantee that friends stay friends (since universalists believe in rules anchored in contracts); (6b)

Contracts aren't necessary between friends (according to particularists, friends can always be trusted and you don't do business with strangers anyway). (7a) Ethics are ethics no matter who you are dealing with (universalists believe in absolutes and no circumstances are relevant); (7b) Situational ethics are the norm (particularists believe that social action should be guided by a specific situation and not by general maxims).

Table 2: Universalism versus Particularism



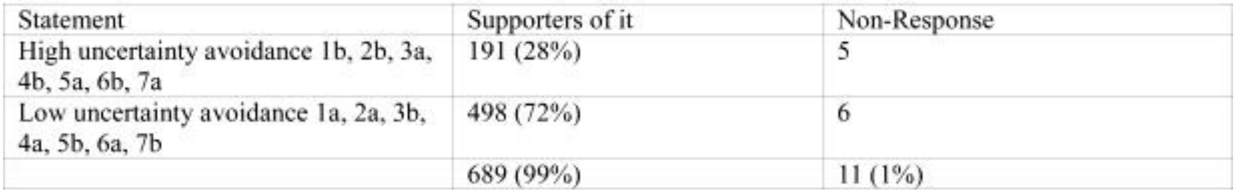
Statement	Supporters of it	Non-Response
Universalism 1a, 2a, 3a, 4b, 5b, 6a, 7a	281 (41%)	6
Particularism 1b, 2b, 3b, 4a, 5a, 6b, 7b	409 (59%)	4
	690 (99%)	10 (1%)

3. INTERCULTURAL AWARENESS OF CZECH STUDENTS AT SECONDARY SCHOOLS THROUGH THE PERSPECTIVE OF UNCERTAINTY AVOIDANCE

Specific double or pair attitudes were introduced in order to measure the degree of the uncertainty avoidance index at selected Czech secondary schools where students were asked about their preferences. These double or pair attitudes are reflective of whether Czech students respect uncertainty at their secondary schools as well as in other parts of their lives (Aronhime, 1997, 118).

Concrete social environments are characterized either by high uncertainty avoidance or low uncertainty avoidance; while national units with high uncertainty avoidance demand compliance, with many regulations, laws and procedures that were elaborated in order to avoid prospective insecurities, national units with a low uncertainty avoidance limit, regulate or control fewer areas of human interaction and feel more curious than frightened about the unknown. (1a) People should let their emotions out (because there's nothing to fear from emotions); (1b) Students should keep emotions under control (since when people lose control of their emotions, anything can happen. (2a) Differences are intriguing and challenging (because the unknown is enticing); (2b) Differences are dangerous (because it is unpredictable or unknown). (3a) People change jobs infrequently (because stability is sought and change is threatening); (3b) People change jobs with more frequency (because change is not so frightening). (4a) Rules can be broken if it makes sense, for pragmatic reasons (because rules can be limiting and there's nothing inherently satisfying about rules); (4b) Rules should not be broken (because rules are foundations or order). (5a) Risks should be avoided (since risks are inherently unsettling because they involve the unknown); (5b) Risks are opportunities (since the unknown isn't particularly worrying, risks are not to be feared). (6a) Conflict in organizations is natural, nothing to be afraid of (order doesn't break down or get undermined that easily); (6b) Conflict in organizations should be eliminated (because conflict threatens the smooth running of things). (7a) People accept authority more readily; authority is comforting (since authority guarantees order and keeps things under control); (7b) People accept authority less readily and authority is limiting (because control is not that comforting).

Table 3: Uncertainty Avoidance



Statement	Supporters of it	Non-Response
High uncertainty avoidance 1b, 2b, 3a, 4b, 5a, 6b, 7a	191 (28%)	5
Low uncertainty avoidance 1a, 2a, 3b, 4a, 5b, 6a, 7b	498 (72%)	6
	689 (99%)	11 (1%)

4. INTERCULTURAL AWARENESS OF CZECH STUDENTS AT SECONDARY SCHOOLS THROUGH THE PERSPECTIVE OF COLLECTIVISM VERSUS INDIVIDUALISM

Specific double or pair attitudes were introduced in order to measure the degree of collectivism and individualism at selected Czech secondary schools where students were asked about their preferences. These double or pair attitudes are reflective of whether Czech students prefer collectivism to individualism at their secondary schools as well as in other parts of their lives. While in individualist societies, one is supposed to take care of oneself and independence as well as self-reliance are highly valued, in collectivist societies the success and survival of the group presupposes the well-being of the individual as well as harmony (Aronhime, 1997, p.31).

1a) There is a need for autonomy (since individuals need independence); (1b) There is a need for affiliation (since people are defined by what they belong to). (2a) Face Saving is important (because saving face maintains harmony and is the glue that keeps the group together; (2b) People believe that conflict clears the air (collectivists shun conflict because it could damage harmony. (3a) Decisions are made by consensus (because no-one feels left out as opposed to majority rules which leave the minority out); (3b) It's okay to stand out (because individualists reject self-effacement). (4a) People change worldviews frequently (since they have to adapt to abrupt changes given by the global condition; (4b) People adhere to tradition (in the sense that older, senior people are listened to). (5a) Short-term relationships are common (since long-term relationships tie the individual down); (5b) Marriages are arranged (since they keep the group, the family happy). (6a) People answer the phone by giving the name of the organization (since collectivists present themselves through their affiliations); (6b) It's common to ask students how they want to be addressed (since individualists present themselves through their name). (7a) Friends can be made relatively quickly (since the individual enters and leaves relationships on his or her own); (7b) It takes a long time to make a new friend (since it is necessary to become familiar with members of the group your new friend belongs to).

Table 4: Collectivism versus Individualism

Statement	Supporters of it	Non-Response
Individualism 1a, 2b, 3b, 4a, 5a, 6b, 7a	434 (62%)	7
Collectivism 1b, 2a, 3a, 4b, 5b, 6a, 7b	255 (37%)	4
	99%	1%

5. INTERCULTURAL AWARENESS OF CZECH STUDENTS AT SECONDARY SCHOOLS THROUGH THE PERSPECTIVE OF ACHIEVED VERSUS ASCRIBED STATUS

Specific double or pair attitudes were introduced in order to measure the degree to which students are convinced that status should be achieved or ascribed. These double or pair attitudes are reflective of whether Czech students prefer social environments in which status is achieved to those in which status is ascribed and vice versa. In 'achieved status' societies and communities, professional accomplishments, performance and record of success are highly valued and the status of the individual is conditioned by his or her actual deeds, while in 'ascribed status' societies the individual is to a large degree seen through the lens of his or her function, birth, age and seniority. In 'ascribed status' communities/societies the social standing of the individual cannot be lost completely and it is determined by the family situation, the social class into which he or she is born, the amount of education he or she receives and similar variables (Aronhime, 1997, p. 123).

1(a) Informal education determines your career and success (since practice is more important than formal education); (1b) A university degree determines your career and success (since at universities you meet privileged people). (2a) Hard work and ingenuity are the most important things for your success (since on the labour market you are judged by your performance); (2b) The social standing of your family is important for your career and success (since at your workplace you are also judged by your origin.) (3a) You should date and marry someone regardless of their origin or social standing (since private life and public achievements are separate; (3b) You should date and marry someone from your own social class (since marriage helps to maintain your social status). (4a)You can never completely lose your social standing (since your social position is determined by education and family origins); (4b) It is necessary to make constant efforts in order to maintain and justify your social standing (since you have to justify it constantly). (5a)You should not make friends with people with a lower social status than yours (since by means of these friendships your social status can be endangered); (5b) You can be friends with anybody if he or she complies with fair principles (since your social status depends on your own achievements and not on your formal affiliations). (6a) You can start your own business using loans from people you trust, regardless of their background, and family support (since your business partners will judge you by your performance); (6b)You cannot start your own business without family investment and moral support (since your business partners will consider your family background). (7a) It is necessary to show off wealth and social rank in public and private life (since your standing at your workplace is interrelated with your private life); (7b) One does not have to show off one's wealth and social rank in private (since your status in private and public life is separate).

Table 5: Achieved versus Ascribed Status

Statement	Supporters of it	Non-Response
Achieved Status 1a, 2a, 3a, 4b, 5b, 6a, 7b	528(76%)	6
Ascribed Status 1b, 2b, 3b, 4a, 5a, 6b, 7a	161 (23%)	5
	99 %	1%

CONCLUSIONS

The analysis of the questionnaires demonstrated that students are not particularly in favor of unequal influence and different roles for students and teachers at their secondary school and that they would like to promote these ideas in other parts of their lives. Only 35% of students agreed that relationships should be formal and should involve a hierarchical component. The results of research realized by Hofstede and his team (Hofstede, 2001) regarding the Czech economic population found that Czechs are listed among countries with a high power distance index where the population more or less accept power asymmetry between superiors and subordinates in organizations and institutions (67%). Nevertheless, the results of the recent research realized at Prague secondary schools have shown intergenerational differences concerning the perception of power by Czechs, i.e. a tendency to replace vertical forms of communication with horizontal ones.

The analysis of the questionnaires demonstrated that students are not completely in favour of being protected by their families and friends and that they are more or less in favour of fair principles. Only 41% of students agreed that preferences should be made on the basis of family background or informal position and they endorsed equal principles not only at school but also in other parts of life. The results of research realized by Fons Trompenaars regarding the Czech economic population found that Czechs are listed among particularist nations where clientelism as well as a merger between the private and public domains of life are omnipresent (Thornton & Bureš, 2012, pp. 46 - 62).

Nevertheless, the results of the recent research realized at secondary schools in Prague have shown intergenerational differences concerning a disrespect of universal principles such as laws and other regulations, i.e. the tendency to replace various forms of favoritism with fair treatment of all the actors involved.

The analysis of questionnaires demonstrated that students are not afraid of uncertainty and that – at least to a certain degree - they are willing to accept risks. Only 28% of students agreed that social environments, including their schools, should be based on strict rules enforced by different authorities, including their teachers. The results of the research realized by Hofstede and his team (Hofstede, 2002) regarding the Czech economic population found that Czechs are listed among nations with a high uncertainty avoidance where, similarly to countries such as Austria or Germany, actors are expected to agree with official state doctrines (including scientific ones) and the deliberation of individuals has been considered to be a potential threat. Nevertheless, the results of the recent research at secondary schools in Prague have shown intergenerational differences regarding resistance to innovation and new ideas, i. e. the tendency to replace a lack of tolerance of non-systemic phenomena with an approach seeing risks as opportunities.

The analysis of questionnaires demonstrated that students only partially share collectivistic worldviews and that they are aware of individual responsibility for their education and advancement. Only 37% of students thought that the collective at their secondary schools should be a higher unit and that individual students should comply with its needs. The results of the research realized by Hofstede and his team (Světlík, 2003, pp. 50 - 51) regarding the Czech economic population found that Czechs are listed among collectivist nations where the interests of the group are more important than the interest of the individual (56%). Nevertheless, the results of the recent research at Czech secondary schools have shown intergenerational differences regarding the superiority of the group interests to those of the individual; i. e. a tendency to replace strong bonds between the group and the individual with looser ones.

The analysis of questionnaires demonstrated that students are more or less convinced that their social status should be achieved and not ascribed by variables such as education, family background, age, etc. Only 23% of students think that their social status at their school as well as in other parts of their life should be ascribed and that it should be only partially a result of their individual efforts. Hofstede and his team found that that there is correlation among power distance, uncertainty avoidance and collectivism versus individualism, not only in the case of Czechs but also in the case of other European and non-European nations: correspondence among these variables also influences arguments concerning the source or justification of social status. To put it more concretely, the combination of a low power distance index, low uncertainty avoidance index and diversion of collectivism found by means of the research in Czech secondary schools have been important values for the justification of social status by means of individual achievement.

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Intercultural Competency Skills Of International College Students Of A Thailand Public University

Keow Ngang TANG
International College, Khon Kaen University, Thailand
tangng@kku.ac.th

La-orsri SANOAMUANG
International College, Khon Kaen University, Thailand
la_orsri@kku.ac.th

ABSTRACT

This paper aimed to investigate intercultural competency skills of International College students, a public university in Thailand. Specifically, researcher embarks on the intercultural competency skills assessment between local Thai students and international students, different program, and academic year further investigate the gap between the different groups of students. The key challenge of higher education today is building knowledge-based and skilled workforce for the future. An exploratory research design utilizing quantitative method was employed. A survey research design utilizing questionnaire was used to generate data because researchers intend to investigate and explore in-depth the intercultural competency skills of International College students in terms of their knowledge, skills, and personal attitudes. A total of 129 International College students were purposively selected on volunteering basis from different program groups respectively as respondents. Results indicated that there is significant difference of their intercultural competency skills in terms of their knowledge, skills, and attitudes between local and international students, different program as well as different academic year. Local students are found to be lacking of awareness on the importance of intercultural competency skills compared to international students. In conclusion, International College students have to polish their knowledge about other cultures and other friends' behavior, empathy or understanding the feelings and needs of others, self-confidence like knowledge of one's own desires, strengths, weaknesses and emotional stability, and cultural identity that is knowledge of one's own culture.

Keywords: Intercultural competency skills, International College, local and international students

INTRODUCTION

Intercultural competence is the capability to develop targeted knowledge, skills, and attitudes that lead to discernable behavior and communication that are both effective and appropriate in intercultural interactions (Deardorff, 2006). According to Deardorff, integral elements of intercultural competence are comprised of knowledge, skills and attitudes. Knowledge of intercultural competence covers culture self-awareness, culture specific knowledge, sociolinguistic awareness, and grasp of global issues and trends. Culture self-awareness is defined as articulating how one's own culture has shaped one's identity and world view. Culture specific knowledge refers to analyze and explain basic information about other cultures such as history, values, politics, economics, communication styles, values, beliefs, and practices. The meaning of sociolinguistic awareness is acquiring basic local language skills, articulating differences in verbal or non-verbal communication, and adjusting one's speech to accommodate nationals from other cultures. Grasp of global issues and trends means explaining the meaning and implications of globalization and relating local issues to global forces. On the other hand, skills of intercultural competence encompasses listening, observing, evaluating skills, analyzing, interpreting and relating skills, as well as critical thinking. Listening, observing, evaluating skills refer to using patient and perseverance to identify and minimize ethnocentrism, seek out cultural clues and meaning. Analyzing, interpreting and relating skills means seeking out linkages, causality and relationships using comparative techniques of analysis. The meaning of critical thinking is viewing and interpreting the world from other cultures' point of view and identifying one's own. Finally, attitudes of intercultural competence are including respect, openness, curiosity, and discovery. Respect refers to seeking out other cultures' attributes; value cultural diversity; thinking comparatively and without prejudice about cultural differences. Openness is defined as suspending criticism of other cultures; investing in collecting 'evidence' of cultural difference; being disposed to be proven wrong. Curiosity refers to seeking out intercultural interactions, viewing difference as a learning opportunity, being aware of one's own ignorance. Discovery refers to tolerating ambiguity and viewing it as a positive experience; willingness to move beyond one's comfort zone.

Higher education institution rely greatly on numbers to exhibit success in internationalization, such as developing intercultural competent graduates who can compete successfully in the global workforce. According to Deardorff (2006), U.S. higher education institutions face many challenges including the tasks of remaining intellectually and culturally feasible in a rapid changing world, preparing students to strive competitively in the global marketplace, and staying well-informed of the electronic surge of information and globalized knowledge. As a result internationalization of higher education has become one possible response to such challenges. However the specification of anticipated outcomes of internationalization are often general and vague, with goals stated broadly that the institution will become internationalized or that a goal is to graduate cross-culturally competent students or global citizens.

STATEMENT OF PROBLEM

Deardorff (2006) emphasized that the knowledge, skills and attitudes are expected to lead to internal outcomes which refer to an individual who learns to be flexible, adaptable, empathetic, and adopts an ethno-relative perspective. These qualities are reflected in external outcomes which refer to the observable behavior and communication styles of the individual. They are the discernable evidence that the individual is or is learning to be interculturally competent. Currently educators and employers increasingly acknowledge the value of intercultural competence. Therefore most of the higher education institutions consider these skills as important outcomes for their graduates (Lombardi, 2010).

Higher education particularly International College can provide an excellent opportunity for students either local or international students to explore and practice the development of intercultural competencies. However, there is both anecdotal and research evidence to suggest that this does not always happen, nor does it happen by chance (Krajewski, 2011). Lecturers are well positioned to acquire and develop these intercultural skills and to encourage the development of these skills in students first by modelling these skills themselves and also by using specific strategies within their classes. Clearly these are competencies for all students, not just cater for international ones. According to the reviewed literature, the outcomes of the intercultural competence prepared in the current move towards better recognition of non-formal education and non-formal learning and a better understanding of key competencies for young people like college students is a necessity (Hoskins & Sallah, 2011).

LITERATURE REVIEWS

Leung, Ang and Tan (2014) reviewed recent theoretical and empirical developments in the intercultural competencies literature and highlighted contemporary models and empirical research in organizational contexts. They surveyed the current conceptualizations of intercultural competencies and proposed that intercultural competencies could be classified based on traits, attitudes and worldviews, capabilities, or a combination of these dimensions. They identified key psychological, behavioral, and performance outcomes associated with these models. They reviewed empirical studies of intercultural competencies at the group level and discuss emerging models of dyad-level, firm-level, and multilevel intercultural competencies. They evaluated the current measurement of intercultural competencies and suggested alternative approaches. Finally, they examined research on selection, training, and development of intercultural competencies. They also identified future research foci and offered an integration at the end of their review.

Dimitrov, Dawson, Olsen, and Meadows (2014) explored how teaching development programs may facilitate the development of intercultural competence in graduate students and prepared them for communicating effectively in the global workplace after graduation. Dimitrov et al. described the concept of intercultural teaching competence and examined the skills that graduate students may need to cultivate in order to communicate effectively in cultural diverse settings. Their quality findings revealed that teaching development programs are able to enhance intercultural communication components. As a result of training, students became more aware of cultural and disciplinary differences were able to adapt their communication style to audiences with different levels of background knowledge, and felt more prepared for interpersonal interactions across cultures. They also found out that students were able to transfer the skills learned to other areas of graduate study and used effective intercultural communication strategies when interacting with globally diverse peers and faculty supervisors.

RESEARCH OBJECTIVES

In accordance with the problems indicated above, this study embarks on the following objectives:

1. To assess the intercultural competency skills of international college students.
2. To investigate the difference on the acquisition of intercultural competency skills between local and international students.
3. To investigate the difference on the acquisition of intercultural competency skills among the six different

programs.
4. To investigate the difference on the acquisition of intercultural competency skills among the different academic years of study.

METHODOLOGY

This study employs survey questionnaire as a method to collect quantitative data. This method benefits this study in terms of obtaining data more efficiently as time, energy, and costs could be minimized (Sekaran, 2006). Besides a survey design provides an excellent means of measuring attitudes and orientations in a large population which can, therefore be generalized to a larger population (Babbie, 2002).

Population and Sample

The population of the study consists of the students from undergraduate program provided by International College of a public university, in Khon Kaen, Thailand. Table 1 shows the demographic factors of sample comprises of 129 students who are chosen by sampling purposively on volunteering basis. Majority of the samples are Thai students 113 (87.6%) and 16 (12.4%) international students who study in these six programs namely International Affairs, Global Business, International Marketing, Tourism Management, Humanities and Social Sciences, and Multimedia Technology and Animation.

As seen in Table 1, the sample of the study is formed from 129 International College students, 58 from Global Business program (45%), 20 from International Marketing program (15.5%), 18 from Humanities and Social Sciences (14.0%), 12 from International Affairs program (9.3%), 11 from Tourism Management program (8.5%), and 10 from Multimedia Technology and Animation program (7.7%). Majority of the samples are first and second year students.

Table 1. The distribution of samples surveyed

Demographic Factors	Frequency	Percentage
Nationality		
Thai	113	87.6
International	16	12.4
Program		
International Affairs	12	9.3
Global Business	58	45.0
International Marketing	20	15.5
Tourism Management	11	8.5
Humanities and Social Sciences	18	14.0
Multimedia Technology and Animation	10	7.7
Academic year		
First year	65	50.4
Second year	57	44.2
Third year	5	3.9
Final year	2	1.6
TOTAL	129	100

Data collection devices

Researchers has adapted the Intercultural Development Inventory (Hammer & Bennett, 1998) as the tool of the data collection and whose validity and reliability studies was made in the light of expert view and the results of pre-perform has been used. In the survey, there are 4 choices that rate as "disagree (1), slightly disagree (2), agree (3), and strongly agree (4)". In order to make detailed analysis and comments on the basis of items and because the items of the survey are handled independently from each other, an analysis related with the reliability of the scores like the coefficient of Cronbach Alfa internal consistency is not done.

Data analysis

The data collected in this study are evaluated with SPSS 17.0 packaged program. In analyzing the data, the number of the students who expressed their views regarding each item and their percentage is given as a table. According to their nationality, program, and academic year of study that whether there is significant differences between International College students' views related with contribution to the evaluation of using the intercultural competency skills is tested with independent t-test and one way ANOVA. In this study, the level of significance is taken as $p \leq .05$.

FINDINGS

Findings of this study are presented in accordance with the research objectives that are indicated above. The initial finding is descriptive findings about the intercultural competency skills of International College students. This is followed by inferential findings to measure the gap between the different groups.

Intercultural competency skills of International College students

The questionnaire is contained attitude-measuring questions in which the respondents reflected their views on their own behavior or self-report measures. Result of the study as shown in Table 2, revealed their intercultural competency skills. Majority of the students understand how their cultural background affecting their thinking and actions ($\bar{x}$ = 3.488, *SD* = .762). This is followed by ‘I am able to build positive relationship with my friends from different ethnic and culture” ($\bar{x}$ = 3.419, *SD* = .609), “I can apply my cultural awareness and knowledge when interacting with different cultures friends” ($\bar{x}$ = 3.326, *SD* = .639), “I understand the meaning of racism” ($\bar{x}$ = 3.271, *SD* = .768), “I understand the differences in cultural practices of my friends and society” ($\bar{x}$ = 3.225, *SD* = .615), “I understand about the concept of cultural diversity sensitivity” ($\bar{x}$ = 3.209, *SD* =.608), “I have the impression that all of us can learn well regardless of our ethnic and cultural backgrounds” ($\bar{x}$ = 3.202, *SD* = .666), and “I understand the meaning of social distance” ($\bar{x}$ = 3.194, *SD* =.600).

Besides there are two intercultural competency skills having the same mean score ($\bar{x}$ = 3.171) namely “I understand the feelings of someone from another ethnic group” (*SD* =.708) and “I understand the meaning of prejudice” (*SD* =.811). Next is “I am interested in the values, traditions, and culture of my friends” ($\bar{x}$ = 3.140, *SD* =.682). Then is “I have problem to interact with my friends who are from different ethnic group” ($\bar{x}$ = 3.116, *SD* =.973). On the other hand, “I understand how prejudice can affect an individual” and “I like to work with my friends from different cultures in order to perform tasks together” are having the same mean score ($\bar{x}$ = 3.101) with (*SD* =.769) and (*SD* = .748) respectively.

Subsequently ranking in order from high to low are as follows: “It is the responsibility of teachers to provide opportunities for students to share the cultural difference ($\bar{x}$ = 3.070, *SD* = .894), “I realize that my culture is different from some of my friends” ($\bar{x}$ = 3.062, *SD* = .737), “I have knowledge of other ethnic group culture” ($\bar{x}$ = 3.039, *SD* = .654), “I can identify International College practices that impacting on students from ethnic minority groups ($\bar{x}$ = 3.023, *SD* = .631), “I can identify the ethnic group of my friends” ($\bar{x}$ = 2.977, *SD* = .592), “I was able to determine the needs of my friends who are from different cultural backgrounds than myself” ($\bar{x}$ = 2.884, *SD* = .645), “I can accept the use of ethnic jokes among my friends” ($\bar{x}$ = 2.837, *SD* = .779), “I prefer to be friends with those who are having the same culture with me” ($\bar{x}$ = 2.690, *SD* = .991), “I usually ignore racist statements” ($\bar{x}$ = 2.411, *SD* = 1.035), and “Teaching to respect of customs and ethnic traditions is not the responsibility of International College teacher” ($\bar{x}$ = 2.256, *SD* = 1.040). Finally the least capacity intercultural competency skill is “I feel uncomfortable in a situation where someone shows different values and beliefs with mine” ($\bar{x}$ = 2.007, *SD* = .914).

Generally majority of international college students agree upon cultural and ethnic difference among themselves. They are found to have knowledge about racism, other group culture, values, and traditions. Researchers can conclude that most of the International College students are aware of cultural difference and possess intercultural competency skills such as cultural tolerance and adjustment. Table 2 shows the descriptive findings on distribution of International College students’ views related to their intercultural competency skills. Their views have been measured from disagree to strongly agree.

Table 2: Distribution of international college students' views related to intercultural competency skills

Items	$\bar{x}$	D (%)	SD(%)	A (%)	SA(%)
1. I realize that my culture is different from some of friends.	3.062	3.9	12.4	57.4	26.4
2. I can identify the ethnic group of my friends.	2.977	0.8	16.3	67.4	15.5
3. I prefer to be friends with those who are having the same culture with me.	2.690	14.7	24.8	37.2	23.3
4. I feel comfortable in a situation where someone shows different values and beliefs with me.	2.008	34.1	38.0	20.9	7.0
5. I have problem to interact with my friends who are from different ethnic group.	3.116	7.0	20.9	25.6	46.5
6. I can accept the use of ethnic jokes among my friends.	2.837	3.9	27.9	48.8	19.4
7. I usually ignore racist statements.	2.411	25.6	23.3	35.7	15.5
8. Teaching to respect of customs and ethnic traditions is not the responsibility of International College teacher.	2.256	30.2	27.9	27.9	14.0
9. It is the responsibility of teachers to provide opportunities for students to share the cultural difference.	3.070	6.2	17.8	38.8	37.2
10. I understand how my cultural background affecting my thinking and actions.	3.488	1.6	11.6	23.3	63.6
11. I have the impression that all of us can learn well regardless of our ethnic and cultural backgrounds.	3.202	0.8	11.6	54.3	33.3
12. I can identify International College practices that impacting on students from ethnic minority groups.	3.023	1.6	14.0	65.1	19.4
13. I have knowledge of other ethnic group culture.	3.039	2.3	12.4	64.3	20.9
14. I understand the meaning of racism.	3.271	3.9	7.8	45.7	42.6
15. I understand the meaning of prejudice.	3.171	5.4	9.3	48.1	37.2
16. I understand about the concept of cultural diversity sensitivity.	3.209	0.0	10.1	58.9	31.0
17. I understand the meaning of social distance.	3.194	0.0	10.1	60.5	29.5
18. I understand the differences in cultural practices	3.225	0.0	10.1	57.4	32.6
19. I am interested in the values, traditions, and culture of my friends.	3.140	0.8	14.7	54.3	30.2
20. I was able to determine the needs of my friends who are from different cultural backgrounds than myself.	2.884	0.8	24.8	59.7	14.7
21. I understand how prejudice can affect an individual.	3.101	3.9	13.2	51.9	31.0
22. I understand the feelings of someone from another ethnic group.	3.171	2.3	10.9	54.3	32.6
23. I like to work with my friends from different cultures in order to perform tasks together.	3.101	1.6	18.6	48.1	31.8
24. I am able to build positive relationship with my friends from different ethnic and culture.	3.419	0.0	6.2	45.7	48.1
25. I can apply my cultural awareness and knowledge when interacting with different cultures friends.	3.326	1.6	4.7	53.5	40.3

The gap difference of intercultural competency skills between their nationality, program, and academic year

Independent t-test and one way ANOVA analysis were used to measure these gaps. Findings of this study indicate that there is a significant difference between Thai students and international students of their intercultural competency skills in terms of identification of their friends' ethnic group (*p* = .001), different cultural practices (*p* = .036), and the impact of prejudice (*p* = .009). In addition, there is a significant difference between the different program of students on their intercultural competency skills such as impact of cultural background on their thinking and actions (*p*= 0.006), impact of different ethnic and cultural background on their learning (*p* = .007), impact of institutional practices (*p*=.010), and building positive relationship with friend from different ethnic and culture (*p*=.002). Finally there is a significant difference between the different academic year of their study on their intercultural competency skills namely ignore racist statements (*p*=.032), impact of cultural background on their thinking and actions (*p*= 0.000), concern about values, traditions, and culture of others (*p*=.004), and the impact of prejudice (*p* = .009). Table 3 indicates the inferential findings of this study.

Table 3: Inferential findings

Item	**t or F**	***p***
Between Thai and international students (t-test)		
I can identify the ethnic group of my friends.	.282 .291	.001
I understand the differences in the cultural practices of my friends and society.	.692 .823	.036
I understand how prejudice can affect an individual.	.212 .326	.009
Between different program (ANOVA)		
I understand how my cultural background affecting my thinking and actions.	3.486	.006
I have impression that all of us can learn well regardless of our ethnic and cultural background.	3.381	.007
I can identify International College practices that impacting on students from ethnic minority group.	3.147	.010
I am able to build positive relationship with my friends from different ethnic and culture.	4.158	.002
Between different academic year (ANOVA)		
I usually ignore racist statements.	3.040	.032
I understand how my cultural background affecting my thinking and actions.	24.067	.000
I am interested in the values, traditions, and culture of my friends.	4.634	.004
I understand how prejudice can affect an individual.	4.019	.009

DISCUSSION AND CONCLUSION

Researchers employed self-reported measures whereby International College students report their own intercultural competency. Providing self-reports is a complex process (Tourangeau, Rips & Rasinski., 2000) and many factors may influence the accuracy of self-reports (Dunning, Heath & Suls., 2004). Self-reports may contain substantial method variance (Campbell & Fiske, 1959), but researchers are of the view that measurement variance also reveals unique information about a person. For intercultural competence, self-reported measures may reflect a person's intercultural self-efficacy, which is consistent with the definition of self-efficacy as one's perceived capability (Bandura, 1997).

Findings indicate that International College students possess differently according to their nationality, program, and academic year. Researchers suggest that International College students should have an opportunity to reflect consciously on their intercultural skills, receive feedback on those skills, and develop a foundation of intercultural knowledge will be better prepared them to take on leadership roles in diverse group. This is because when they enter the workplace, students are often identified as potential leaders, given their training in areas such as project management and leading teams. However, to be successful leaders in a diverse workplace specifically need to acquire intercultural skills and knowledge (Chuang, 2013). These students have also become increasingly globally mobile, moving from country to country as part of their education. Even within Thailand, students are going to encounter a highly globalized workforce upon graduation.

All teaching programs in international college are suggested to enhance with intercultural competency components therefore allow graduated International College students in the future are equipped with a highly transferable set of interpersonal and facilitation skills that are sought by employers both in academia and in industry settings. Faculty educators should encourage their students to participate in intercultural competency developmental program. Faculty educators need to help students to reflect on the competencies they have gained in the training programs and articulate them to potential employers after graduation.

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Interdisciplinary Approach In Foreign Language Teaching: Use Of Video Material In Forming Cultural Competence Of International Relations Students

Natalia KUZMINYKH
Ural Federal University, Russia
kuzminykh.natalia@yandex.ru

Ksenia Tabarintseva ROMANOVA
Ural Federal University, Russia
kmromanova@mail.ru

ABSTRACT

The purpose of this paper is to describe how interdisciplinary approach, and, in particular, use of video material, can contribute to the process of formation of cultural competence, which is considered to be crucial in university students' preparation by educators and included into new state educational standards. Interdisciplinary approach in language teaching is viewed as intersection between disciplines and methods. Case study of introduction of fiction film to Italian Language Curriculum, with its results, is presented.

INTRODUCTION

The value of interdisciplinarity is widely acknowledged in modern education. UNESCO report entitled, correspondingly, "Interdisciplinarity in General Education", which dates back to 1986, defines it as "a form of co-operation between different disciplines with regard to problems whose complexity is such that they can only be apprehended through the convergence and careful combining of different points of view". Interdisciplinarity can be performed in different forms: as Interdisciplinarity of disciplines, Interdisciplinarity of concepts or as Interdisciplinarity of methods (1986, p. 9-11).

In case of foreign language, many researches (Zimnyaya, 1991) point to a seemingly "lack of object" of this discipline, for language is studied, in a first place, as a mean of communication and often becomes an instrument for discovering other fields of knowledge, related both to Humanities and Science. Thus, it becomes relevant to connect teaching of foreign language to other disciplines. Interdisciplinary approach in language learning is believed to be highly efficient as it brings to systematization of knowledge and practical skills acquired before.

This approach is found in line with current trends in modern education, i.e. the change of educational paradigm to a more individual-oriented one, when the student is expected to develop various competences crucial for his/her personal and professional growth. Thus, one of the goals in teaching foreign language is developing such language skills that are coherent with students' major, applicable for future career, useful for interpersonal and intercultural communication. In this setting cultural competence is rightfully viewed as crucial one for the correct and appropriate use of language.

This disciplines' intertwining becomes even more evident in case of students of International Relations, as the latter study History, Theory of International Relations and Foreign Languages in equal amount. Better professional competences are formed by implementing interdisciplinary approach: it is performed in terms of content (use of texts and other materials related to specific professional topics), and methods and forms of work (individual/group, class/home).

Indeed, brand new Educational Standard for International Relations (in force in Russian Federation from 2016, FGOS 3+) requires that a graduate of Bachelor program has the following general cultural competences among others: the ability to use basics of philosophical knowledge to form a worldview (1), the ability to analyze basic steps and trends of historical development (2), knowledge of the main methods, ways and means of production, storage, and processing of information; computer skills; ability to handle information on a global computer networks (5), the ability to communicate in Russian and foreign languages (orally and in writing) to meet the challenges of interpersonal and intercultural interactions (7), the ability to work in a team, being tolerant towards social, ethnic, religious and cultural differences (8).

Development of these competences is more likely to be successful due to interdisciplinary approach, i.e. using basic foreign language, set of professional disciplines, and innovative tools and teaching methods.

One of the examples of tasks aimed at interdisciplinary synthesis of a foreign language and professional training component is to view films and videos related to professional topics. Reference to watching TV and films as one of the activities aimed to develop audio-visual reception of a language learner is contained in CEFR (Common European Framework of Reference for Languages).

Interest towards visual component in teaching is not accidental: the dominance of visual culture is acknowledged in various fields. Concepts of "visual turn" and "clip thinking" are not new and have already been affirmed in philosophical and other discourses. It is not just a simple increase in visual production in terms of quantity, but of a mode of perception that is changing. Studies show the transformation of the speed of the perceptual and cognitive reactions of new generations, certifying that the time required for basic reactions decreases (e.g. Colzato, Wildenberg, 2012).

Visual space simulates all the necessary socio-cultural characteristics of society and has a great effect on the development of socio-cultural competence of students who are learning a foreign language outside the language environment.

FICTION FILM AS AN INSTRUMENT OF TEACHING

In accordance with principles of interdisciplinarity and the goals of Educational Standard it has been chosen to introduce video material to the course of Italian Language for the 3-year students of Department of International Relations in Ural Federal University (Ekaterinburg, Russia).

Italian Language Curriculum for the 6th semester covers topics connected to Italian history, from the Prehistory and Etruscans to the 20th century and current socio-political and economic situation. Huge amount of information is presented as an overview, and, in line with the Educational Standard requirements, is aimed to form the ability to analyze trends of historical development. Special attention is given to the period following the WWII and further, to the present time, out of its particular relevance to International Relations Studies.

Hence, while choosing appropriate video material the following characteristics were considered:

- language material (suitable for the 3-year students, B1-B2 CEFR);
- pertinence of the video to the topics covered in the semester (post-war Italy up to present days);
- quality of video (professionally-made, suitable for educational purposes);
- accessibility of video (whether it is available on DVD, online or in streaming).

The choice was made for the fiction film *La meglio gioventù* (*The Best of Youth*, 2003, director Marco Tullio Giordana), a 6 hours long family saga consistent with the above-mentioned requirements: in terms of language standard Italian is used, with rare inclusions of dialect words (thus, it is adequate to intermediate and upper-intermediate level); narration starts in 1966 and finishes in 2003, covering all the major events of Italian history of that period, from "economic boom" to the drastic changes in political life after 1992; the film is advised for Italian courses (Diadori, Micheli, 2010); video is available on DVD and in streaming on YouTube, thus there is an opportunity to use it in a classroom and for home assignments, as well.

Italian History Class was held once a week for two academic hours, as a part of Italian Language Curriculum, together with classes on grammar, conversation and business language course, of total amount of 8 academic hours per week.

Before the start of this course students were already familiar with some events of Italian modern and contemporary history due to other disciplines related to their major, i.e. International Relations, thus, a brief quiz was offered to verify their entrance knowledge of Italian history of 20th century. Then, an introduction to the film was made, with a reference to its director, actors, set (Rome, Turin, Florence, Sicily). After that the students were encouraged to watch the first sequence of the film and make notes about characters (their relationships, role in the story, etc). The sequence was shown in Italian with Italian subtitles to familiarize students with the way characters speak and foster comprehension of material.

During the course various types of assignments were given:

- general comprehension exercises (e.g. to watch the sequence at home/in class and make a brief/detailed retelling (oral or in writing); to make a list of main characters and write essential information about them (role in the story, description of his/her character, important dates and events related to them);

- vocabulary exercises (e.g. to watch the sequence and fill in cloze in the dialogues; to write down the words relevant to the topic (Scuola e università, Legge e giustizia, Economia etc), to find a synonym/antonym; to give a definition, etc)
- grammar exercises (e.g. gap-fill exercises, to make a list of certain grammar structures used in a sequence, etc).
-

Supplementary reading (Cernigliaro, 2008) was offered to give more detailed information about the periods showed in the film (Students' movements of 1968, Brigate Rosse, Antimafia, Corruption and Tangentopoli).

At the end of the course students had to write a 150-words essay based on one of the quotes taken from the film, and complete a final test comprising questions on the plot (true of false, to put events in chronological order), grammar exercises (based on structures revised beforehand), and a written task (a brief review).

Video turned out to be an efficient instrument for the course, and certainly increased students' motivation. Apart from learning facts about Italian history and increasing their general language competence, students had the chance to analyze verbal and non verbal behavior of Italian-speaking community. All these factors contribute to development of general cultural competence. During the final assessment and discussion the whole experience was viewed as a positive one.

CONCLUSIONS

The effectiveness of the visual representation of events and foreign language cultural artifacts is undoubtful. Modern digital technology represents a breakthrough in the production and quality of the video, and has a great potential for successful application of video in teaching and learning. Digital video does not only facilitate the perception of the material, creating visual images, but also simulates alternative learning strategies, contributes to the motivation of learners, provides authentic learning content, promotes cooperation and teamwork skills, contributes to the creative potential of students, opens up new possibilities for monitoring and evaluation of students' knowledge, contributes to the creation and strengthening of interdisciplinary relations.

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International Accreditation Of The Main Educational Program As Possibility Of Opening The New Educational Horizons

Loginova I.O., Volkova O.V.
Krasnoyarsk State Medical University
Krasnoyarsk, Russia
loginova70_70@mail.ru

Andrejeva J.V.
Krasnoyarsk State Medical University
Krasnoyarsk, Russia

Serduk T.I.
Krasnoyarsk State Medical University
Krasnoyarsk, Russia

Kononenko I.O.
Krasnoyarsk State Medical University
Krasnoyarsk, Russia

ABSTRACT

Development of education market is followed by formation of the market of services in the sphere of education quality assurance, emergence of demand for an independent external assessment of education quality. The international accreditation of the basic educational professional program gains the special importance at confirmation of graduates training level in "Clinical psychology" specialty, as this is a new branch which was created in the last three decades in Russia as a result of integration of some disciplines, adjacent, but having different history and perspective. First of all, it was formed by such fields of psychology recognized by all world psychological community as a neuropsychology and a pathological psychology, and also by corporality psychology (psychosomatics), psychology of abnormal ontogenesis, psychological correction, and health psychology created a bit later. In 2014 the basic educational program "Clinical psychology" which is being performed in Krasnoyarsk State Medical University underwent procedure of professional-public and also international accreditation. Achieving this result (in addition to other factors) became possible thanks to the collaboration developing since 2013 between Krasnoyarsk State Medical University (Russia) and Klaipeda University (Lithuania). It is possible to declare that the international accreditation procedure certifies and states the strong relations of the higher education institution as implementer of the basic educational professional program with various social institutes and the international partners, providing thereby possibility of career developing for its graduates and opening the new professional horizons for them.

INTRODUCTION

Russian education is undergoing serious changes at the moment, which find the direct reflection in activity of the educational organizations of various levels. The modern educational organizations introduce the existing mechanisms, models, techniques of quality assessment which allow developing various activities of the organization, increasing productivity and efficiency of the work. They also increase competitiveness of the educational organization that, in turn, opens the new educational horizons. Development of education market is followed by market of services formation in the sphere of education quality assurance, emergence of demand for an independent external assessment of education quality. Quality education is a competitive education, only in this case it will provide the present and the future of our country, realization of innovative economy and increase of efficiency in all spheres of human activity (Nikulina, Buyankina & Loginova, 2015).

THE PRINCIPLES AND OBJECTIVES OF INTERNATIONAL ACCREDITATION

One of mechanisms which serve increasing both quality of education and competitiveness of higher education institution is the international accreditation of the main educational professional program. The international accreditation of educational programs is carried out on the principles of voluntariness; unities of requirements at an assessment of quality and level of training of the persons who have mastered educational programs for one specialty; independence of the international accreditation from the government; objectivity and competence of experts; openness, reliability and relevance of information on procedures and results of professional and public accreditation. Results of the international accreditation are one of the elements which are considered at further assessment of educational programs and also at distribution of resources in education, an assessment of higher education institutions' efficiency within monitoring and competitiveness of higher education institutions and separate educational programs.

The purposes of the international accreditation of the main educational professional program are:
- assessment of quality and level of graduates training compliance to the requirements of the Russian and international professional standards and inquiries of labor market to experts,
- escalating the directions and tools of improvement for processes of educational program realization taking into account the best Russian and foreign educational experiences,
- formation of quality management system of education at the level of an educational program according to modern standards and the best world experiences,
- development of such feature as culture of quality among administrative and teaching stuff of the faculty,
- formation of external quality assurances of an educational program in the form of international accreditation of educational programs,
- development of international academic mobility,
- inclusion the educational programs in the international ratings.

Responsibility for quality of education was conferred on the state in our society for a long time. The new position which was lately designated declares that quality assurances of education have to be provided by educational institutions, and the independent expert organizations and professional communities have to certify quality of education. This tendency is based on the fact that the system which controls itself can't be effective (Loginova, 2012).

SCOPE OF ASSESSMENT OF INTERNATIONAL ACCREDITATION

For this reason in recent years practice of programs' accreditation on the basis of expert assessment results which is carried out by the expert organizations is arising. Such organizations provide objectivity of examinations results and seek to consider positions of all interested parties in the activity, without getting under influence of any of them, they cover a wide range of indicators, actively react to changes of economic and social situation, are guided by labor market. In Russia the Agency on Quality Control of Education and Development of Career (AQCEDC) became the first organization which has developed the criteria of an external independent assessment of education quality coordinated both with the ESG standards, and with Federal Governmental Educational Standards (FGES).

The objects of expertise assessment are as follows:
- results of training;
- education quality assurances provided by the higher education institution.

Criteria for evaluation by AQCEDC are divided into 2 groups:

1) Criteria for evaluation of training results quality:
    - the level of graduates' demand in federal and regional labor markets;
    - the level of total competences formation of the graduate;
    - satisfaction with results of training.

2) Criteria for evaluation of education quality assurances:
    - strategy and purposes of the program;
    - internal quality management system;
    - structure and contents of the program;
    - educational and methodical materials;
    - technologies and techniques of educational activity;
    - stuff of the faculty;
    - material and financial resources of the program;
    - information resources;
    - research activity;
    - participation of employers in implementation of the program;
    - participation of students in determination of the program content;
    - student's services;
    - career guidance and training of entrants.

The first block contains criteria which allow estimating actually created competences, and the second block is presented with criteria focused on assessment of systems of the administrative and educational processes, as well as different resources which allow realizing the main educational programs with a due level of quality.

These criteria are focused on achievement of two purposes:
- stimulation of universities on creation and maintenance of internal system of education quality assurances;
- confirmation of the quality level to students and their parents, employers, the state.

It should be noted that professional and public accreditation is not final action for the sake of obtaining the specific status by higher education institution. It is preceded by process of the educational activity organization in such a way that has included various social institutes sharing responsibility for training of the competitive expert by higher education institution. For example, in the State Educational Institution of Higher Professional Education "Krasnoyarsk state medical university named after professor V.F. Voyno-Yasenetsky" of the Russian Federation Health Ministry (KSMU) representatives of the employer participate in development of the main educational program, separate educational subjects and courses, act as group coachers of professional practice, participate in final state assessment. Rather big layer of joint activity with representatives of the public and professional community is developed in the extra curriculum activity: these are discussions on problems of health care, meetings with experienced professionals, professional competitions (professional Olympic Games), conferences and work-shops. It is possible to say that procedure of professional and public accreditation just certifies and states the strong relations of higher education institution as implementer of the main educational program with various social institutes, providing thereby possibility of graduates' career creation (Gavrilyuk, Tepper & Loginova, 2012).

THE EXPERIENCE OF INTERNATIONAL ACCREDITATION OF THE HIGHER EDUCATION BASIC EDUCATIONAL PROGRAMS "CLINICAL PSYCHOLOGY"

The international accreditation of the main educational professional program gains the special importance at confirmation of graduates training level in "Clinical psychology" specialty, as this is a new branch which was created in the last three decades in Russia as a result of integration of some disciplines, adjacent, but having different history and perspective. First of all, it was formed by such fields of psychology recognized by all world psychological community as a neuropsychology and a pathological psychology, and also by corporality psychology (psychosomatics), psychology of abnormal ontogenesis, psychological correction, and health psychology created a bit later.

Clinical psychology is centered on the person with soul "pains" and problems, with the difficulties of adaptation and self-realization connected with conditions of his health. Psychological diagnostics, examination, rehabilitation and correction are necessary components of modern complex measures of prevention and overcoming not only diseases, but also various conditions of disadaptation of the person. The social importance of clinical psychology is expressed also by the fact that Psychological associations of various countries of the world are presented by clinical psychologists on about 60%. Recognition of clinical psychology importance in our country is marked by the official state statement of this (still the only) field of psychology as separate independent specialty.

Today in Russia there are 65 higher educational institutions implementing in the main educational professional program "Clinical psychology", 6 of them are in Siberian Federal District:
1. Siberian state medical university (Tomsk);
2. National research university "Tomsk State University" (Tomsk);
3. Novosibirsk state medical university (Novosibirsk);
4. Altai state university (Barnaul);
5. Kemerovo state university (Kemerovo);
6. Krasnoyarsk state medical university (Krasnoyarsk).

At the regional level 1 higher education institution is presented: The Krasnoyarsk state medical university (Krasnoyarsk). Aim (mission) of the main educational professional program 37.05.01 "Clinical psychology. The specialist program" in KSMU is determined by the content, system of training and fundamental bases of education as the psychological specialty of a wide profile having inter-brunch character. Clinical psychologists participate in the solution of health care problems, national education and psychological assistance to the population. Their practical and research activities are directed to health protection, increase of mental resources and adaptation opportunities of the person, harmonization of mental development, prevention and overcoming illnesses, psychological rehabilitation. The educational program aims at development in students personal qualities as well as common cultural (universal), professional competences according to requirements of Federal Governmental Educational Standards (FGES) for this direction of education.

In 2014 the main educational program "The clinical psychology" underwent procedure of professional, public and international accreditation. The organization which is carrying out expertise - Agency on Quality Control of Education and Development of Career (AQCEDC) – is the leading independent expert organization in the sphere of professional education in Russia. AQCEDC is the expert organization for carrying out procedure of professional and public, and international accreditation of educational programs authorized by associations of employers and professional communities. The procedure of accreditation was carried out in several stages.

The first stage is preparation of **the self-inspection report** conducted by the representatives of all departments participating in implementation of this program. During preparation of the report it has been revealed that since 2010 till 2014 within strategy of development of the main educational program the following activities were carried out:

1. Creation of special conditions for implementation the main educational program on the specialty "Clinical Psychology" (curricula on internal, intramural and extramural forms of education are developed and approved, strategy of development of the main educational program is developed, it is developed and coordinated with employers and representatives of professional community, the contracts with bases of professional practice are signed, the material and technical resources: classroom fund, the laboratory, psychodiagnostic and relaxation equipment, the software, etc., are created).
2. Educational process on applied disciplines of the curriculum is removed to various places of the clinical (medical) psychologist activity: educational institutions, the centers medico-psychological- social maintenance of population, clinical bases, etc.; as they allow to fulfill the practical skills and to form professional competences. Along with educational process formation of professional competences is carried out in public work of students (there are volunteer groups on various clinical bases of the city and the psychological center of university).
3. A starting point at realization of the main educational program is emphasis not on psychology of the patient or his illness, but on psychology of health and methods, receptions of a health care and health-saving activity that corresponds to the general ideology of university which territory is declared by the territory of a healthy lifestyle. It is a natural idea for the university which is a winner of the All-Russian competition among medical schools of the country in 2012 "Higher education institution of a healthy lifestyle".
4. The unique style of teaching at faculty was developed: interactive methods of training, partner relationship between colleagues and between teachers and students, critical ideas of own competence limits, mutual support, mutual assistance and mutual aid dominate; creative atmosphere and creative installation. Dialogue forms of work, discussion during seminars; joint discussion of criteria, definitions, diagnostic inferences; role-playing games, trainings, psychotherapeutic workshops, laboratory and clinical practical works, working off of skills of communication and culture of communication are implemented and successfully tested forms of teaching.
5. Quality of the faculty stuff providing realization the main educational program (professional development, increase of PhD attestation, etc.) is improved.

The second stage **- internal visit of members of the accreditation commission** was passed on October 21-22, 2014. By results of visit, at a meeting with the rector Ivan Artyukhov, the vice rector for the international activity and innovative development Alla Salmina and the dean of Clinical psychology faculty Irina Loginova, experts have read a pre-trial detention: *"During internal visit we were convinced of a high level of specialists' training quality in the field of clinical psychology, have seen deep involvement of all subjects of educational process from the first-year students and tutors realizing the main educational program to employers".*

The third stage **- consideration of experts' reports on accreditation boards and stating the period of accreditation validity.** Following the results of quite difficult and unusual procedure of accreditation the main educational program the "Clinical psychology" realizing at the university received: the international accreditation for a period of 3 years. It is a great honor to notice that from 58 main educational programs accredited in 2014 by Agency on Quality Control of Education and Development of Career (AQCEDC), only our program "Clinical Psychology" has obtained accreditation for such long term that points to a high level of training quality of specialists in higher education institution and on guarantees of this quality which the university provides.

THE RESULTS OF INTERNATIONAL COOPERATION AS THE DISCOVERY OF NEW EDUCATIONAL HORIZONS

Achieving this result (in addition to other factors) became possible thanks to the collaboration developing since 2013 between Krasnoyarsk State Medical University (Russia) and Klaipeda University (Lithuania).

After signing the Memorandum of collaboration with Klaipeda university the directions of cooperation had been defined:

- participation of Klaipeda university staff in scientific conference "Psychological health of the person: life resource and life potential" (KSMU, Krasnoyarsk, Russia);
- discussion of organizing regulations and forms of a teleconference concerning the problem of art therapy and psychosomatic medicine;
- discussion the scope of perspective work on cooperative publications and monographs on a joint of allied branches;
- discussion of students and teachers mutual exchange organization within programs of the academic mobility;
- discussion of a potential possibility of collaboration over grant projects;
- discussion of prospects concerning the organization of lecture courses and the practical courses within the after graduate program.

What do the international accreditation of the main educational professional program and the developing international cooperation give to University and its personnel?

- formation of the effective tool of responsibility and demonstration of a education quality level to consumers (the state, entrants, students, graduates, consumers and the staff of University);
- increase of a credibility level of external and internal consumers to quality of educational services, productivity and efficiency of University;
- strengthening of image and brand of University in education market;
- increase of University graduates competitiveness in labor market;
- involvement of University staff in work on quality development in the field of educational professional services, increase of degree of employees commitment to idea of quality;
- using the international accreditation results in procedures of the state accreditation.

CONCLUSION

It is possible to declare that the international accreditation procedure certifies and states the strong relations of the higher education institution as implementer of the basic educational professional program with various social institutes and the international partners, providing thereby possibility of career developing for its graduates and opening the new professional horizons for them. Thus, development of the international cooperation and receiving the international accreditation of the main educational professional program "Clinical Psychology" at faculty of Clinical psychology of the State Educational Institution of Higher Professional Education "Krasnoyarsk state medical university named after professor V.F. Voyno-Yasenetsky" of the Russian Federation Health Ministry (KSMU) is one of the priority directions in positioning of our university in world scientific and educational community.

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Interpretations Of The Concept Of Probability: An Introduction

Paolo DI SIA
University of Padova, Lungadige Porta Vittoria 17, I-37129 Verona (Italy)
Higher Institute of Religious Science, Via Alto Adige 28, I-39100 Bolzano (Italy)
ISEM, Institute for Scientific Methodology, I-90146 Palermo (Italy)
paolo.disia@gmail.com
www.paolodisia.com

ABSTRACT

In this paper we consider important aspects characterizing the concept of probability. Starting by the historical background, we deal with the basic mathematical properties of probability, considering then the various interpretations, i.e. the classical, frequentist, preferential interpretation, the logicism and the subjectivism. Lastly interesting considerations about the birth of quantum statistics will be done. The scientific rigorous treatment allows the use of this paper as a pedagogical introduction to these interesting and important concepts.

Keywords: Probability; Mathematics; Physics; Classical Statistics; Quantum Statistics; Science; Pedagogy; History of Science; Philosophy of Science.

INTRODUCTION

The notion of probability has a quantitative nature and refers to the study, conducted with mathematical methods, of phenomena with an uncertain outcome. It is expressed through a real number running between 0 and 1; $P = 0$ means impossibility, $P = 1$ means certainty. The modern notion of probability is born in the mid-seventeenth century, with the study of French mathematicians Blaise Pascal (1623-1662) and Pierre de Fermat (1601-1665), who took inspiration from problems related to gambling for searching general principles, applicable to all phenomena governed by the case. Since then, the study of probability has rapidly grown, becoming part of the study of natural and social phenomena.

In the same period, the Dutch scientist Christiaan Huygens (1629-1695) published his treatise on probability "De ratiociniis in ludo aleae" (1657) (Huygens, 2010). With the work of Pascal, Fermat, Huygens and with the results obtained in the same years by Gottfried Wilhelm von Leibniz (1646-1716), who applied the combinatorial theory to legal problems, the study of probability received in the second half of the seventeenth century huge boost.

Important studies have been carried out by Pierre Rémond de Montmort (1678-1719), Abraham de Moivre (1667-1754), Nikolaus Bernoulli (1687-1759), Daniel Bernoulli (1700-1782), Pierre Simon de Laplace (1749-1827), Carl Friedrich Gauss (1777-1855), Siméon Denis Poisson (1781-1840), Pafnuty Lvovich Chebyshev (1821-1894), Andrei Andreyevich Markov (1856-1922), Andrei Nikolaevich Kolmogorov (1903-1987), Émile Borel (1871-1956), Francesco Cantelli (1875-1966) and many others.

Thomas Bayes (1701-1761) analyzed the "inverse probability", proving a result, which is currently known as "Bayes theorem" (Hazewinkel, 2001). It allows to assess the probability of the statistical hypothesis at the light of data provided by the experience and how to modify that, following the acquisition of new experimental data. An important school of thought, called "Bayesian school", considers today this theorem as the basis of the statistical inference. The idea that the probability could be a valuable aid to the study of man and society had great development in the nineteenth century, especially with the work of Adolphe Quetelet (1796-1874) and Francis Galton (1822-1911).

At the same time the "statistics" received great impetus; it studies in quantitative and qualitative way the phenomena under uncertain and not determinism conditions. From the study of the "average value" of a quantity, we get:

- the analysis of the "variability" of phenomena around the average values;
- the study of the "correlation" related to the strength that characterizes the links between observable phenomena;
- the study of "regression" related to the form of such links, represented by straight lines or curves of various type;

- the "tests of significance", i.e. methods for assessing how the consequences of the statistical assumptions are reflected in the experimental data, and to discard assumptions that do not hold up to the test of facts (Karl Pearson (1857-1936), Raphael Weldon (1860-1906), William Sealy Gosset (1876-1937), Ronald Aylmer Fisher (1890-1962), Egon Pearson (1895-1980), Jerzy Neyman (1894-1981) and many others) (Di Sia[a], 2013).

The probability is gradually entered in the natural sciences, penetrating into the description of physical phenomena. Among the milestones of this process we remember:

- the analysis of the random motion of pollen particles suspended in a fluid, made by the Scottish botanist Robert Brown (1773-1858) and remembered as "Brownian motion";
- the elaboration of the kinetic theory of gases;
- the "thermodynamics", particularly studied by James Clerk Maxwell (1831-1879) and Ludwig Boltzmann (1844-1906);
- the probabilistic description of Brownian motion, performed by Marian von Smoluchowski (1872-1917) and Albert Einstein (1879-1955);
- the birth of quantum mechanics with Einstein, Max Planck (1858-1947), Erwin Schrödinger (1887-1961), Louis de Broglie (1892-1987), Paul Dirac (1902-1984), Werner Heisenberg (1901-1976), Max Born (1882-1970), Niels Bohr (1885-1962) and many others.

In summary we can say that the probability is entered in contemporary science in at least three ways:

a) as an ingredient of the theory of measurement errors;

b) as a tool for the analysis of complex phenomena, which can be described using only the average values;

c) as part of the description of quantum phenomena, in accordance with the Heisenberg "uncertainty principle", which states that, at microscopic level, the result of an observation always leads to statements of probability of future events.

THE BASIC MATHEMATICAL PROPERTIES OF PROBABILITY

The mathematical properties of probability are the subject of the so-called "probability calculus"; we distinguish between "primitive probabilities", relating to simple facts, such as "tomorrow it will be sunny" or "throwing a dice, it will come out the number 5", and "complex probabilities", relating to not so simple facts, such as "tomorrow it will be sunny but not the day after tomorrow", or "throwing a dice, it it will come out the number 5 or the number 3", which are obtained by combining the primitive ones. The probability calculation shows how, starting from simple probabilities, one can calculate the complex ones.

The "classical interpretation" indicates the probability of an event E as the ratio between the number of favorable cases and the number of those "equally" possible:

$P(E)$ = real number = number of favorable cases / number of equally possible cases.

All "possible cases" constitute the "events space" Ω associated with the phenomenon of which we evaluate the probability and it is assumed that such cases are "equally possible".

We have five basic postulates of probability calculus:

1) the probability of occurrence of the impossible event is zero: $P(\emptyset) = 0$;

2) the probability of occurrence of the safe event is one: $P(\Omega) = 1$;

3) given an event E ($E \subset \Omega$), the probability that E occurs is a real number running between zero and one: $0 \leq P(E) \leq 1$;

4) the probability that an event "does not happen" is the unit less the probability that the event occurs: $P(\bar{A}) = 1 - P(A)$;

5) if two events A and B are "incompatible", the probability of occurrence of A or B is given by the sum of the probabilities of the two events:

$$P(A \cup B) = P(A) + P(B) \tag{1}$$

If two events A and B are "compatible", Eq. (1) becomes:

$$P\,(\mathrm{A} \cup \mathrm{B}) = P\,(\mathrm{A}) + P\,(\mathrm{B}) - P\,(\mathrm{A} \cap \mathrm{B}) \tag{2}$$

also called “the law of total probabilities”.

If it needs the calculation of the probability of an “event that occurred after another event”, logically or temporally linked to the first one, we say that we have a “conditioned probability” of the event A, knowing that the event B occurred:

$$P\,(\mathrm{A}|\mathrm{B}) = P\,(\mathrm{A} \cap \mathrm{B}) \,/\, P\,(\mathrm{B}) \tag{3}$$

if $P(\mathrm{B})$ is different from zero. Eq. (3) can also be written in the form:

$$P\,(\mathrm{A} \cap \mathrm{B}) = P\,(\mathrm{B}) \cdot P\,(\mathrm{A}|\mathrm{B}) = P\,(\mathrm{A}) \cdot P\,(\mathrm{B}|\mathrm{A}) \tag{4}$$

said “law of compound probabilities” (Di Sia[a], 2013).

THE CLASSICAL INTERPRETATION OF PROBABILITY

The “classical interpretation of probability” has been developed by Pierre Simon de Laplace (1749-1827); he wrote two works about it: “Théorie analytique des probabilités” (1812) and “Essai philosophique sur les probabilités” (1814) (Laplace, 2012). Laplace was a mathematician, physicist and astronomer and worked on Newtonian mechanics, based on “determinism”, according to which the laws of the world follow a causal chain, where each state is determined by the previous one and determines the next. In this path, he used also the concept of probability.

Laplace considered the probability as a vital tool for knowledge, and founded upon it the “induction” and the “analogy”, as basic methods for acquiring the knowledge. He defined the probability as “the ratio of the number of favorable cases with respect to the occurrence of an event and the number of equally possible cases”. This definition reflects his idea of probability as determined partly by knowledge and partly by ignorance; where there is no reason to differently assign the possibilities, these will be “equally” evaluated.

THE FREQUENTIST INTERPRETATION OF PROBABILITY

The frequentist theory is born in the nineteenth century with the works of Robert Leslie Ellis (1817-1859) and John Venn (1834-1923), and has received a big boost with the study of Richard von Mises (1883-1953) and Hans Reichenbach (1891-1953) (Reichenbach, 1971). This interpretation considers the probability as a characteristic of empirical phenomena, expressed through the frequency with which they present themselves to observation. Its object are therefore “repeatable phenomena”, considered through the random pattern, so unpredictable, of the series they create. From the behavior of these series, ratios of frequency are drawn, which tend to stabilize themselves increasing the number of observed cases.

The frequentist defines the probability based on those frequencies, putting the value equal to the limit to which tends the frequency of a given attribute, observed in relation to the initial sample of a series, ideally extendable to infinity. A sample is “random” when the limit values of the relative frequencies of its attributes remain unchanged in all subsequences that can be derived from it by means of place choices. In this view, therefore, the randomness plays a major role with respect to the probability, of which is both theoretical and empirical basis assumption. For the frequentism the probability applies only to phenomena that occur on a large scale, while it cannot tell on probabilities of individual events.

This marks the boundary of the frequentist setting, although undoubtedly there are large areas of natural sciences, such as the population genetics and the kinetic theory of gases, in which the probability is associated with multitude phenomena, thus raising issues of applicability. The need to ensure a broader applicability has been particularly felt by Reichenbach, who has produced a more ductile version of it, intended to be applied to only potentially infinite sequences, and which can be said “random” in relation to a restricted class of place choices.

To the individual case it is given a “weight”; the choice of the reference class must satisfy a criterion of “uniformity”, which operates according to the concept of “statistical significance”. In essence, it is required that the case is reported to the class containing the greatest possible number of similar cases. Also for Reichenbach the probability is the foundation of knowledge, especially in science, which opens to indeterminism too.

THE PROPENSIONIST INTERPRETATION OF PROBABILITY

Karl Raimund Popper (1902-1994) thought to an interpretation of probability for giving a meaning to the probabilities related to the individual case, which also are met in the new emerging physics, the quantum physics

(Popper, 2002). This is the “propensionist interpretation” of probability, which he introduced in the mid-fifties, in order to take that over the eighties. In its original formulation, the propensionist theory is configured as a variant of the frequentism, corresponding to the concept of taking as primitive not the frequency, but the probability of the result of each single experiment, considered in relation to the boundary conditions.

The probability thus configures itself as a “property of the experimental apparatus”, understood as the context in which the experiment takes place. For Popper the propensities are “physically real” as the forces. They generate frequencies, through which one can trace the propensities. The idea of propensity has assumed increasing importance in the thought of Popper, who in the last years of his life used it as the foundation of a metaphysical program for reconciling within a single framework all kinds of causal tendencies at work in the world, from microphysics to human action. The propensity theory has aroused great interest among philosophers of science. Several authors, including David Miller, Hugh Mellor, James Fetzer, Ronald Giere, Isaac Levi and Donald Gillies, have looked with favor at this interpretation, catching and modifying it in various ways.

THE LOGICIST INTERPRETATION OF PROBABILITY

According to the logical interpretation, the probability has an epistemic meaning, and is defined as a logical relationship between sentences that express a hypothesis and as a set of experimental data taken in support of this hypothesis. The most illustrious forerunner of this interpretation has been Gottfried Wilhelm Leibniz (1646-1716), followed by Bernard Bolzano (1781-1848). During the nineteenth century, the logicism took place in England with studies of George Boole (1815-1864), Stanley Jevons (1835-1882), Augustus De Morgan (1806-1871), and taken up by William Ernest Johnson (1858-1931) and John Maynard Keynes (1883-1946) (Keynes, 2007).

The probability is seen as object of the logic, considered as the science of the “rational belief”, respect to which the certainty arises as a limiting case. One of the most controversial aspects of Keynes's theory is the belief that the probabilistic relations are not always quantitatively measurable. It follows that we have probabilistic relations to which the calculus of probabilities is not appliable. Even Ludwig Wittgenstein (1889-1951) adopted in the work “Tractatus” the logicist perspective, without achieving major developments.

Waismann influenced directly Rudolf Carnap (1891-1970), author of the monumental work “Logical Foundations of Probability” (1950), where he developed an “inductive logic”, using the instruments of symbolic logic and of formal semantics. A supporter of the logical interpretation of probability has been also the geophysicist Harold Jeffreys (1891-1989), who gave birth to a probabilistic-Bayesian epistemology, which includes elements similar to the subjectivism, as the belief that the notions of “objectivity” and “reality” are ultimately based on the probability, and the idea that empirical evidence can be uncertain.

THE SUBJECTIVISM

Anticipated by William Donkin (1814-1869), the subjective interpretation has been advanced by Émile Borel (1871-1956) in stark contrast with the Keynesian theory, and became definitive with Frank Plumpton Ramsey (1903-1930) and Bruno de Finetti (1906-1985) in the second half of the twenties (Sooyoung, 2011). Ramsey laid the foundations of modern subjective conception of probability. He replaced the logical relations posed by Keynes at the base of probability with the beliefs that the subject has about the occurrence of events. He defined the probability as “subjective degree of belief”, giving a psychological, rather than logical foundation.

Then he associated to this notion of probability an operational definition that provides a measure, i.e. the degree of probability assigned by a person to an event based on the “amount” at which he would be willing to accept to bet a certain amount on its occurrence. The notion of “coherence” thus constitutes the pillar of subjectivism, ensuring their suitability as interpretation of probability. With de Finetti the subjective interpretation has been provided with a method that allows immediate applicability to statistical inference.

This method, expressed in the work “The prévision: ses lois logiques, ses sources subjectives” (1937), is the adoption of the Bayesian method, combined with the notion of “exchangeability”. Used in combination with the Bayes rule, it provides a model on how to proceed inductively, in order to make possible the interaction between subjective probability and observed frequencies. The “a priori” probabilities are assigned according to the individual's beliefs; this corresponds to a way of looking at probability that de Finetti defines “elastic”, as opposed to the attitude which he calls “rigid”, typical of the objectivist perspective.

THE BIRTH OF QUANTUM STATISTICS

In the thirty years between 1900 and 1930 great discoveries in physics led to the creation of the two pillars of modern physics: the theory of relativity of Albert Einstein and the quantum physics by many authors. With relativity we assist to the revision of the concepts of space and time; with quantum physics we discover that the energy does not vary continuously, but assumes only values that are integer multiples of an indivisible quantity, the “quantum”. The quantization of energy comes from an unresolved problem of the late nineteenth, related to the “black-body radiation” (Bogolubov & Bogolubov Jr, 2009; Di Sia, 2005; Di Sia[b], 2013; Di Sia, 2015).

Applying the laws of Maxwell of the classical electromagnetism, one obtains that the intensity of radiation emitted by a black body at a fixed temperature depends by the inverse of the fourth power of the wavelength. Wilhelm Wien (1864-1928) treated the radiation within a cavity in a similar manner to a gas of molecules and has been able to reproduce the general trend of the black-body curve, including the presence of a maximum of emission, but his theory failed in reproducing experimental data to long wavelengths. Another attempt has been made by Lord Rayleigh (1842-1919) and James Jeans (1877-1946), which considered the radiation inside a cavity as formed by a number of stationary waves. Their result well reproduced the black-body curve at long wavelengths, but failed to short wavelengths and showed no maximum of emission.

In 1900 Max Planck (1858-1947) derived a formula reproducing the observed values in the black-body spectrum. His idea was to consider the total energy of the system as a "not divisible without limit" quantity, dividing it into "energy elements" (energy "quanta"). By calculating the probability P of the process, he found a spectral distribution formula that well accorded with the experimental curves only on condition that the energy was discretized into finite "packages" of energy $\varepsilon = h\nu$, where h is a constant, historically baptized as "Planck's constant", or "quantum of action" ($h = 6{,}6261 \cdot 10^{-34}$ Js) and ν is the oscillation frequency.

In 1923 Satyendranath Bose (1894-1974) derived the Planck law with a new statistical method, only using the hypothesis of the light quantum and considering the light quanta as indistinguishable. He did something totally new with respect to the tradition of classical mechanics; thus the "Bose-Einstein" (B-E) statistics and the "Fermi-Dirac" (F-D) statistics were born. The first (B-E) determines the statistical distribution relative to energy states at thermal equilibrium of a "bosons system" (bosons are particles with integer spin); the second (F-D) determines the statistical distribution of a "fermions system" (fermions are particles with half-integer spin). The two new statistics are approximated by the Maxwell-Boltzmann statistics, where high temperature or high densities are involved (Di Sia, 2014).

CONCLUSIONS

The interpretations of probability correspond to different schools of thought, which include supporters among statisticians, scientists and philosophers. The frequentism is still a rather credited trend between statistical and natural scientists, despite the difficulties encountered in quantum physics. The propensionist interpretation is acclaimed especially among philosophers of science. The classical view seems a bit outdated, mainly because of the determinism that underlies it.

The logicism, while still counting a number of supporters, has given way to subjectivism, which enjoys considerable popularity, especially among statisticians, researchers working in human and epistemological sciences. The birth of quantum physics has brought new light on science and statistics. The concept of probability and the following statistics are and remain a useful, interesting and important field of scientific and philosophical inquiry, ranging from pure speculation to the simplest problems of phenomenological character.

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Intimate Partner Violence: Social Support And Coming Out

Garro Maria
Department of Psychological
Educational and Training Science
University of Palermo, Italy
maria.garro@unipa.it

Cirami Federica
PhD Student in European Cultural Studies
Department of Culture and Society
University of Palermo
federica.cirami@unipa.it

Elena Ayllón Alonso
Department of Social Psychology
Faculty of Psychology
University Complutense of Madrid, Campus Somosaguas
elena.ayllon@ucm.es

ABSTRACT

Violence in same sex relationships is characterized by systematic path of dominance and control, even often stigmatized by abusive and powerful behaviors; especially, in the homosexual relationships some risk factors, as the lack of balance between the couple and the threat of public outing, play fundamental role.

The relevance to identify both risk and protective factors, suggested by variable dispositions in intimate partner violence (dependence's style, violation), situational dispositions (social support homo-negativity) and factors connected to the quality and managing ability of intimate dynamics (communication, conflict, sexuality).

Some findings collected by an investigation conducted by a group of Sicilian participants (Italy) show their tendency to not have specific role, in absence of outing, in the dynamics of intimate partner conflicts. Rather, they tend to value positive aspects of the relationships, minimizing the danger of aggressive behaviors. Findings highlight the need to contrast deeply the phenomenon integrating interventions with specific actions. Especially, these actions should be addressed to social, educational, informational and political dimension, in order to fight the strong sexual discrimination in Italian area.

INTRODUCTION

Gender-based violence in heteronormative discourse has dominated researchers and interest among scholars. Particularly, violence against women predominates in epistemic understanding of culture of violence. Otherwise, there is less attention regarding violence between lesbian, gay, bisexual, transgender and queer (LGBTQ) due to limitation in determining the complex phenomenon into societies which discriminate same-sex relationships forcing them to isolation, marginalization and stigmatization. Particularly, the violence in intimate relationships is part of a systematic pattern of dominance and control, and it is often characterized by the abuse of power that produces social isolation and impoverishment of social skills, participation and freedom of action. The severity of the consequences of this relational configuration on direct victims (the partner who suffers violence, and children, if there are any) required a series of surveys on the level of knowledge of the phenomenon, of preventive interventions, of taking charge of abuser and victim, of legal protection in defense of individuals involved.

Some researchers argue that the cyclical pattern of violence supported by Walkers (1979) is still useful for understanding the development and maintenance of violent dynamics (McClennen, Summers, & Vaughn, 2002; Richards, Noret, & Rivers, 2003; McClennen, 2005). According to this model, which supposes the possibility to distinguish the role of the victim and the role of the author/authoress of violence, the cycle is divided in three stages: the first - called the phase of growth and anxiety- is one where there is a predominance of one of the two components of the couple who acts through emotional abuse and evident hostility against the rules and expectations that actually are broken. In the second stage, targeted as attacking stage, not only the severity of the attack produces results physically observable but the coping skills of the victim are reduced due to the escalation

of aggression and the fear of being abandoned. In fact, the victim becomes less able to cope with situations of risk.
Reaction caused by the manipulative behavior of the author of the violence that urges the victim to doubt about her/himself and her/him judgments of reality (*gaslighting*). In the third stage ("honeymoon") it stands out a kind of rapprochement: the executioner, playing down, apologizes to the partner promising not to be more violent. The motivation of the violent act is detected by the author in external factors (situational variables) such as stress. However, it is only a short period of quiet since, after the lag phase, another cycle of violence will start.
In particular, in same-sex couples the need to not reveal their sexual orientation or the presence of conditions that expose them to risk of coming out, impose additional stress of social isolation.

SEXUAL PREJUDICE IN ITALY

In Italy, about one million people declared her/himself homosexual or bisexual, especially among young adults of central Italy. Another two million or so said that they had experienced in their lives falling in love, having sex or sexual attraction to people of the same sex. Data shows of course only a part of LG (Lesbian and Gay) population since it is an underestimated phenomenon; serious difficulties for the coming out- that is to say, the voluntary act of revealing their homosexual identity - emerge because of social discrimination that in Italy is also present within the natural family. In fact, about 20% of the parents know the sexual orientation of their children, unlike the brothers (45.9%), the colleagues (55.7%) and especially the friends (77.4%) are in the dark about gender identity's issue (ISTAT, 2012).
Especially, homo-negativity refers to both the aversion and to the anxiety of homophobia, as well as to the range of attitudes towards homosexuality, also including the cultural components and the social roots of intolerance (Herek , 2000; Lingiardi, 2007), also it is still present among young people, not allowing the coming out (Garro, Novara, & Di Rienzo, 2013). All this despite the awareness of the Italian public opinion of the presence of homosexual people, their needs and rights are often unknown; a reality currently subject of attention by virtue of controversy concerning the possible formation of a homosexual family, which lives an absolute anomie.
These are also the reasons for which gay and lesbian couples are forced to invisibility and silence in case of possible incidents of violence within them.

VIOLENCE IN SAME-SEX RELATIONSHIP

The theme of violence in same-sex couples seems to have no mutable content by the violent dynamics in heterosexual couples. In fact, as Ristock and Timbang (2002) claimed, according to the conducted surveys among homosexual people the heterosexual paradigms of domestic violence cannot fully explain the experience of same-sex couples where partners cannot always tell who is the victim and who the perpetrator.
In fact, the power is managed depending on the interpersonal and social context in which it develops in alternately way from both partner (ibid.). Considering that discrimination, negative stereotypes and prejudices are regularly directed to anyone who is not part of a dominant cultural group, for LG people may be more difficult, compared to heterosexuals, to address violence in intimate relationships and to get the support that they need to deal with it .
Further, the mainstreaming of same-sex intimate partner violence into public discourse presents critical questions about the purpose of dominant gender paradigms such as gender categorization and sexual orientation applied to understand heterosexual intimate partner violence. Problematic results the use of heterosexual language to describe and frame homosexual reality. Few studies have stressed the relevance of differences between homosexual and heterosexual community highlighting the impact of social, political and geographic contexts. Several important studies have stressed specific abusive behaviors that reflects context of homophobia, threats to reveal the sexual identity of a partner to family, friends or workplace or threats to reveal HIV/AIDS status of a partner (Ristock and Timbang 2005). For these reasons it is important to consider contexts and spaces in which violence is experienced so as the relevant role of specific risk factors as the stigmatization of illness such HIV/AIDS, the effects of alcohol or drug use, the social isolation in rural communities, the experiences of immigration or general moving so as different structural factors that produce and reproduce inequalities and disadvantages (ibid). Recent studies have interrogated critically the concept of being "at risk" (Hiebert-Murphy, Ristock and Brownridge 2011) for violence among relationships of same-sex, so as the nature and consequences of violence in the lives of same-sex couples using a postmodernist intersectional framework in order to overtake heteronormative construction of violence concerning the understanding of nature, consequences, risk factors and protective factors (Davis, Glass 2011).
In Italy studies that examine homosexual relations are not abundant because it is an underestimated phenomenon due to sexual prejudices and gender stereotypes. As consequence, LG subjects are obligated to live in the invisibility and silence. For this reason, the research sector, relatively new, on violence in same-sex intimate relationships is often examined, as well as in international level, in master Thesis and dissertations that often are

not readily available to the public (McClennen, 2005; Rohrbaugh, 2006). From the silence escape only the members of the association Rainbow Families that since 2005 represents in Italy those who have realized their project about parenting, or who aim to create family based not on biology or on the law but on the responsibility, daily mutual commitment, so as on the respect and love (www.famigliearcobaleno.org). However, the data obtained through international investigations reveal that the phenomenon of violence in same-sex relationships seems to revolve around the balance of power, inextricably linked to socio-cultural, education, employment status and state of health partner. In addition, another risk is the possible presence of threats of homophobia – i.e. the set of feelings and negative attitudes towards homosexual characteristics in themselves and in other people - that is associated with low quality of the couple relationship and the high levels of relationship conflict (Balsam & Szymanski, 2005; Frost & Meyer, 2009). Furthermore, several aspects as guilt's experience and the hope of a change of partner violence are recurrent emotional responses elicited by the victims, both homosexuals and heterosexuals, as well as it is revealed a constant cyclical nature of the abuse, the intensification of harassment over time, the issues of power and control, social isolation and the minimization of suffered violent act (Elliott, 1996; Walsh, 1996). The possible transition from violence to abuse, or intimate terrorism (Johnson, 1995; Rohrbaugh, 2006), takes place instead in the presence of a relational model based on humiliation, control relied on shame, even on intimidation (Neilson, 2004). In fact, a partner can threaten the other to coming out, revealing to social community the sexual orientation against the own will (Corrigan & Matthews, 2003). Moreover, he/she can convince the victim that precisely because of such compulsory disclosure, he/she will lose the opportunity to receive material and psychological support by those who are unaware of his/her sexual orientation, including the original family or friends. Social isolation and the threat of "outing" are extremely powerful factors. Therefore, revealing both the personal sexual orientation and the sexual violence is equivalent to a double -*double closet*- coming out that it often provokes further isolation and psycho-physical vulnerability (McClennen, 2005).

Finally, outing instead of coming out means the voluntarily act to disclose the own homosexual identity, a necessary condition to achieve coherence between public and private identity, social and personal identity (Smart, Marasco & Baiocco, 2011). Relationships with family and friends could be irretrievably damaged if the partner's sexual orientation is revealed or announced in a hostile manner (Rohrbaugh, 2006). Generally, then the revelation of sexual orientation of a child is hardly welcomed by his/her family; It can be accepted only in the course of daily interactions through a process of adaptation. In addition, the existing resources within the family system play an unique role in producing certain developmental outcomes than others as a result of coming out. In such logic, adaptability and family cohesion, understood as the emotional bond, are protective factors (Olson, 1996). In summary a positively coming out processed by the family system can be conceptualized as a series of mutual adaptations between all members of the family and it involves: self-acceptance and affirmation by the son/daughter of his/her homosexual identity, the promotion of well-being and emotional growth of all members of the family, openness of the family system to the outside and the involvement of origin's families and the wider social context (Baiocco, Marasco, Smart, & Lonigro, 2012). Finally, the decision to leave or report the abusive partner depends often even on the possible lack of internal and external resources, on shame about the possible disclosing, the feeling of putting a bad light on the entire gay community, increasing prejudices about homosexuality (Brown, 2008). Therefore, specific attention should be paid to work on the emotions because the victims often do not appear able to react on the basis of how they feel; in fact, they spend their whole energy to understand the meaning of the violent behavior of the partner, to prevent violence and the possible isolation, thereby also minimizing the amount of violent conduct.

IPV IN LG'S RELATIONSHIPS: THE CASE OF ITALY

The analysis of the phenomenon of violence in intimate adulthood homosexual relationships, show the presence of dispositional variables (style of attachment, violence) and situational (socio-economic status, homonegative environments, perceived and received social support) and still variables associated to the quality and the management of internal dynamics (communication, conflict, sexual life), that influence the couple dynamics so as possibly decision by the victim to denounce the suffered behaviors. The possible use, in fact, of the social support network (family, friendship, or significant other) is a protective factor; an opportunity of which enjoy only those who have revealed their sexual orientation (coming out).

This is what has been shown in a preliminary analysis of the results obtained by a qualitative survey. We conducted the study on 502 subjects components of the Sicilian communities LG (185 females and 317 males; mean age = 37.96; Education = 58.4 % Bachelor's degree or higher; 67.9% coming out) that experienced, or were maintaining, or cohabiting relationship at the time of the survey (46.6% cohabiters), and actually it is currently being processed. In Italy, investigations with homosexual participants present some difficulties caused not only by the lack of validated instruments on homosexual couples, which is why one have to borrow self report questionnaires from research conducted between heterosexual couples (Coker, Smith, Thompson, McKeown, Bethea & Davis, 2002; Ridley & Feldman, 2003; Stith, Green, Smith & Ward, 2008; Goldenson, Spidel, Greaves, Dutton, 2009; Stith & McCollum, 2011), but also because of the small number of subjects to involve due to the invisibility to which the same are forced.

Italy, in fact, is a country where the negative attitude is widespread, peculiarity which explains the presence of 32% of subjects involved by us who are forced to live in invisibility because they are unable to unfold. These are also who claim to live a relationship at times violent and who are forced into silence because, having not done the coming out, they do not have a social support network. In contrast, 67.9% of the participants who completed the come out claim to have the opportunity to take advantage of a valuable support not only by friends or significant other, but rather by the family whose emotional closeness, for example, is generally more stable over time compared to that of strangers.

Furthermore, it has been possible to highlight the position of those who report the presence of violent dynamics within the intimate relationship, but that tends to enhance all the positive aspects of the report (72%). It seems that the subjects involved tended to minimize the danger of the aggressive behavior and to amplify the magnitude of the external support received especially in cases where the unveiling did not take place. Strong emotions that characterize the pair bond, in fact, urge not to end the relationship because, as some theorists claim, the emotions are most frequently and intensely experienced in the context of close relationships (see Ekman & Davidson, 1994). Lazarus, for example, states that "most emotions involve two people who are experiencing either a transient or stable interpersonal relationship of significance" (1994, p. 209). Balsam (2001) suggests that in such relationships a risk factor for the increase of severity and frequency of violence is the degree of dependence on the abuser; this, according to Peterman and Dixon (2003), makes it even more difficult for victims to end the relationship. Similarly, the anxiety and the fear of being abandoned are associated with violence (Rholes & Simpson, 1998). Consequently, it seems necessary to devote space to the profile of the personality of those involved; potential violent dynamics reside, in fact, in the sphere of the individual characteristics of the protagonists of violence (perpetrators and victims), and not only in the possibility of getting support from their families of origin or in the peculiarity of intimate relationship (McKenry, Srovich, Mason , & Mosack, 2006; Salerno & Giuliano, 2012).

However one ever-present issue in assessment of violent behavior is the absence of a “gold standard” with which compare self-report data. Even if such normative data were available, it would be difficult to draw conclusions on an individual basis regarding whether a participant has accurately reported the dynamics of couple conflict. Unlike behaviors that are directly observable, risky sexual violent behaviors are inherently private, frequently considered taboo, and with characteristics that make them inherently inaccessible to direct assessment strategies. The fact that there is no complaint that corresponds directly to frequency of violent behavior compounds the problem. There have been few studies designed to examine evidence for the validity of self-report violent behavior measures. However, methods such as comparing self-reports with partner reports and comparing self-reports of risk behavior, have been employed in several studies (Schroder, Carey, & Vanable, 2003).

CONCLUSION

The risk of experiencing violence in relationships is reduced if the communication patterns and conflict become the objects of intervention of professional’s healthcare. However, it is also useful, especially for the well-being of same-sex couples and homosexual persons, to combat the ignorance and prejudices regarding sexual orientation, integrating the individual psychological support interventions with specific and coordinated actions as social, educational and informational actions. All that in the respect of human rights with national and international legislative action. In fact, the laws, that exclude lesbian and gay people from the recognition of rights, cause stress among the interested which affects the physical and mental health of the same (Munsey, 2010).

It is clear that the IPV in homosexual relationship is a problem that must be inserted into the socio-political and cultural contexts, challenging the traditional paradigms of understanding and evaluation of the phenomenon. In this sense, it needs a research that deepens characteristics, impact and extensions of this phenomenon at the micro and macro level.

The requirement emerges for future social workers to acquire new competencies and high healthcare training to guarantee social support of ample respite to social minority groups, subjects of discrimination and stigmatization.

There is the need to get more information and education of professionals who work in this field with the specific nature of violence in same-sex couples in order to identify the role of counseling and support in dealing with victims and the offenders, in the difficult process of separation and affective emancipation.

Intimate partner violence in same-sex relationship is stigmatized deeply by homophobia, HIV and outing's threats (Craft, Serevoich, 2005). Such aspects characterize, therefore, the violence in LG's partners. It is unintelligible, therefore, how many societies generalize the problem of gender-based violence in prevention's measurements. Particularly, in Italy the campaigns about gender-based violence regard merely cases in which women suffer violence and men commit violence. As consequence, gender-based violence against men, lesbian, gay, queer and travesty remains obscured and invisible.

Moreover, it is necessary to encourage primary prevention campaigns and emotional education in order to facilitate the disclosure of homosexuals as well as the acceptance by the people significant emotionally. During the adolescent phase of the son/daughter the acceptance of the family is associated with positive health outcomes of children in terms of self-esteem, social support and general health, and it is a protective factor against depression, abuse of substance, or suicide attempts (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). All these factors are well correlated with the possibility of succumbing to violence in intimate relationships in adulthood.

In fact, violence activates more easily if it is linked to abuse of alcohol and drug, social isolation in rural communities, to immigration, to risky sexual behavior, the perception of social barriers that prevent the requests' help (Ristock, 2005; Eaton et al., 2008).

Finally, it is important to stress that "the historical legacy of Italian legislation is characterized by negation rather than repression of homosexuality. Same-sex relations, as well as homophobia, remain invisible to state regulation. The only relevant exception is legislative decree no. 216/2003 implementing Directive 2000/78/CE, where sexual orientation is mentioned as one of the grounds of discrimination. (Art.1)

Generally speaking, the Italian legal system lacks documents, statistics and case law concerning discrimination on the ground of sexual orientation. And there is no recognition of same-sex partnerships at national level and no access to adoption for same-sex couples (Art.2). And Art.3: Several LG organizations are mobilizing for the legal recognition of same-sex partnerships and against homophobia and discrimination, including speaking out against the influence of the Catholic Church in hampering new legislation on these issues (Cowi, 2009).

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Intrapsychical Factor Influence On The Rationality Of Thought

Andrea JUHÁSOVÁ
Constantin the Philosopher University in Nitra
ajuhasova@ukf.sk

ABSTRACT

The article addresses the influence of intrapsychic factors on the rationality of thought. It describes rationality in the context of its general and specified definitions, the theory of rational choice, types and historical understanding of rationality, and the role of cognitive science in researching rationality. Further on the article researches to what extent individual intrapsychic factors influence the rationality of human thought. A quantitative research looking into the influence of anxiety on the rationality of human thought forms part of the article. The existence of a correlation between anxiety and thought rationality was verified by means of STAI T-161 and REI questionnaires.

INTRODUCTION

The word "rationality" is of Latin origin and it means mental perception, interpretation. Since the oldest times, one of the most important characteristics of man is considered to be the one which speaks of man as wise, therefore rationally thinking. Thus, at the start we can say it is the utilisation of the mind. When looking more thoroughly into this concept, however, we come to realise the fact that understanding rationality is not at all simple. In the ordinary, everyday perception of the surrounding world, every one of us has surely come across this word, or rather concept. The question is, who, among us, was more deeply interested in understanding it. The expression "rationality" describes some important phenomena, but on the other hand, it is not something one could put their finger on. We were therefore interested, whether it would have helped in the understanding of rationality if we tried, for a while, to address its opposite. What is irrational behavior? Many times, we have come across the actions of humans described as irrational, imprudent, incorrect. This is exactly why we began to think about the phenomenon of irrationality while writing this article. Explaining the concept of irrationality could help us explain, or understand, the concept of rationality. While studying this concept we have quickly come to the conclusion that it is almost not in our power to find a general criteria of irrationality. We were therefore interested in what should be the expression of rationality. Apparently, it should be the accordance between human convictions and some real reasons for these convictions, and also the accordance between correct actions and the reasons for those actions. Piaček (1989) states that rationality is the way people come to conclusions when forced to reason intentionally. Be it consciously or unconsciously, they implement some rules of correct assumption. In further research, our interest turned on whether the term "rationality" had the same application in different areas. Reading diverse articles we found out that in different areas, the application of the concept differs slightly. For example, we will state that a rational decision is not always a decision of the mind, but in one of the ideal cases, is a decision that, at a given moment, is optimal in reaching a set goal or solving a given problem. How the mind looks for the correct decision and the analysis of the procedures leading to it remains a very interesting question for us.

The correctness of decisions and thus rational choice is reflected in diverse variants. Obviously, it depends on who is doing the deciding. Whether it is an economist, a politologist, or a sociologist, it is important to rememeber that this theory does not rely nor build upon how a rational individual will act in a given situation. That involves the subject of the theory of deciding itself.

We do build and rely on some of the models this theory works with. We differ between a narrow model, which concerns a simplified image of man and does not involve the motivation or values of individual people. In wide models, individual values and motivation of individuals are taken into account. In the present, the most used assumption is that the individual tries to gain the biggest fortune possible, which is then transformable into many other tangible assets. We consider it to be a big range of difference in the values in question.

(Hechter, Kanazawa, 1997), concluded in their study various verified sociological theories of rational choice in the mater of family, religion and political sociology while researching society and social mobility, racial and ethnic relationships and in medicinal sociology. If we are rational people, then according to us the correct question is whether everyone has or disposes of this characteristic equally. Does it also have the same effect? According to our experience, we discover that people have a penchant for not considering the decisions of others rational, and we also dispose of judging their way of life from a long-term point of view. From this, it stems that rationality can be ascribed to everyone, but the ways it is implemented are often different. Therefore, a simple example from everyday life emerges, where an individual can be a perfect speaker, can express the rationality of his decision in choosing the correct speeches, but is a very impractical individual while driving or managing a household. Among the most used divisions of rationality, there are theoretical, practical, scientific, and a common sense rationality. Gálik (2009) explains theoretical rationality as the one concerning mainly human convictions and assumptions. It stems mainly from logic itself, logical rules and logical consistence. With its help, people can interprete the outside reality based on their senses and the ability to percept and interprete built on them.

Practical rationality concerns the decision itself and the strategy in determining and reaching one´s life goals up to managing their own life and its meaning. It is based on the theory of decision and material human nature as in genetical equipment. The next two types of rationality, to which the author (Nosek, 2007) has dedicated a whole book, are very important and culturally established. According to the author, in scientific and common-sense rationality, the characteristic traits are the reflection on conceptual thinking and therefore also abstractness and universality. According to (Gálik, 2009) the characteristic trait of scientific rationality is the requirement of strict verification of statements. This involves a process in which we, on one hand, research and reason, and on the other hand seek or remove possible errors. Common sense rationality stems from the assumption of communication going on on a level of normal language in an everyday setting. It is important to consider that these two types of rationality overlap partially and, naturally, need each other. Nosek(2007) further states two types of rationality, understood from his analysis in relation to the previous two rationality types, those being scientific and common-sense rationality. Firstly, he states a functional type, and secondly, a type based off the experience of assembly and disassembly, the analytic-constructional type.

The research of the influence of intrapsychic factors on rational thought was brought on by the behavioristic revolution, which meant a radical intervention into the methodology of psychology, Ruisel (2000) brings attention to the fact that if the research of cognitive processes was done exclusively by measuring performance, in the personality research were dominant. In an effort toward methodological integration, many psychologists have tried to class thought as part of personality structure. Despite this, some known experts such as H.J. Eysenck refuse to accept direct relations between intelligence and personality in man. There is a lot of empirical evidence on the influence of personality functions such as anxiety, anger, aggressivity, coping strategies, extroversy and introversy, performance motivation, the concept of "me", authoritativeness and such on intelligence (Ruisel, 2000).

In our article we worked with a factor which encapsulates a long-term state of personality. We targeted the correlation between anxiety as a trait and thought rationality. We were interested in how people with a penchant for anxiety express themselves rationally in individual situations and to what extent their rationality is influenced by this factor. Anxiety shows itself as an internal tremor, an accelerated heartbeat, gut and stomach pressure, weakness of the legs, dizziness, pain and others. These symptoms are a typical, natural reaction of the body to stress. If an individual is experiencing a state of anxiety, they make an effort to lower the tension. If stress situations occur, they tend to evade them. This evasive behavior is then rationalized (excused, explained) but this has nothing to do with rationality, it is but a defensive reaction of the organism. The consequences of anxiety states can of course differ depending on the type, duration and intensity of the experienced troubles. In the article we observed how many of the chosen individuals will show a tendency toward anxiety and how this influences the rationality of their thought.

THE STUDY

The main aim of the study is the research on how intrapsychic factors influence man´s rational thought. This mater being utmostly widespread, we focused on a single intrapsychic factor, the influence of anxiety on the rationality of thought. Thus, we want to find out the correlation between experiencing a state of anxiety and the rationality of human thought, whether this correlation exists and how tight it is.

The main goal of the research was:

- To find out the influence of intrapsychic factors, sprecifically anxiety, on the rationality of thought.

The main goal was observed through the setting of partial goals, in which we focused on the following:

- to find out the presence of an influence of the intrapsychic factor of anxiety on the rationality of thought,
- to find out the difference in expressing rationality and irrationality in male and female participants,
- to find out the presence of an influence of the intrapsychic factor of anxiety on the rationality of thought in males compared to females.

In our study, we empirically verify several hypotheses:

Hypothesis 1 : *A chosen intrapsychical factor influences human rational thinking.*

Operationalization: The influence of the chosen intrapsychic factor of anxiety will be verified in a chosen observational group by means of a STAI X 2 anxiety questionnaire.

Three more hypotheses are built upon the main hypothesis,

Hypothesis 2: *Female participants show a higher degree of experiencing anxiety than male participants.*
Operationalization**:** The degree of expression of the intrapsychic factor of anxiety will be found out in this research by means of a STAI X 2 anxiety questionnaire.

Hypothesis 3: *Male participants show a higher score in expressing rationality compared to females.*
Operationalization: The degree of expressing rationality and irrationality in a chosen group of participants will be found out in this research by means of the REI rationality/irrationality questionnaire.

Hypothesis 4: *The rationality of thought in female participants is more influenced by the intrapsychic factor of anxiety compared to males.*
Operationalization: The degree of influence of the intrapsychic factor of anxiety on rationality of thought in males compared to females will be found out in our research by means of a STAI X 2 anxiety questionnaire.and the REI rationality/irrationality questionnaire.

The research was done in the Nitra department (Slovakia) in the period from the 1st of February until the 1st of April 2016. The basis was composed of 120 respondents. The selection was done based on age and gender. Determining these relevant traits, we chose a participant group aged 20 to 35, while maintaining an equal proportion of males and females.
The research sample was composed of participants in the ontogenetical period of early adulthood, this was chosen because in this period the main concerns are the solidifying of one´s identity, identification with the role of an adult, clarification of personal goals, independence in the emotional and economic spheres. We consider it a period characterizable as the willingness to take upon oneself certain tasks, full of hopes and expectations. There is also a certain dilemma between the need of liberty and independence and that of the taking on of new roles (the role of a spouse or parent). Based on this, the expectations of society are formed, and to an extent, there is increased pressure on the individuals. This period also encapsulates several milestones, as in the choice of profession, marriage, accepting the role of a parent.

In the research, the STAI T – 165 anxiety questionnaire in the X2 form was used, as well as the REI rationality/irrationality questionnaire. This questionnaire is widely accepted within the scientific community and often used in various kinds of validation studies. The REI questionnaire, apart form basic data such as gender and age, contains 40 statements describing certain situations. The participant marks the level which best fits their opinion on the statement. It is free and publicly accessible. Its size can be a minor disadvantage.
Anxiety was measured by means of the STAI T – 161 X2 questionnaire, which, under the same conditions, contains 20 more statements. It measures anxiety, trait, or the penchant for anxiety, and according to Spielberg (in Müllner, 1980) it respects the following general characteristics.

- individual differences in the tendency to perceive the world,
- the disposition to answer in a specific and predictable way,
- individual differences in expressing specific emotional states,
- positive correlation between the strength of personality, traits and the intensity of the corresponding emotional state. It asks the question, "*How do you usually feel?"*

The maximal value a participant can get in every part of the questionnaire is 80, the minimal being 20. The higher the value, the higher the degree of current anxiety. (X-2)
The authors of this questionnaire, called State-Trait Anxiety Inventory (STAI) are C. D. Spielberg, R. Gorsuch and R. Lushen.

FINDINGS

The statistical processing of the data from the research was preceded by the collection and processing the data from the corresponding questionnaires STAI T- 165 form X 2 and REI. Evaluating both questionnaires we were guided by classing individuals into corresponding norms/stens. We created so-called sten norms, processed in the form of charts. It concerned classing a number of respondents having obtained the same score. For example, a score of 39 was achieved in the STAI inventory tests by 3 women and 7 men. (see chart 1). Within the collection of the data from the anxiety questionnaire STAI X 2 the header of the chart was constituted by the achieved score 20 to 80, which it was possible to get after completing the questionnaire. Furthermore, the header is divided into male and female participants (see Chart 1).

Chart 1 The results of STAI X 2 questionnaire testing

Score STAI	females	males
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	2
37	3	0
38	3	0
39	3	7
40	2	1
41	2	2
42	1	3
43	2	5
44	4	4
45	7	5
46	3	1
47	9	6
48	4	2
49	5	4
50	1	4
51	5	2
52	3	4
53	0	1
54	1	1
55	1	1
56	0	0
57	0	1

Chart 2 REI questionnaire testing results

Score REI	females	males
10	0	0
11	0	2
12	0	3
13	1	2
14	0	0
15	1	1
16	0	2
17	2	3
18	4	6
19	2	7
20	1	5
21	1	1
22	4	3
23	3	2
24	2	0
25	1	3
26	0	3
27	1	3
28	7	2
29	3	0
30	7	0
31	3	1
32	8	2
33	0	1
34	0	1
35	3	4
36	3	3
37	4	0
38	0	0
39	0	0
40	1	0
41	1	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0

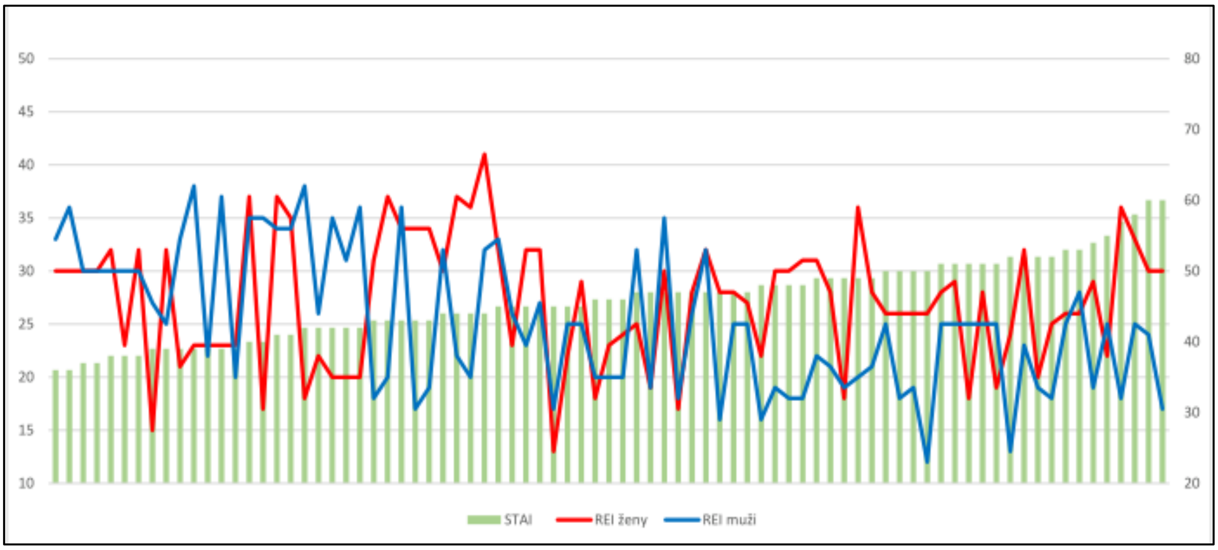
Within data collection from the REI rationality measurement questionnaire, the header of the chart was made up of obtained scores in a scope from 10 to 50, and a division of the participants into males and females, similarly to the STAI questionnaire (see Chart 2).
The research results are classed into individual parts bassed on the established hypotheses.

H 1: The chosen intrapsychic factor of anxiety significantly influences the rationality of human thought.
While verifying this hypothesis we used a quantitative method of statistical verification of the results of the REI and STAI T-165 questionnaires, illustrated in graph 1 and graph 2, called "*Gender comparation in the influence of the intrapsychic factor of anxiety on the rationality of thought."* Graph 2 is a completion of graph 1 to enhance the illustration of the researched problem. As not every value of the REI questionnaire was represented in males, or females, variables were added to the rationality values for a better visualization and understanding of the graph. These variables were calculated as the average of the closest values rounded to the nearest integer, see Chart 3. If data is modified in graph 1 a source chart will appear (Chart 3), with the added values (variables) marked in yellow. Example: In the REI questionnaire we calculated the female values as an average of the existing values stemming from the STAI X 2 questionnaire, as in (15 + 32 +21): 3 = 23 rounded. . Similarly, REI female values appear as 20 or so.

Chart 3 Source chart

REI females	REI males	STAI
15	*27*	*39*
32	25	39
21	33	39
23	38	39
23	22	39
23	37	39
23	20	39
37	35	40
18	38	42
22	26	42
20	35	42
20	31	42
20	36	42
31	18	43
37	20	43

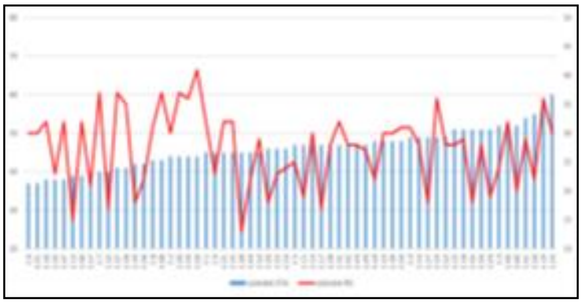
Graph 1 Comparation of the influence of anxiety on the rationality of thought – gender differences



Female – red colour
Male– blue colour

Graph 2 The influence of anxiety on rationality in females

Graph 3 The influence of anxiety on rationality in males



The results are illustrated in Graph 1, which constitutes the answer to the established hypothesis H1. We used color-code illustration, where REI questionnaire male values are depicted in blue, REI questionnaire female values are depicted in red, and STAI questionnaire values are depicted in green. On the left, the score achieved after completing the STAI questionnaire is mentioned, while the score achieved after completing the REI questionnaire is mentioned on the right. The aforementioned Graph 1 states, that as STAI X 2 values climb, thus, as anxiety levels increase, REI levels drop, which means that human rationality decreases slightly.
Based on these findings, the H1 hypothesis was confirmed, as in, the chosen intrapsychic factor of anxiety does influence the rationality of human thought. Within our research, we state that with an increased anxiety value, only a slight difference in rationality is perceptible in our chosen participant group.

H2: Female participants show a higher degree of experiencing the intrapsychic factor of anxiety than male participants.
To verify this hypothesis, again the statistical method of correlation of mutual relations was used. To explain the results of the statistical processing, we used graphs marked as Graph 2 and Graph 3. Based on comparing theses two graphs, where the anxiety curves in males (Graph 2) and females (Graph 3) are both depicted in blue, we can judge that only a really small difference occurs in expressing anxiety between males and females. The comparation of Graph 2 and Graph 3 shows that in females, anxiety was expressed to a higher degree than in males. We can say, though, that the difference is not evident, only small, as it can be seen in Graphs 2 and 3. The established H2 hypothesis was, therefore, also confirmed, even if we had expected more evident differences in the found values of experiencing states of anxiety between genders.

H3: Male participants show a higher score in expressing rationality in comparison to female participants.
Values obtained after filling out the REI questionnaire by our chosen participant group were used as data to elaborate the statistics to our research. These values can be seen illustrated by Graph 3. The climbing curve of anxiety expression in all participants is depicted in green. The values stemming from the REI rationality measurement questionnaire evaluation are depicted in red for females and in blue for males. From the aforementioned Graph 1, or a comparison between Graphs 2 and 3 we can see that women, in our research, have reached higher values speaking of the rationality of their thought than males. We can therefore conclude that based on the research, our claim was rebutted and, therefore, the hypothesis was not confirmed.

H4: The rationality of thought in female participants is influenced by the intrapsychic factor of anxiety to a higher degree compared to male participants.
In Graph 1, it appears that in a low anxiety expression, no evident difference in rationality expression occurs between genders. As the anxiety expression value rises, though, one can see a minor difference in rationality expression in men compared to women. It has shown that our prediction was false, and that, with rising anxiety, female participants show higher values of thought rationality expression that males. The curve depicted in blue, showing the values of the degree of thought rationality in men, as stemming from the REI questionnaire evaluation, has a tendency to drop as anxiety levels climb. This means a decrease of rationality of thought has shown. We therefore state that in male participants, the influence of the chosen intrapsychic factor of anxiety on the rationality of thought has showed to a higher degree in males than it has in females. Our hypothesis was therefore not confirmed (See Graph 1).
It stems from the research that the intrapsychic factor of anxiety influences the rationality of human thought. Only minor differences have shown in experiencing anxiety between genders. Female participants show higher values of experiencing the influence of anxiety than male participants. The paradox is, that in our chosen research sample the males show a lowered expression of rationality while experiencing a state of anxiety than

female participants do. We could state that within the comparison of the influence of the chosen intrapsychical factor between genders, the rationality of thought is influenced by anxiety to a higher degree in males.

CONCLUSIONS

The goal of our article was to find out how an intrapsychical factor, specifically anxiety, can influence the decision-making style and thus the rationality of human thought. We looked into how and to what extent anxiety influences the rationality of human thought. We put an effort into verifying whether there is a relation between these variables and how tight it is. We measured the occurrence of anxiety and degree of rationality on an individual, while also comparing these phenomena between genders. The principle of our research was to put values obtained from the anxiety measurement questionnaire and the ones obtained from the rationality measurement questionnaire into correlation. Spielberg (1970) predicts that anxiety influences performance more than anxiety as a trait, which practically means this variable is better suited for observing processes than general anxiety as a trait. There is much proof in literature of the validity of the STAI scales. In our conditions, many studies have been carried out, which prove the validity of the theoretical model of measuring anxiety as a trait, as well as the utility of the STAI diagnostical method. Ruisel and coll. (2013) states several examples of mutual correlation from various authors having dealt with this relation. Diverse participant groups were tested (students, blue collar workers, medics, doctors, managers). In our research we aimed for a balanced, homogenous participation of males and females, while we wished to observe the general influence on the rationality of thought in all participants but also the differences among them in the ontogenetical period of early adulthood. We were not concerned with researching a certain social group, or work position, but with observing the general influence and differences between genders. Ruisel and coll. (1978) found that females are more sensitive to the occurrence of situational influence and therefore, are more anxious than males. The overall score in males, though, was significantly lower than expected. Moffit and Sanger (in Ruisel, 2005) ascribed the higher anxiety in females to existing cultural stereotypes. We, in our research, also expected a higher expression of anxiety in female participants. The influence of anxiety and the difference in it between genders was investigated by means of the correlation with the REI questionnaire inventory. The rational-experimental inventory (REI) is often used in relation to other questionnaires. For example, the relation to pathological gambling machine use, looked into by the authors Maclaren, Fugelsang, Harrigan and Dixon (2012). Based on the results, the authors state that REI cannot differentiate among three researched groups. In practice, this means that riskless, moderately risky, and problem groups of gambling machine users are approximately equally rational. Thus, the cognitive style plays no significant part in relation to pathological gambling. In Slovakia, this questionnaire was looked into by various authors regarding diverse relations, for example Pilárik and Sarmány-Schuller (2011). The authors used factor and regressive analysis. Slyšková and Pilárik (2010) researched the relation of the REI questionnaire and Iowa Gambling Task on managers and social workers. Based on their results, we can state that their prediction of a higher degree of intuitive solving in managers was confirmed. Regarding the beneficiality of the solution, there were no differences between rational and experiential (experienciálnymi) participants. Sirota, Juanchich, Hangmayer (2013) was another Slovak author who researched the correlation of the REI questionnaire while comparing the correctness of Bayes task solving on a sample of 160 participants together with the EPI and AOM inventories. Sirota has shown that the REI, or more specifically its higher score in the rational subscale, increases the successfulness of the solutions. To conclude, we specify that REI is one of the oldest questionnaires that measures rationality, which is why we can find sufficient research to back it up. Newstead and colleagues (2004) state, that the REI questionnaire – rational scale predominantly measures motivation and the effort to logically solve problems and tasks , or the thought process of the solution, than the real ability to think rationally.

Hanák, Ballová – Mikušková, Čavojová (2013) researched the successfulness of the CRT reflexive logic as linked to the REI inventory. The authors´prediction was, that the respondents who mark themselves as rational, would be more successful in solving the task. They did not, however, find any difference concerning the successfulness of the solution. The goal of our discussinon is to bring and describe the results of research, where the cognitive style measured by the REI questionnaire was looked into, as well as its predictive validity. It is possible to state that the REI questionnaire cannot predict reaction speed – reaction time, if it is the only variable researched (Sobyra, 2010).

Our research offers results showing that human rationality is influenced by the intrapsychic factor of anxiety. The substance of our findings stems from the fact that with a growing expression of anxiety, thus reaching a higher score in the STAI inventory, the value, or score achieved in the REI inventory drops. The rationality of thought, finally, is vulnerable to being affected by the relations of intrapsychic factors, in our case, anxiety. Within the research, we anticipated that in male participants, rational thought is less affected by anxiety than in female participants. Our predictions have, however, not been confirmed, and we came to find out that the rationality of thought in male participants is affected to a higher degree by this factor than the rationality of thought in females.

Note that our research was carried out within the Nitra department, where we deliberately chose participants based on their age and gender. To increase the validity of the results of our research, a wider data collection with a countrywide scope is planned for the future.
Within the application for further research, we recommend to verify the relation of anxiety to the REI inventory, or some other intrapsychic factor with this inventory within a more specific participant group. The thematical aim of the research offers possibilities for further questions, which could be beneficial in practice and could involve the areas of human rationality and irrationality and researching their relations and links to mental phenomena and processes through the test material inventories.

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Investigating Preschool Teachers' Use Of Information Technologies In Terms Of Special Field Competences

Fatma Elif KILINC
Sağlık Bilimleri Fakültesi
Yıldırım Beyazıt Üniversitesi, Türkiye
fekilinc@ybu.edu.tr

Guluzar Sule TEPETAS CENGIZ
Sağlık Hizmetleri Meslek Yüksek Okulu
Abant Izzet Baysal Üniversitesi, Türkiye
suletepetas@ibu.edu.tr

ABSTRACT

The study examined "development of awareness about daily use of information technologies" under "Communication" competence field included in Special Field Competences for Preschool Teachers employed in preschools and nurseries. Study group was composed of 107 preschool teachers working in Bolu province. Data were collected with the help of personal information form developed by the researchers and the question form that includes A1 and A2 level performance indicators related to "development of awareness about daily use of information technologies" in the field of Communication Competence. Percentage frequency distributions and one way variance analysis were used in data analysis. Results showed that technological tool use of participating teachers did not differ based on age or seniority, 81,3% of the teachers used social media and 94,4% utilized information technologies in learning environments.

Keywords: *Preschool teacher competences, special field competences, information technologies.*

INTRODUCTION

Preschool is a crucial period in which the foundations of development are laid and basic information and skills are gained (Berrueta-Clement, Schweinhart and Barnet, 1984; Cotton and Conklin 1989; Schweinhart and Weikart, 1980). In addition to influencing the future, the knowledge, skills and habits obtained via experiences in early years will help children grow to be constructive, productive, independent and self expressive (Aral et. al., 2002; Oktay, 1999; Yavuzer, 1999). The quality of education that will be provided to children during this period is very important (Early and Winton, 2001; Shonkoff and Phillips, 2000). Effective programs and well equipped teachers are imperative for the success of preschool education since teachers are the fundamental elements in guiding the process (Şişman and Acat, 2003) (Saracho and Spodek, 2007). Today, teacher qualities have been changing due to advances brought by the information technology (Early and Winton, 2001; Saracho and Spodek, 2007). MoNE has developed "General Teaching Competences" and "Special Field Competences" that include information, skills and attitudes that active and candidate teachers and preschool and primary school teachers should have respectively. Preschool Teacher Special Field Competences prepared in this context have performance indicators composed of 19 competences and 3 levels in a total of 7 fields (MoNE, 2008).

This study aimed to examine "development of awareness about daily use of information technologies" under "Communication" competence field included in Special Field Competences for teachers employed in preschools and nurseries

METHODOLOGY

1. MODEL AND SAMPLE OF THE STUDY

This study was carried out as a survey study with a quantitative design. Study group of the study was composed of 107 preschool teachers employed in Bolu province. All participating teachers were females, 9,3% were 25 or younger, 18,7% were 26-30 years old, 29% were 31-35 years old, 26,2'% were 36-40 years old and 16,8% were 41 or older. In terms of professional experience, it was observed that 22,4% of the participating teachers had 1-5 years, 37,4% had 6-10 years, 15% had 11-15 years, 12,1% had 16-20 years and 13,1% had 21 year or higher seniority.

2. DATA COLLECTION INSTRUMENTS

Data were collected with the help of personal information form developed by the researchers and the question form that includes A1 and A2 level performance indicators related to "development of awareness about daily use of information technologies" in the field of Communication Competence.

3. DATA ANALYSIS

IBM SPSS 22 package program was used in data analysis. Percentage frequency distributions and one way variance analysis were used in data analysis. Content analysis method was utilized in analyzing the responses provided for open-ended questions.

FINDINGS

Findings of the study that sought whether preschool teachers had the competence for “development of awareness about daily use of information technologies” under “Communication” competence field included in Special Field Competences for teachers employed in preschools and nurseries are presented below:

Table 1: Frequency Distributions for the Items Related to Teachers’ Use of Information Technologies

		N	%
Is there an easily accessible internet connection at school?	**Yes**	103	96,3
	No	4	3,7
	Total	107	100,0
Do you have Internet connection (at home)?	**Yes**	105	98,1
	No	2	1,9
	Total	107	100,0
Do you have an e-mail address?	**Yes**	102	95,3
	No	5	4,7
	Total	107	100,0
Do you have a social media account?	**Yes**	87	81,3
	No	20	18,7
	Total	107	100,0
Do you use information technologies in classroom environment?	**Yes**	101	94,4
	No	6	5,6
	Total	107	100,0
Do you have your students use information technologies in the teaching-learning process?	**Yes**	54	50,5
	No	53	49,5
	Total	107	100,0
Do you share your activities, and classroom photos or videos on social media?	**Yes**	23	21,5
	No	84	78,5
	Total	107	100,0

Table 1 shows that almost all the participating teachers had access to internet connection at school and in private life/at home and a great majority of teachers had e-mail addresses. Frequency of e-mail use shows that 56,1% used e-mail every day, 22,4% once a week and 18,7% once a month. In terms of having social media accounts, 81i3% of the participating teachers were found to have social media accounts. When teachers’ social media use was investigated in terms of web pages or blogs that contribute to professional or personal development, it was observed that teachers mostly preferred web pages or blogs focusing on preschool. In terms of using information technologies in classroom environment, 94,4% of the teachers were observed to utilize information technologies in classroom environment. Taylor and Todd (1995) investigated the use of information technologies by teachers and found that the majority of teachers utilized information technologies in classroom environment. In their study conducted on preschool, primary school and secondary school teachers, Giorgetti and Antonietti (2006) reported that teachers acknowledged the fact that use of multimedia provide important educational opportunities. Examining the tools used in learning environments shows that 53, 3% of the participating teachers used computers and projections, 28% used only computers, 6,5% used computers and smart boards and 2,8% used only smart boards. The study conducted by Gök, Turan and Oyman (2011) presented that effective use of information technologies have positive contributions to student interest and attention and ensures permanence in learning.

The question related to whether teachers have students use technology in the teaching-learning process provides the findings that 50,5% of the teachers let their students use technology whereas 49,5% did not provide opportunities for technology use in the teaching-learning process, It was found that teachers who let their students use technology in the classroom environment preferred the use of computers in general and a large majority had their students use assessment-evaluation technique (elektroy). Teachers who had their students use computers; projections and smart boards stated that they let their students turn the computers on and off. In their study, Kök, Çiftçi and Ayık (2011) identified that means of the items included in the field of “communication” included in preschool teacher candidates’ special field competences pointed to high means in the following items: “uses information technologies in learning environments” and “provides children with opportunities to get to know information technologies1.

Responses provided to the question related to whether teachers shared their activities of records such as classroom photos or videos on social media show that 78,5% of the teachers never shared their activities of records such as classroom photos or videos on social media due to ethical issues and 21,5% shared their activities of records such as classroom photos or videos on social media with parental permission and in classroom groups. Zywica’s (2013) study to identify the use of social media as a tool of communication between preschoolers and families shows that use of social media establishes a bond between the school and home.

Table 2: Teachers’ Use of Technological Tools Based on Age

Source of Variance	Sum of Squares	sd	Mean squares	F	p
Between groups	62,636	4	15,659	,832	,508
Within groups	1920,336	102	18,827		
Total	1982,972	106			

Table 3: Teachers’ Use of Technological Tools Based on Seniority

Source of Variance	Sum of Squares	sd	Mean squares	F	p
Between groups	51,849	4	12,962	,685	,604
Within groups	1931,122	102	18,933		
Total	1982,972	106			

Table 2 and 3 present no significant differences in teachers’ use of technological tools based on age and variable. In his study, Dursun (2013) examined information technologies teachers’ special field competences and identified that teacher scores related to their won competences did not present any statistically significant differences. When the technological tools used by preschool teachers were examined, it was found that 17,8% of the teachers used only smart phones, 23,4% used only computers, 19,6% used smart phones and computers and 37,3% used smart phones, computers and tablets.

Assessment of teacher responses provided to open-ended questions:

Responses to the question ***“In your opinion, which pages/blogs/users in the social media contribute to your professional and personal development***?” show that preschool teachers mostly used the *web sites related to preschool* followed by *pinterest, instagram and pages geared towards personal development.*

Responses to the question ***“Do you believe technology use is beneficial in the teaching-learning process? Why?”*** show that while almost all the participating preschool teachers believe that use of technology ensures useful and permanent learning, they have a limited repertoire of tools (computers and projections).

Teachers stated that they found technology use beneficial because;

- It is easier to attract student attention via technology
- Technology is an easily accessible tool
- It allows instant access to information and makes it easy to share it
- It integrates sense of vision with sense of hearing in the learning process
- It makes learning more permanent with the use of visuals
- It prevents waste of time in the classroom by making it possible to have access to examples faster

CONCLUSIONS

As a result of the study, it was concluded that preschool teachers did not have any problems related to technological awareness about using technological tools and equipment. It was identified that teachers were not influenced by variables such as age and seniority in terms of technology use and they could use technology regardless of age. It was also found that teachers followed web pages or social media outlets related to personal development. However, it is interesting to note that while all the teachers found the use of technology beneficial in the learning-teaching process, they only let their students use technology by having them turn the technological tools on and off. This fact shows that preschool teachers have trouble integrating information technologies in the teaching-learning process. Although it is rather hard to use technology in a relevant and accurate manner in educational environments, it is crucial to use technological tools and equipment in preschool education. Today, using various technological tools such as computers, TVs, projections, smart boards, cameras and printers in educational programs of state or private preschool institutions for different activities and purposes is crucial and requires special efforts. Suggestions based on study findings are summarized below:

- Programs should be developed to enhance preschool teachers' use of information technologies
- Teachers should be provided with applied training on how to use technology in the daily flow of educational activities
- Good practices related to use of information technologies in the country and abroad should be presented to preschool teachers
- Fairs should be organized to display new software that can be used by preschool teachers and incentives should be provided for preschool teachers to participate in these fairs.
- Sample guides should be developed and prepared to explain the use of computational technological tools and equipment in line with age appropriate and developmentally appropriate practices as well as their use for preschool purposes
- Use of information technologies as a leisure time tool should be prevented; teachers should be supported with good practice cases.

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Investigating The Anatomy Education Self-Efficacy Beliefs Of The Students Of Biomedical Instrumnet Technology Program

Tuncay ÇOLAK
Kocaeli University School of Medicine Anatomy Department
tuncayc@kocaeli.edu.tr

İsmail SİVRİ
Kocaeli University School of Medicine Anatomy Department
ismailsivri@gmail.com

Mehmet Deniz YENER
Kocaeli University School of Medicine Anatomy Department
m.denizyener@hotmail.com

Dilşad GÜZELORDU
Kocaeli University School of Medicine Anatomy Department
dilsat.guzelordu@kocaeli.edu.tr

Rabia TASDEMİR
Kocaeli University School of Medicine Anatomy Department
rabiatsdmr@gmail.com

Elif AKSU
Kocaeli University School of Medicine Anatomy Department
elifaksu84@hotmail.com

Belgin BAMAÇ
Kocaeli University School of Medicine Anatomy Department
bbamac@hotmail.com

Serap ÇOLAK
Kocaeli University, School of Physical Education and Sports
srpclk@gmail.com

ABSTRACT

The Biomedical instrument technology program (BITP) is a department that trains the people who implements the montage, the preventive maintanance and the innovations of the medical instruments that are used for diagnose and treatment (Magnetic Resonance, Computed Tomography, Ultrasonography, X-ray, Positron Emission Tomography-Computed Tomography). The anatomy underlies at the base of the imaging methods of these instruments. Because, the anatomical structures are investigated with these instruments. The objective at this study is exploring the self-efficacy beliefs about Anatomy education ıf the students in the Biomedical Instrument Technology.

50 male (mean of the age is 19,9184 ± 1,18738) and 7 female (mean of the age is 19,57143 ± 1,13389) attended to our study. The information gathering surveys(gender, age, the regio he/she came from and the place he/she resides) and the scale of Anatomy self-efficacy belief (ASEB) are applied to these students. The scale of Anatomy self-efficacy belief is found 47.933 ± 6,34827 over 75.

The relation between the information gathering survey data and Anatomy self-efficacy belief levels is also explored. It is explored that there is statistically no significant difference in gender, inhabitance and the region he/she came from with Anatomy self-efficacy belief ($p>0,05$). When we group the ages of the students we find out that there is a noteable difference between the groups' ASEB ($p<0.05$).

The Anatomy knowledge of the students of the Biomedical Instrument Technology Program takes an important place on their occupational success. Because, they must know how the instrument monitorizes what anatomical structure for recognizing the instrument.

Keywords: Biomedical, instrument, Anatomy, self-efficacy

INTRODUCTION

The Anatomy is a basic lecture that educates under graduate and associate graduate students in Health field. The basic purpose of the universities that educate in Health Sciences is producting the humans' health and providing their health to get beter during their lives(Acar,2016, Buyukmumcu,2013, Edinburgh Decleration,1988). Biomedical Instrument Technology Program(BITP) is an inter-diciplinary technology department that is essentially associated with the producting, working and maintenance of all of the matherials accessories, instruments with the purpose of the diagnosis and treatment(Wikipedia,2015). BITP is a department that brings up the employees who do the montage, productive maintenance of the instruments(Magnetic Resonance, Computerized Tomography, Ultrasonography, Direct Graphy, Positron Emition Tomogrraphy) that are used in Health field with the purpose of diagnosis and treatment and makes innovations on them. The aim of all of these imaging methods is an anatomic structure. The technicians who graduates from BITP are interested in production, maintenance and repairment of these instruments whose aims are anatomic structure. In this regard, the students of BITP must comprehend the anatomy of human well for being successful in their field.

Firstly Bandura (1977) described the self-efficacy. He described the self-efficacy term as a talent that a human is able to cope with his/her life or his/her encountered problems. There are many studies that use the self-efficacy term evaluating the levels of self-efficacy on various occupation groups or the students in education(Acar,2016, Tasdemir,2015, Colak,2013, Akkoyunlu,2003). BITP students' Anatomy Self-Efficacy Beliefs(ASEB) will be able to provide recognising the instruments in their department in hospitals they will work. There are also some studies using Anatomy Self-Efficacy Beliefs education methodology of the departments that train in Health field(Acar,2016, Tasdemir,2015, Lok,2009, Zimmerman,1999). It is investigated that which models will be applied in these models which methods will be used for projected level in departments associated with Health in universities(Acar,2016, Colak,2014, Buyukmumcu,2013, Akpinar,2004, Nkanginieme,2001).

Determining ASEBs listening the words of BITP students and evaluating the Anatomy education by the students are aimed. Especially, in the developed countries, the term of biotechnology is repeatedly manifested for Health by biotechnological techniques. BITP students' Anatomy knowledge is proportional with their recognising of the instruments that are used in diagnose and treatment. The aim in our study is determining the Anatomy education self-efficacy beliefs that take an important place in BITP students' vocational lifes and comparing with their demographical properties.

MATHERIAL AND METHOD

Our study group consists of 60 BITP students (the mean of 50 male is 19.92±1.19 and the mean of 7 female is 19.57±1.13) whose mean of ages is 19.88±1.176. 3 students don't fill in the gender blank.

Data Collection

Resource data source is data collection survey and ASEB scale(Tasdemir,2015). The grades of the students are provided from their lecturer. The reliability of a survey is associated with a)consistency b)repeatable c)balancing of the evaluation (Erdogan,1998). Within this context, the topics related to self-efficacies are created clause by clause. These are presented to the experts' opinions. They are wanted to evaluate the topics in terms of expediency. The scale whose content validity is provided by the experts' opinions is called ASEB scale is made ready for applying.

Data Collection Survey

The students' ages, genders, anatomy grades, geographic regions and living places are obtained from this survey.

Anatomy Self-Efficacy Belief Scale

This scale is a researchers' preparing survey that consists of 15 topics and evaluates the participants' anatomy self-efficacies. Each question in the survey is ranked 1 to 5(1:never, 2:some, 3: partially, 4: usually, 5: everytime)

Statistical Analysis

The data are analysed by SPSS package program(SPSS for Windows 22, SPSS, Chicago, IL, USA). The means and Standard deviations of all parameters are calculated. Different groups are determined by ages and geographic locations. Non-parametric tests(Mann-Whitney U test and Kruskal Wallis test) are used for whether the differences are exist between these groups. The p value that is lower than 0.05 is accepted as significant.

FINDINGS

Table 1: BITP students' geographic regions they came from

Regions	Percentage	ASEB (mean)	Score(mean)
Marmara	65	48,103 ± 6,274 (n:39)	66,241 ± 18,772 (n:29)
Black Sea	23,3	47,143 ± 6,927 (n:14)	69,750 ± 23,224 (n:8)
Agea	-	-	-
Mediterranean	3,3	50 ± 2,828 (n:2)	55,000 (n:1)
East Anatolia	1,7	42 (n:1)	90 (n:1)
South-East Anatolia	1,7	47 (n:1)	-
Central Anatolia	1,7	43 (n:1)	-
Unknown*	3,3	54 ± 9,899 (n:2)	-

*The students left blank the region in the survey. 2 students left blank the region in the survey. There is no participation from Agean. 10 of 39 students from the Marmara Region, 6 of 14 students from the Black Sea Region, 1 of 2 students from Mediterranean Region, all of the students from Central Anatolia and South-East Anatolia and the students who left blank the regions in the survey didn't state their scores. The numbers of the students from Central Anatolia, East Anatolia and South-East Anatolia are one. Therefore, it isn't calculated Standard deviation for the students who came from these regions.

Table 2: The relationship between the geographic locations and ASEBs of students with Wilcoxon test(p<0.05 is accepted as significant.). The geographical locations are classified by Marmara and the others.

Questions	ASEB mean (Marmara Region)	ASEB mean (other regions)	p value
1	4,23±0,9	4,05±1,08	0,593
2	3,51±0,82	3,26±0,81	0,243
3	3,18±0,94	3,00±1,05	0,407
4	3,26±1	3,37±1,07	0,737
5	2,55±1,11	2,68±1,16	0,694
6	2,72±0,97	2,63±1,01	0,812
7	2,85±1,09	3,05±1,35	0,596
8	3,16±1,09	3,00±1,15	0,712
9	3,59±1,19	3,58±1,17	0,850
10	2,74±0,79	2,63±0,83	0,667
11	2,69±1,08	2,79±0,98	0,671
12	4,24±0,95	3,94±1,11	0,350
13	3,37±0,97	3,22±0,94	0,517
14	3,46±1,1	3,42±1,07	0,782
15	3,23±1,22	2,68±1,11	0,077
Total	48,1±6,27 (n:39)	46,95±6,2 (n:19)	0,46

(1: It makes me happy when I learn new things about Anatomy. 2: I try to solve problems that I encounter while learning Anatomy ownself. 3: I think it's easy to study the lecture of Anatomy. 4: I slog on when I need to learn something new about Anatomy 5: Being obliged to use Anatomy knowledge related to my job put me into trouble. 6: When I use my knowledge of Anatomy I usually have a trouble. 7: Anatomy is an over-complicated lecture for me. 8: As it is unneccessary I don't use my knowledge of Anatomy. 9: I believe that I am more successful by learning Anatomy. 10: I believe that I have a good knowledge of Anatomy. 11: I feel panic if I have a problem when learning Anatomy. 12: I believe that everyone who is eager can learn Anatomy. 13: I believe that I have knowledge of Anatomy that meets my needs. 14: I want help from someone if I have a problem when learning Anatomy. 15: I am scared of making irreparable mistakes on behalf of the lack of Anatomy knowledge) ASEB(Created from participants' answers to the questions in the survey.)

Table 3: The relationship between scores and ages (Ages of the students are groupped into two groups as 20≥ and >20). As for Mann Whitney U if p<0.05 there is significant difference between these groups.

	20≥ Age	**Age>20**	**p value**
ASEB (n:56)	48,48 ± 5,78(n:46)	44,4±5,54(n:10)	**0,047**
Score (n:39)	67,09 ± 20,12 (n:33)	68,33± 16,93(n:6)	0,845

4 students didn't state their ages in the survey. 21 students didn't state their scores in the survey.

Table 4: The relationship between the residences and ASEB.

	Percentage (%)	**ASEB**	**p value**
Dormitory	15	48,44 ± 6,37 (n:9)	0.535
Home	81,6	47,59 ± 6,25 (n:49)	

This table is created from Kruskal-Wallis test on the independent samples (2 students didn't state their residences.)

Tablo 5: The relationship between gender and ASEB

Gender	**Percentage**	**ASEB**	**p value**
Male	83,3	48,1 ± 6,14 (n:50)	0.835
Female	11,6	46,86 ± 5,49 (n:7)	

It is calculated with Kruskal-Wallis test on independent samples.(3 students don't fill the gender blank in the survey)

DISCUSSION

When the gender, residences and the regions are scrutinized; it's seen that they haven't significant effects on ASEB levels. Although the ASEB levels of men are higher than that of women, there isn't a significant difference between them.(p>0.05) When the regions are investigated, the students who left blank have the highest ASEB levels. The second ASEB levels are from the Mediterranean and the third are from the Marmara Region. However, there isn't any significant difference between them(p>0.05). When we explore the residences, the ASEB levels of the students who stay at dormitories are higher than that of the students who stay at home. Nevertheless, there isn't a significant difference.

The other parameter on the survey is the age. We classify the ages of students in two groups. The one is equal with 20 or higher than 20. The other is lower than 20. Statistically, the ASEB levels of the students who are twenty years old or older than twenty are higher than the other group(p<0.05). There are also many studies on the effects of the age on self-efficacy. Uysal I and Kosemen S (2013) investigated 117 prospective teachers' general self-efficacies in their study. However they didn't find a significant difference between the different age groups. Kaya Z (2016) also explored 30 students from Music Education Department. Kaya Z (2016) didn't find the significant difference between the ages and the self-efficacies. However, in our study we find that there is a significant difference between the ages and ASEB levels.

The Anatomy success levels at the faculties and colleges that are related to health, will provide the technicians to perform their work efficiently by recognising the human body well. We explore the BITP students' Anatomy self-efficacy levels to specify their Anatomy knowledge in our study. We find that the age of a student is able to effect success levels of not only Anatomy, but also the others.

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Investigating The Attıtudes Of Pre-Service Psychological Counseling And Guidance Teachers Towards The Preparation Process Of Individualized Educational Program

Tamer AYDEMİR
Pamukkale University, Education Faculty, Turkey
taydemir@pau.edu.tr

Tolga COŞGUNER
Pamukkale University, Education Faculty, Turkey
tcosguner@pau.edu.tr

ABSTRACT

The basic way in the education to meet the needs of students with special needs in academic, social and self-care skill areas is preparing a functional individualized education program (IEP). Preparing the program by the IEP Team in the school has become mandatory in 63. article of The Special Education Services Regulation. Psychological Counseling And Guidanceteachers are one of the most important part of this team for a functional IEP for students, providing the organization in terms of guidance and meeting the needs of students' parents.
In this context, the purpose of this study is investigating the attidutes 4th grade of the psychological counseling and guidance teacher candidates studying in the education faculty according to preparation process of an individualized education plan. Therefore, the scale of "The Attitudes towards IEP Development Process Scale" developed by Tike, L. and Kargin, T. (2009) is used. The study was designed in descriptive survey model and collected data was analyzed by using statistical analysis methods. In this study the attidutes of pre-service Psychological Counseling and Guidance teachers towards preparation process of IEP was analyzed in terms of different variables such as having a course about special education, gender. And also the results of the other researches in the project were used as independent variables such as attitudes towards inclusion and level of challenges faced during the preparation of IEP of the same participants.

Key Words: Special Education, Psychological Counseling and Guidance, Attitude.

INTRODUCTION

Each student's educational needs are different due to the special conditions such as intelligence level, type of disabilities, readiness etc. Therefore the main strategy to gain the academic, social, communication and self care abilities is preparing a functional individualized education program (IEP) in accordance with the requirements of students with special needs. IEP is a written document which is requied defining realisable aims, showing the instruction and evaluation methods, guiding parents, allowing students to meet the existing requirements of developing areas and making customizations to achieve the aims (Smith ve Brownell, 1995). IEP was also defined as " The program which is developed in accordance with the requirements of students, parents, teachers and includes the educational support services to be provided the aims of the program (MEB,2000)."
IEP was first adopted in Turkish Republic in Special Education Services Regulation statutory decree No. 573 in 1997. In this regulation it was first described how the evaluation of students with special needs should be, type of suitable environments in placement and preparation process of IEP detailly. Through this regulation, the right of education was provided to all students with special needs so that they could benefit from educational facilities bu using IEP in the schools.

In 2006 it's also added that IEP has to be prepared both in Guidance and Research Center (RAM) and student's school by IEP team. Additionally, participating the IEP Team has begun compulsory by the Regulations No.573 in the schools. The members of this team are; school principal, special education teachers, classroom teachers, psychological counseling and guidance teachers, parents and experts about disorders (MEB,2000).

Although IEP has been legally secured by regulations nearly 20 years, It is still faced with significant problems in the implementation phase (Avcıoğlu, 2009; Güven ve Balat, 2006; Kamens, 2004). The main problem; not preparing an functional and useful program because of the lack of content knowledge and self-efficacy of the teachers who are the member of IEP team (Güven and Balat, 2006; Kargın,2007; Tike and Kargın, 2009). In this phase psychological counseling and guidance teachers have a siginificant role to coordinate the team, provide the

requirements of parents and guide the teachers about content knowledge. Because psychological counseling and guidance teachers are accepted as the main member of the evaluation of the students and preparation IEP in schools and Guidance and Research Center by MEB Special Education Services Regulation (2006). According to this regulation, duties psychological counseling and guidance teachers are:
a)Planning and carrying out education services for parents of the students with special needs and coorporating with institutions and organizations,
b)Coorporating with the members of IEP Team to follow the development of the students with special needs.
c)Coorporating with teachers and parents to prepare individual development report.
d)Coorparating with counseling and guidance commissions and members of IEP Team to provide special education supports for students with special needs (MEB, 2006).

As can be seen psychological counseling and guidance teachers have a key role in preparing a functional IEP in the schools of the students with special needs. Undoubtedly increasing the efficacy about special education and IEP of the psychological counseling and guidance teachers, provides more effective IEP and more effective guidance to the teachers of the IEP Team. However, when we browsed four-year undergraduate education of the psychological counseling and guidance teachers, we can easily see that there's no lesson about preparation process of IEP. In special education lesson, IEP just can be introduced, can not be worked with students about how to prepare IEP. Therefore, the effectiveness of the IEP can be provided by the self-development efforts of the psychological counseling and guidance teachers about special education and IEP. In this phase the attitudes of the pre-service pyschological counseling and guidance teachers about preparstion process of IEP will be decisive to develope theirselves in special education and preparing IEP.

A review of related literature shows the existence of research including the views of psychological counseling and guidance teachers towards inclusion (Alver, Bozgeyikli ve Işıklar, 2011; Akalın, 2014; Özengi, 2009; Yüksel, Diken, Aksoy and Karaaslan, 2012) but there are limited researches defining the view or efficacy of psychological counseling and guidance teachers towards the effectiveness and preparation process of IEP (Kırbıyık, M.E., 2011; Küçüker, S., Kargın, T. ve Akçamete, G., 2002; Tike Bafra and kargın, 2009). In these researches, members of the IEP team teachers have been indicated that they have negative attitudes because of reguiring lots of paper work, taking up too much time of the teachers and having not enough concept knowledge about preparation of IEP. That's why determining the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP will contribute to the literature.

This research is a baseline study and a part of an project planning several researches to educate a sample of teachers towards preparation process of IEP. In this researches some of the findings were used as variables such as determinnig the attitudes towards inclusion and level of challenges faced during the preparation of IEP of the same participants. The purpose of this research is determining the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and examine the attitudes according to some variables. For this purpose, based on the factors contributing to the success on inclusion the following questions were investigated:
1) How are the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP?
2) Does the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP change according to gender?
3) Does the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP change according to taking special education lesson?
4) Is there any relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP?
5) Is there any relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes of inclusion?

METHOD

This is a descriptive study which aims to analyse the attitudes of pre-service pyschological counseling and guidance teachers educating in an university towards preparation process of IEP and relationships between the independent variables. The model of the research is scanning model. Scanning models aims to describe the datas as their real sitution that exists in the past or in the future and the sitution is tried to define as in its own terms (Karasar, 2000). In the research gender, having a course about special education and also the results of the other researches such as attitudes towards inclusion and level of challenges faced during the preparation of IEP of the same participants were used as independent variables.
The datas collecting in this research will use as pre-test and it's planned to give a course about preparation

process of IEP to these participants in third and fourth grade. Considering this sitution the participants in the research were selected from among second graders educating in the department of counseling and guidance teacher in a goverment university in Turkey and 111 pre-service pyschological counseling and guidance teachers were participated. The descriptives datas of the participants are shown in Table 1.

Table 1. Descriptive datas of the participants

Independent Variables	**Type**	**N**	**%**
Gender	Female	69	62,1
	Male	42	37,9
Take a Course	Yes	101	91
	No	10	9

In the research the scale " The Attitudes towards IEP Development Process Scale " developed by Tiger, L. and Kargin, T. (2009) is used to determine the attitudes of pre-service pyschological counseling and guidance teachers towards preparation process of IEP. The scale was developed in accordance with Likert type 5 point. The scale also consists of 15 items and responses to items in the scale was determined as “Fully Agree”, “Agree”, “Indecisive”, “Disagree,” and “Fully Disagree”. In attaching points to the scales, items having positive attitudes (Fully Agree) are 5 points and items having negativee attitudes “Fully Disagree” are 1 points. In the scale 2,4,8,9,11,12,14,15. items were reversed. The highest score in the was 75 while the lowest was 15. The higher scores express positive attitudes and lower scores express negative attitudes in the scale. The items in the scale and their mean scores are shown in Table 2.

Table 2. The Attitudes towards IEP Development Process Scale

No.	**The Attitudes towards IEP Development Process Scale**	**Mean Score**
1	IEP serves the suitable supports to the students with special needs.	4,288
2	The students with special needs don't benefit from IEP.	3,919
3	IEP shows where and how to begin training.	4,153
4	IEP team is incapable of solving the problems.	3,640
5	The creation of the IEP team allows participating of the team members to the students training in a more effective manner.	4,234
6	IEP team provides to present different solution proposals.	4,180
7	I think I will contribute to the students and members in the IEP team.	4,054
8	I don't want to work in IEP team.	4,018
9	I think that working in IEP team is not my job.	4,099
10	Establishing annual goals for each area where the student has difficulty facilitates training.	4,216
11	I think participating the IEP team will increase my workload..	3,532
12	I don't wan't to take more with working IEP team.	3,721
13	I think participating IEP team would be useful to the students with special needs.	4,288
14	Preparing and implementing the IEP is not practical.	3,432
15	I do not think that continuity of the IEP won't provide.	3,604

FINDINGS

In the research there are 5 questions and the findings were presented in each title included different questions. The descritive datas regarding the main question; attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP are shown in Table 3.

Tablo 3. The descritive datas regarding the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP.

Descriptive Statistics	**Values**
The Highest Score	74,00
The Lowest Score	40,00
Range	34,00
Mean Score	59,38
Standart Deviation	7,920
Skewness	-0,168
Kurtosis	-0,542

According to the Table 3, the highest score is 74, the lowest score is 40 and the mean score is 59,38 over 75. The standart deviation is 7,92. The datas regarding the score of the scale show that basicly, the pre-service teachers has a positive attitudes towards the preparation process of IEP. Skewness value is calculated as "-0,168", kurtosis value is calculated as "-0,542". The datas show that the range of the datas collected from the participants were ranged normally.

The second question in the research is "Does the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP change according to gender?". The datas of the participants about their gender are shown in Table 4.

Table 4. The descriptive datas regarding the gender of the participants.

Gender	**N**	**M**	**sd**	**df**	**t**	**p**
Female	69	59,464	7,751	109	0,145	0,885
Male	42	59,238	8,281			

T-Test technique was used to analyse the differentition of the gender discrimination. According to the datas in Table 4, it's easily seen that two groups has the nearly the same mean score and no significant difference was found between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and gender of participants. Considering this data, it's thought that being male or female pre-service pyschological counseling and guidance teachers doesn't change the level attitudes towards preparation process of IEP.

The third question in the research is "Does the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP change according to taking special education lesson?". The datas of the participants about having a course about special education are shown in Table 5.

Table 5. The descriptive datas regarding taking a course about special education of the participants.

Taking Course	**N**	**M**	**sd**	**df**	**t**	**p**
No	101	59,584	7,854	109	0,869	0,387
Yes	10	57,300	8,706			

However the number of the participants taking course about special education is lees than the other group, the datas included. T-Test technique was used to analyse the differentition of taking a course about special education and the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP. According to datas in Table 5, the datas of the participants taking course about special education don't show significant difference. This question should be repeated in a normally ranged groups in the next researches.

The fourth question in the research is "Is there any relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP? The datas of the challenges faced during the preparation of IEP belong to an other research in the project and were collected from the same participants. The datas of the challenges faced during preparation process of IEP are shown in Table 6.

Tablo 6. Descriptive datas of the challenges faced during the preparation of IEP

Descriptive Statistics	Values
The Highest Score	87,00
The Lowest Score	38,00
Range	49,00
Mean Score	57,33
Standart Deviation	9,070
Skewness	0,584
Kurtosis	1,196

The datas of the challenges faced during the preparation of IEP was analysed, the highest score is 87,00, the lowest score is 38,00 and the mean score is 59,38 over 100. The standart deviation is 9,07. According to mean scores of the scale show that basicly, the pre-service pyschological counseling and guidance teachers won't have difficulties in preparation process of IEP. Skewness value is calculated as "0,584", kurtosis value is calculated as "1,196". The skewness data collected from the participants shows that the datas were ranged normally but the kurtosis data is higher than normal value that must be. On the other hand according to George and Mallery (2003), the values between -2 and +2 can be accepted as normal vale. In this research the relationships between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP was determined by using correlation. The correlation datas of the relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP are shown in Table 7.

Table 7. The correlation datas between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP

	The Challenges of IEP
The Attitudes towards IEP	0,371*

*p <0,01

According to the correlation data (0,371) in Table 7, a positive and moderately significant relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP was determined.

The last question in the research "Is there any relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes of inclusion?". The datas of the attitudes towards inclusion belong to an other research in the project and were collected from the same participants. The datas of the datas of the attitudes towards inclusion are shown in Table 8.

Table 8. The descriptive datas of attitudes towards inclusion.

Descriptive Statistics	Values
The Highest Score	74,00
The Lowest Score	39,00
Range	35,00
Mean Score	52,79
Standart Deviation	7,920
Skewness	0,304
Kurtosis	0,436

It's seen in Table 8, the hisghest score is 74, the lowest score is 39 and mean score is 52,79. According to mean scores of the scale show that basicly, the pre-service pyschological counseling and guidance teachers have positive attitudes towards inclusion. Additionally the skewness value is calculated as "0,304", kurtosis value is calculated as "0,436". The datas show that the range of the datas collected from the participants were ranged normally.

In the research the relationships between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes of inclusion. was determined by using correlation. The correlation datas of the relationship relationships between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes of inclusion are shown in Table 9.

Table 9. The correlation datas of the relationship relationships between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes of inclusion

	The Attitudes towards Inclusion
The Attitudes towards IEP	-0,311*

*p <0,01

According to the correlation data (-0,311) in Table 9, a negative and moderately significant relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and attitudes towards inclusion was determined. It's thought that the attitudes of the pre-service and counselling teachers on the rise, their attitudes toward IEP has decreased.

CONCLUSIONS

The purpose of this research is determining the attitudes of the pre-service pyshological counseling and guidance teachers towards preparation process of IEP and examine the attitudes according to some variables. In generally the pre-service pyschological counseling and guidance teachers have positive attitudes towards preparation process of IEP. On the other hand being male or female didn't change the level of attitudes towards preparation process of IEP. This data is the same as the researches in literature (Küçüker, Kargın ve Akçamete, 2002; Tike and Kargın, 2009). The datas of taking a course in the previous also didn't change the level of the attitudes towards preparation process of IEP. This data is the opposite as in the researches in literature (Tike and Kargın, 2009). In this research the participants taking no course have more positive attitudes towards IEP than the participants taking a course. However the number of participants taking a course is less, mean scores are 2 point less than the others is thought to be important. The datas regarding the attiudes of the participants towards inclusion has an significant relationships which is negative and moderate. This can be explained from the items of the scale that pre-service teachers think that services provided to the students with special needs must be increased but preparation of IEP is not their own job. The last datas are the relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP. There is positive and moderately significant relationship between the attitudes of the pre-service pyschological counseling and guidance teachers towards preparation process of IEP and challenges faced during the preparation of IEP was determined. This data can be explained that the pre-service pyschological counselling and guidance teachers can participate to the preparation of IEP with positive attitudes. In future it's suggested that dependent variable and the relationhips between the other variables should be determined as post-test after giving a course to the participants.

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İl

Investigation Of Academic Procrastination And Academic Self-Efficacy Of Physical Education And Sport Teacher Candidates In Term Of Some Variables

Zehra CERTEL
School of Physical Education and Sports
Akdeniz University
zcertel@akdeniz.edu.tr

Ziya BAHADIR
School of Physical Education and Sports.
Erciyes University
ziyabahadır40@hotmail.com

M. Levent ÖZGÖNÜL
Medical Faculty
Akdeniz University
leventozgonul@akdeniz.edu.tr

ABSTRACT

The aim of this study is to investigate academic procrastination and academic self-efficacy of sports teacher candidates, based on the variable of gender, academic success perception and actively doing exercise and to determine relationship between academic procrastination and Academic self-efficacy. The research group consist of 458 teacher candidates whom are 194 female and 264 male studying in different classes of four different universities including Erciyes (n=151), Ege (n=131), Akdeniz (n=94) and Adnan Menderes (n=81). The data were collected using scale of Academic procrastination and Academic self-efficacy and the personal information form. For analyzing the data; t-test, ANOVA test and Pearson Correlation coefficient techniques were used in relations between variables. According to findings, there are not significant differences about academic procrastination of candidates according to gender and actively do exercise, but there are significant differences according to academic success perception. While there are not significant differences in terms of academic self-efficacy according to actively doing exercise, there are significant differences according to gender and academic success perception. There are negative significant differences between academic procrastination and self-efficacy of students.

Key Words: Teacher candidate, academic procrastination, self-efficacy, academic success perception, actively doing exercise.

INTRODUCTION

University life can be described as a process, which has an important place in preparing for the professional and social life and where the young people undertake many responsibilities. One of the most important responsibilities is to fulfill academic tasks and to achieve expected success level. But, it can be seen that the academic failures of students gradually grow and one of the most important problems is the potential procrastination behavior of students regarding their academic activities (Day et al., 2000; Haycock, 1993; Solomon & Rothlum, 1984; Özer, 2005). Ellis & Knaus (1977) have reported that 95% of university students in America have defined themselves as individuals exhibiting procrastination behavior, while O'Brien (2002) and Stell (2007) have stated that students exhibited procrastination behavior before or after starting a study and 80%

of the students in Turkey postponed their activities at least one hour every day (Klassen & Kuzucu 2009). Procrastination behavior is defined as “unrealistically delaying the tasks that should be completed or finished” (Lay, 1986; Kandemir, 2014) or “preferring the benefits to be achieved in short-term to those to be achieved in long-term” (Roberts, 1997; Kandemir, 2014). As a sub-dimension of procrastination, academic procrastination is defined by Solomon & Rothlum (1984) as “doing homework, preparing for the exams, or to prepare term-papers at the last minute”. Hence, the students exhibiting procrastination behavior might fail at the courses in semester, prolong the period of study, and even have to leave the school by being negatively affected from the results caused from their behaviors. Thus, the short-term comfort, which is achieved as a result of procrastination behavior, may return with worrisome situations in long-term (Akbay & Gizir, 2008). The frequency and also the reasons of procrastination, which is considered one of the most important factors obstructing the success of students in academic life, may differ among the individuals. In previous studies, for the procrastination behavior, the fear of failing and the avoiding from work have been represented as the main reasons for academic procrastination (Solomon & Rothlum, 1984), it has also been reported that it might be caused from being non-brave and depressiveness, indecision, socially activeness, opposition to the authority, laziness, low self-respect, and anxiety for exams (Beswick et al., 1988; Solomon and Rothblum, 1984; Day et al., 2000; Özer & Altun, 2011). In literature, many studies have reported that academic procrastination is negatively related with self-esteem, self-respect, inner motivation, and self-efficacy (Tuckman, 1998; Van Erde, 2000).

In many studies, the relationship of self-efficacy with academic procrastination has been examined. The concept of “self-efficacy” has been described by Bandura (1989; 1994, 1997) as “a person’s belief that he/she is capable of starting an action in the way influencing the people in his/her environment and sustaining that action until getting a result”. Given the literature, it can be seen that it is generally divided into sub-dimensions such as emotional, social, and academic self-efficacy. Academic self-efficacy is described as “a student’s belief in his/her skills for successfully accomplishing an academic task” (Zimmerman, 1995). Previous studies have revealed that the low self-efficacy belief is an important precursor of gradually increasing procrastination behavior, that there is significant and negative relationship between academic procrastination and self-efficacy belief, and that low level of self-efficacy belief is related with higher academic procrastination behaviors (Haycock et al., 1998; Ferrari, 2000). In studies, it has been reported that academic self-efficacy has an important effect on students’ academic life and affects the academic performance positively (Parajes, 1996; Parajes et al. Graham, 1999; Schunk, 1991; Chemers et al., 2001).

Within this context, the aim of this study is to analyze the physical education and sports teacher candidates’ tendency to academic procrastination and their self-efficacy from the aspects of gender, academic success perception, actively doing sport, and to reveal the relationship between academic procrastination and academic self-efficacy. This study is thought to be important for determining and eliminating the physical education and sports teacher candidates’ deficiencies, which are believed to affect the future success of students in future, during the study period.

THE STUDY

This study is a review study. The study group consists of 458 students (194 (42.4%) female and 264 (57.6%) male students) studying at different grade levels of Physical Education Departments of Akdeniz, Erciyes, Ege, and Adnan Menderes Universities. Mean age of students was $\overline{X}_{age}$=21.69±2.63 years. As data collection tool, 5-pint Likert-type Academic Procrastination Scale (APS), which contains 19 items including the tasks that the students have to accomplish throughout their study period, developed by Çakıcı (2003) in order to determine the academic procrastination behavior was utilized. High scores from the scale indicate high level of academic procrastination behaviors. In this study, the Cronbach Alpha reliability coefficient of this scale was calculated to be 0.84. The other scale used in this study is the Academic Self-Efficacy Scale developed by Jerusalem & Schwarzer (1981) and adapted to Turkish language by Yılmaz, Miraç & Ekici (2007). The 4-point Likert-type scale has single dimension and consists of 7 items. Its Cronbach Alpha reliability coefficient has been determined to be 0.84, while it was found to be 0.74 in this study. In data analysis, since the data showed normal distribution, t-test was used in pairwise comparisons, while ANOVA was used for multiple comparisons and Pearson correlation coefficient for analyzing the relationships between the parameters.

FINDINGS

Table 1: Comparison of academic procrastination behaviors and self-efficacies of teacher candidates by gender

Scale	Gender	n	X	ss	t	P
Academic Procrastination	Female	194	3.07	.67		
	Male	264	3.12	.59	-.847	.397
Academic Self-efficacy	Female	194	2.83	.53		
	Male	264	2.95	.52	-2.390*	.017

*p<.05

In Table 1, academic procrastination behaviors of physical education and sports teacher candidates didn't show statistically significant difference between the genders (t=-.847, p=.397;p>.05), while the self-efficacy of female candidates was found to be higher than that of male candidates (t=-2.390, p=.017;p<.05).

Table 2: Comparison of teacher candidates' academic procrastination and self-efficacy by their academic success perception

Scale	Success Perception	n	X	ss	F	P	Difference
Academic Procrastination	1.Medium	164	3.21	.62			1-2
	2.Good	231	3.06	.63	5.346*	.005	1-3
	3.Very good	63	2.93	.63			
Academic Self-efficacy	1.Medium	164	2.77	.54			1-2
	2.Good	231	2.96	.51	7.344*	.001	1-3
	3.Very good	63	2.99	.63			

*p<.05

In Table 2, it can be seen that, in terms of academic success perceptions of students, their academic procrastination (F=5.346, p=.005; p<.05) and academic self-efficacy (F=7.344, p=.001;p<.05) showed statistically significant difference. Of a student having medium level of academic success perception, academic procrastination behavior is higher than that of students having good and very good academic success perception and academic self-efficacy is lower.

Table 3: Comparison of teacher candidates' academic procrastination and self-efficacy by actively doing exercise.

Scale	Actively Doing Exercise	n	X	ss	t	P
Academic Procrastination	Yes	300	3.09	.63		
	No	158	3.10	.53	-.203	.839
Academic Self-efficacy	Yes	300	2.92	.50		
	No	158	2.85	.57	-1.326	.186

In Table 3, the academic procrastination behavior (t=-.203, p=.839; p>.05) and academic self-efficacy (t=-1.326, p=.186; p>.05) of physical education and sports teacher candidates do not statistically significantly vary depending on their active sport life.

A negative and statistically significant relationship was found between academic procrastination behavior and self-efficacy of physical education and sports teacher candidates (r=-.127, p=.006; p<.05). As the self-efficacy of students increases, then their academic procrastination behaviors decrease.

CONCLUSIONS

In this study, which was carried out in order to analyze the physical education and sports teacher candidates' tendency to academic procrastination and their self-efficacy from the aspects of gender, academic success perception, actively doing exercise, and to reveal the relationship between academic procrastination and academic self-efficacy, the following conclusions were obtained.

In this study, no difference was found between male and female students in terms of academic procrastination behavior. It was seen that the study results emphasizing the difference in academic procrastination behavior from the aspect of gender differ from each other. In literature, many studies corroborating these results were found (Solomon & Rothblom, 1984, 2000; Karabıyık çeri et al., 2015; Watson, 2001; Kim & Seo, 2015). In some of the studies, it has been reported that academic procrastination behavior differed between the genders (Washington, 2004; Balkıs et al., 2006; Aydoğan & Özbay, 2012; Şeker & Saygı, 2013). In this study, self-efficacy of male students was found to be higher than that of female students. Similarly, in studies on examining the effect of gender, it has been concluded that women have lower level of self-efficacy than men do (Schunk & Pajares, 2002; Fırat Durkoca 2010; Akbay & Gizir, 2010). In literature, there also are studies conflicting with these results (Üstüner et al., 2009; Çimen, 2007; Zeldin & Pajares, 2000; Aydoğan & Özbay, 2012). In conclusion, it can be said that the different results obtained from different studies may arise from the cultural differences.

In this study, when the academic procrastination behaviors of students are examined in relation with their academic success perceptions, it was found that academic procrastination behavior of students having medium level of academic success perception is higher than those having good and very good academic success perception. Similar results have been obtained in various studies (Balkıs et al., 2006, Senecal et al., 1995; Tuckman, 1998; Orpen, 1998; Tice & Baumeister, 1997; Balkıs, 2007, 2013; Çelebi, 2016). In this study, the academic self-efficacy of students having medium level of academic success perception is lower than those having good and very good academic success perception. Kauchak & Eggen (1998) have reported that self-efficacy is an important factor for increasing the motivation for learning. In many studies in literature, it has been stated that there is a significantly positive relationship between student success and self-efficacy (Zimmerman, 2000; Balkıs & Duru, 2010).

Academic procrastination behaviors of physical education and sports teacher candidates do not differ depending on actively doing exercises. Hence, in study of Çelebi (2016) on 136 basketball player in University Games 2015, mean score of academic procrastination of athletes has been found to be 3.10. The mean score found in this study is very close to this level. Accordingly, it can be said that active sport life doesn't influence the academic procrastination behavior. No statistically significant difference was found between the self-efficacy levels of students that do actively sports and those do not. Certel et al. (2015), in their study on high school students, have concluded that academic, social, emotional, and general self-efficacies of students, who do never physical exercise, were significantly lower than adolescent athletes sometimes doing exercises and playing in a team. Kafkas et al. (2010), in their study on physical education teacher candidates, have reported that self-efficacies of registered athlete students were higher than those not doing exercise. It can be stated that this difference arises from the sample groups.

Significant negative relationship was found between academic procrastination behaviors and self-efficacies of physical education and sports teacher candidates. As the academic self-efficacy of students increases, then the academic procrastination behaviors decrease. Kandemir (2014) has achieved the same result in his study on 630 university students. According to Bandura (1997), high academic self-efficacy can be described as avoiding from academic procrastination by preparing for the exams and fulfilling the academic tasks. Akbay & Gizir (2010), in their study, have determined that self-efficacy belief has high and significant predictive power on procrastination tendency among the males, while no statistically significant relationship was found between the academic procrastination and academic self-efficacy of female students.

In conclusion, while academic procrastination behavior of physical education and sports teacher candidates significantly varied according to the academic success, it didn't significantly vary according to the gender and doing exercise. But, however, academic self-efficacy didn't vary according to actively doing exercise, while it varied significantly according to the gender and academic success. Negative and significant relationship was found between students' academic procrastination behaviors and self-efficacies. According to these results, academic consultancies and counseling should be offered in order to take academic procrastination behavior of university students. Moreover, by investigating the parameters influencing the cognitive, emotional, and psychomotor behaviors of students, it would be beneficial to take measures for gaining self-organizing skills and increasing their self-efficacy.

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Investigation Of Attitude Towards The Computer Game Of Middle Schools Students

Dr.Ayşe ALKAN
ayshe_alkan@hotmail.com

Dr.Metin ÇENGEL
Faculty of Education
Sakarya University Turkey
cengel@sakarya.edu.tr

ABSTRACT

The advancement of information technologies technology It has become an indispensable element of our lives. One of the information technology is computers are used for fun and games. This study is aimed investigate middle school students attitudes of computer games. Studies in the academic year 2014-2015, Studying at Samsun city center was carried out with 255 fifth and sixth grade students. In the study Solak (2012) prepared by the survey was administered. Data were analyzed by SPSS 16 software was used. The analysis of the data, frequency, t-test, one-way analysis of variance (ANOVA) was used and the significance level was accepted as .05. The results of the girls' computer games that they participate more negatively than male students, the students' grade level by changing attitudes towards of computer games, they look more positive to of those who have computer to computer games, the higher the family income of students' computer game has reached the conclusion that the outlook is more positive.

Keywords: Computer games, information technology, game attitude

INTRODUCTION

Along with increased use of computers and the Internet has made the use of leisure-game. Especially among children and young people in recent years games consoles, computer games, on- line (online) use is increasing with each passing day of the game (Gürcan, Ozhan and Uslu, 2008). Tapscott (1997) According to the study, today's young people learn, play, communicate, work and community are different than their parents on issues such as creation. Studies have fun individuals, challenge, competition, social communication, have nothing to do, spend time, relax, escape from stress, to return again many times, providing that can focus on long-term environment, recreation, spare time, escape from real life, be free shows that they play as reasons (Griffiths and Hunt, 1995; Sherry and Lucas, 2001; Inal and ÇAĞILTAY, 2005; Kirriemuir, 2002; Wu and Chiou, 2006).

With the development of technology students play virtual environment in their homes, Internet cafes or computer, and play on the internet with friends or relatives instead of playing in parks Horzum (2011) in this regard in the past playgrounds and the actual activities carried out together with friends in the street games, at home or in an internet cafe today stated that video games and become virtual activities performed on the computer. Prensky (2001) also present students a PC, represents a world they do not know how it is an internet and computer oyunsuz place.

Cesarona (1994), computer games, children are effective in acquiring computer literacy besides the game, providing hand-eye coordination, spatial skills development, to imagine, to explain the reasons of the way, to revive the chemistry and physics related objects in mind, the positive aspects, such as ensuring the integration of shapes in spaceIt indicates that. Furthermore, the game of strategic thinking, planning, communication and decision that provide benefits such as making and video game social and cultural worlds created, it is emphasized that helped to learn through communication and joining technology (Kirriemuir and McFarlane, 2004; Shaffer, Squire, Halverson and Gee, 2005).

Besides the positive aspects of the games show aggressive behavior, tendency to violence, personality changes, reduction of emotions and feelings, antisocial behavior, increased levels of anxiety, fantasy and psychological effects such as live confusion between real and hyperactivity, hand, shoulder, disorders of the spine appearance, loss of vision, headaches, eye dryness there are also biological effects such as being constantly tired and sleepy (Setzer and Duckett, 1994; Hauge and Gentile, 2003; Chiu, Lee and Huang, 2004; Wu and Chiou, 2006).

METHOD

In this section, research model, population and sampling, data collection will be given information about the collection and analysis of data.

Model Research

Scanning model was applied in the research. The main purpose of the screening study is to describe in a way that the existing situation. Everything in this study, are tried in their own conditions and is defined as (Karas, 2005). Demographics of students constitutes part of vision screening for computer games.

Population and sample

The population of the investigation Samsun / Turkey constitutes the fifth and sixth grade students. The sample 2015-2016 academic year Samsun / Turkey are studying 255 fifth and sixth grade students. Socio-demographic characteristics of the students in the sample are shown in Table 1.

Table 1. Socio-demographic variables of the students in the sample

		Frequency	**%**
Gender	Female	140	54,9
	Male	115	45,1
	Total	**255**	**100**
Sınıf	Fifth Grade	144	56,5
	Sixth Grade	111	43,5
	Total	**255**	**100**
Monthly income of the family	TL 800 and below	46	18,0
	Between 800 TL-1500TL	123	48,2
	Between 1500 TL-2500 TL	64	25,1
	2500 TL and over	22	8,6
	Total	**255**	**100**
Do you have a room of your own in your home?	Yes	180	70,6
	No	75	29,4
	Total	**255**	**100**
Do you have computer at home?	Yes	184	72,2
	No	71	27,8
	Total	**255**	**100**
Do you have a computer of your own home?	Yes	98	38,4
	No	157	61,6
	Total	**255**	**100**
Do you play computer games?	Yes	247	96,9
	No	8	3,1
	Total	**255**	**100**
Where do you play computer games?	At home	178	69,8
	Internet cafe	22	8,6
	my friend	30	11,8
	Other	25	9,8
	Total	**255**	**100**
How many hours do you spend at your computer in your average day?	1-2 hours	172	67,5
	2-3 hours	47	18,4
	3-4 hours	21	8,2
	Over 4 hours	15	5,9
	Total	**255**	**100**
How many hours do you play computer games in an average day?	1-2 hours	209	82,0
	2-3 hours	32	12,5
	Over 3 hours	14	5,5
	Total	**255**	**100**
The more you play the computer game types	Sports and racing	46	18,0
	Adventure	41	16,1
	War and strategy	36	14,1
	Intelligence and logic	40	15,7
	It does not matter	92	36,1
	Total	**255**	**100**
It does the times when your parents forbid you to play?	Yes	170	66,7
	No	85	33,3
	Total	**255**	**100**

According to Table 1 54.9% of those surveyed female and 45.1% of male students. 56.5% of fifth grade students, while 43.5% of the sixth graders. When the family income of the students who participated in the study it is

observed that 48.2% have a monthly income of 800TL-1500TL. 70,6% of the students stated that they have their own room.
72.2% of students who participated in the survey that their home computer stated that while 38.4% of personal computers. 96.9% of students that playing computer games, computer games also seems to play at home of 69.8. 67.5% of the students when they spend 1-2 hours a day on the computer and it is seen that 82% of 1-2 hours per day playing computer games. Types of games played by students does not recognize the% 36.1 of game species examined, 18% also stated that they play sports and racing games also students stated that the time has banned the play great family of 66.7%.

Data Collection Tool

In order to collect data, to determine the students' personal characteristics Solak (2012) by validity and reliability studies have been made "Individual Identification Form" Computer games that the company has been developed to determine the attitude level "Computer Game Attitude Scale, It was applied. Computer Games Attitudes were examined in two dimensions.

The articles contained in the first dimension as the "negative features of computer games" is focused on. For example; "Computer games, students are lazy." Another article "Computer games have resulted in the loss of time.", Another "war games on the computer causes the child's shark to be." Such substances are the Negative Personality Dimensions of Computer Game Attitude. The articles contained in the second dimension is seen that for the administrative characteristics of individuals to general computer game. For example; "Computer games are developed practical intelligence", "increases in computer game win people's confidence. "," Computer games are developed sense of leadership. These substances are the managerial attitude Property Size of Computer Games.

Collection and analysis of data

In research Quantitative data were analyzed using SPSS 16.0(The Statistical Package for The Social Sciences) statistical software. .05 significance level of research has been accepted. In the study, descriptive statistics, t-test, one-way analysis of variance (ANOVA) was used.

RESULTS

Table 2. Students' Attitude of Computer Games, Personality Negative Attitudes and administrative Feature Attitudes Gender Differentiation according to the variable T-Test Results

Scales	Gender	N	$\overline{X}$	S	sd	t	p
Computer Games Attitudes	Female	140	65,59	11,52	253	1,90	,058
	Male	115	62,57	13,80			
Personality Negative Attitudes	Female	140	41,67	9,84	253	3,12	,002
	Male	115	37,66	10,61			
Administrative Feature Attitudes	Female	140	23,91	5,82	253	1,24	,215
	Male	115	24,91	7,01			

In Table 2, the 5th and 6th grade students according to gender attitudes computer game, computer game feature negative personality and managerial attitude, which has dimensions of attitude scales were examined. Table 2 student of computer games attitudes and negative attitudes of people in the .05 level shows significant differences according to gender. Given the arithmetic average, female students (x = 65.59) male students (X = 62.57) higher than a computer game in which you have the attitude and female students (x = 41.67) male students (X = 37.66) higher than a negative personality attitude It seems to have. According to this data, computer games, said that more girls joined the boys that there are negative aspects.
Administrative feature size, students are not significantly different according to gender (p> .05). Men administrative feature size of the student (= 24.91) than girls (= 23.91) is higher.

Table 3. Computer Games Attitudes of Students, Personality Negative Attitudes and administrative Feature Attitudes Toward the Grade Level T-Test Results Variable according to Differentiation

Scales	Class Level	N	$\overline{X}$	S	sd	t	p
Computer Games Attitudes	Fifth	144	63,34	12,67	253	1,27	,205
	Sixth	111	65,37	12,62			
Personality Negative Attitudes	Fifth	144	38,95	10,53	253	1,60	,109
	Sixth	111	41,05	10,08			
Administrative Feature Attitudes	Fifth	144	24,39	6,21	253	,088	,930
	Sixth	111	24,32	6,65			

In Table 3, depending on the level of variable grade student attitudes computer game, computer game, attitude scale, which received negative personality and managerial attitudes size of the property does not show a significant difference at .05 level.

Table 4. Computer Games Attitudes of Students, Personality Negative Attitudes and administrative Feature Attitudes have a computer to be variable according to their own T-Test Results

Scales	To have their own computer	N	$\overline{X}$	S	sd	t	p
Computer Games Attitudes	Yes	98	64,38	11,67	253	,15	,877
	No	157	65,13	13,28			
Personality Negative Attitudes	Yes	98	38,92	9,43	253	1,14	,255
	No	157	40,45	10,91			
Administrative Feature Attitudes	Yes	98	25,45	6,03	253	2,17	,031
	No	157	23,68	6,53			

Attitude of the student computer game "is a computer to be its own" does not show a significant difference depending on the situation (p> .05). The size of the negative personality of students to be self-examination is a computer belonging "does not show a significant difference depending on the situation (p> .05). Negative personality dimensions of students with a computer of their own (= 38.92), non-students (= 40.45) d. These findings have a computer between computer and attitudes towards the game situation can be interpreted as being in a relationship. Administrative feature size of students whether they own a computer, "according to the situation shows significant differences (p <.05). The size of the property management students with a computer of their own (= 25.45), non-students (= 23.68) d. Among these findings to computer games have a computer with a positive attitude towards the situation it can be interpreted that there is a relationship.

Table 5. Computer Games Attitudes of Students, Personality Negative Attitude and administrative Feature in family income compared to the variables of attitude ANOVA Results

Scales	Ailenin Gelir Durumu	N	$\overline{X}$	Ss	F	p
Computer Games Attitudes	800Tl and below	46	59,28	13,27	3,62	,014
	800TL-1500TL	123	64,48	12,32		
	1500TL-2500TL	64	65,84	12,26		
	2500 TL and over	22	68,45	12,18		
Personality Negative Attitudes	800Tl and below	46	36,65	10,89	2,04	,109
	800TL-1500TL	123	40,48	10,22		
	1500TL-2500TL	64	40,17	10,20		
	2500 TL and over	22	42,22	9,86		
Administrative Feature Attitudes	800Tl and below	46	22,63	5,79	2,83	,039
	800TL-1500TL	123	24,00	6,40		
	1500TL-2500TL	64	25,67	6,64		
	2500 TL and over	22	26,22	6,00		

Students' attitudes computer games shows significant differences according to family income status variables (P <.05). Perspectives for computer games increases the family income of the students said that is changing. Family income in 2500 and over the students' attitude to computer games (= 68.45) is shown in Tables 5 to be higher. Students are negative personality dimensions no significant difference according to family income status (p> .05). In other words, the student does not depend on the state of the negative attitudes of family income for computer games. The size of the student administrative feature shows significant differences according to family income (p <.05). In other words, students varies according to family size, income level of property management for computer games, family income increases, the students said that the rise of the managerial personality dimensions**.**

Table 6. Computer Games Attitudes of Students, Personality Negative Attitudes and administrative Feature Attitudes "Where do you play computer games? "According to the variable ANOVA Results

Scales	**Where do you play computer games?**	**N**	$\overline{X}$	**Ss**	**F**	**p**
Computer Games Attitudes	At home	178	64,53	12,35	,616	,606
	Internet cafes	22	61,18	13,87		
	My friend	30	63,40	14,12		
	Other	25	65,72	12,25		
Personality Negative Attitudes	At home	178	39,62	10,08	2,48	,062
	Internet cafes	22	35,59	10,67		
	My friend	30	41,66	11,82		
	Other	25	43,20	9,36		
Administrative Feature Attitudes	At home	178	24,91	6,16	3,17	,025
	Internet cafes	22	25,59	7,31		
	My friend	30	21,73	5,45		
	Other	25	22,52	7,37		

Attitude of the student computer game "where you play the computer game" according to variables and negative personality dimension "Where you play the computer games?" By not show a significant difference (p> .05). In other words, negative attitudes towards students do not change according to where they were playing computer games. Property management shows a significant difference in the size of the place students play computer games (p <.05). Managerial personality dimensions of the students who play in Internet cafes in other words (= 25.59) is higher.

Table 7. Computer Games Attitudes of Students, Personality Negative Attitudes and administrative Feature Attitudes "How many hours you play a day for the average computer game? "According to the variable ANOVA Results

Scales	**How many hours you play a day for the average computer game?**	**N**	$\overline{X}$	**Ss**	**F**	**p**
Computer Games Attitudes	1-2 hours	209	64,27	12,86	,506	,603
	2-3 hours	32	65,28	11,33		
	Over 3 hours	14	61,21	12,95		
Personality Negative Attitudes	1-2 hours	209	40,14	10,31	1,04	,352
	2-3 hours	32	39,75	11,06		
	Over 3 hours	14	36,00	9,67		
Administrative Feature Attitudes	1-2 hours	209	24,12	6,33	0,79	,452
	2-3 hours	32	25,53	6,81		
	Over 3 hours	14	25,21	6,37		

Negative personality dimensions of the students "how many hours you play a day for the average computer game? "According does not show a significant difference (p> .05). In other words, students do not change according to the times of negative attitudes towards playing computer games. The size of the student administrative feature "How many hours you play a day for the average computer game? "According does not show a significant difference (p> .05). In other words, students do not change according to the times of negative attitudes towards playing computer games.

DISCUSSION AND CONCLUSIONS

In this study, middle school fifth and sixth grade students of computer games attitudes to gender, grade levels, is to have their own computer status, family income level were examined and where they play computer games according to the variables.

Gender variable to the examination, the student computer game shows a significant difference to the negative attitude and personality attitudes gender. Girl students concluded that computer games and the negative attitude of the attitude of the people was higher than the male students were interviewed. Solak (2012) is the result of the work they are doing exactly the opposite situation arose and male students concluded that computer games and the negative attitude of the people was higher than the attitudes of female students has been reached.

Class levels are variable according to the investigation carried out computer game, attitude, negative attitude, and personality is not different managerial attitudes property. When analyzed according to whether the case is a computer to its own students; computer games is to show differences in attitude and negative attitude of people. Solak (2012) 's study the differences have emerged. In this case the age of the studied sample group said that due to the fact different. The administrative feature size varies depending on whether the student has a computer case. Said that a high managerial abilities of the students with their own computers.

Computer games olsuz attitude and personality dimensions of the students in the examination according to the family income variable does not show a significant difference .. Single family income increases, the students said that the rise of the computer game attitude. Property management varies according to the size of the student family income. Family income increases, students said that the rise of the managerial personality dimensions.

Attitude of the student computer game "where you play the computer game" with respect to variable, does not differ according to the size of the negative personality and managerial feature size. Single students who play in Internet cafes can be said that higher management feature size. When analyzed according to duration of use work computers variable attitude of the students of computer games, it does not differ significantly negative personality and managerial personality dimensions. This result Solak (2012) is consistent with the work that has been done.

In the study done at the computer 172 students have spent 1-2 hours per day, 255 students, 209 of the 255 students stated that the average 1-2 hours playing computer games a day. In their time, these data can be interpreted in line with the students during the day they played computer games. Fromme (2003) as a result of the majority of the people surveyed stated that the work that it has done regularly in play or at least a daily basis. Solak (2012) 's 293 students from 362 students in the study made by the average 1-2 hours a day is spent at the computer, 324 of the 362 students stated that they play computer games 1-2 hours per day. Surveyed 255 students from 170 families from time to time playing computer games that they had brought the ban. In this case we can say that they are not satisfied with the parents of their children's computer play.

RECOMMENDATIONS

- Students, parents and teachers can be informed about the negative effects of computer games and gaming addiction.
- Students play the game suggested that they should be under the control of parents and teachers.
- Gaming addiction in their social life of the students, their academic success and psychological effects can be described.
- Families about the effects of this game made an extensive study of computer games played by students, teachers, and students should be informed.

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Investigation Of Being A Cyber Bully And Victim In Adolescents According To Demographic Variables

Mehmet ŞAM
Department of Educational Sciences
Pamukkale University, Denizli, Turkey
mehmetsam23@gmail.com

Erdinç DURU
Department of Educational Sciences
Pamukkale University, Denizli, Turkey
eduru@pau.edu.tr

ABSTRACT

The purpose of this study is to investigate being a cyber bully and cyber victim in terms of demographic variables of gender, daily internet use, aim of internet usage, daily facebook, twitter and instagram usage, the level of mother, father and self internet competency, and parents' being together. The study group consisted of 176 female and 202 male students in a secondary school in Denizli. Findings indicated that there was a significant relationship between being a cyber bully and a cyber victim , and gender, daily internet usage, daily facebook, twitter and instagram usage and the level of self internet competency, however there is no in terms of parents' being together.

INTRODUCTION

Considering the speed pervasion of information and communication technologies, the fastest technology seems to be internet and mobile phone (International Telecommunication Union, 2016). According to the statistics of International Telecommunication Union in 2016, there are more than 7 billion people using mobile phones. In Turkey, the total number of mobile phone users is more than 71 million (International Telecommunication Union, 2016). The rate of internet usage from mobile phone in Turkey in 2014 was approximately 40% of the population (Institution of Information Technologies and Communication, 2016).

It is stated that adolescents make and maintain their friendships through information and communication technologies (Yaman, Eroğlu&Peker, 2011). The extreme usage of information and communication technologies among adolescents may lead to either positive or negative impacts on their development. For example, young's using technology more prevalently caused them to develop bullying behavior at school by using technology. A new type of bullying called cyber bullying has started to be observed among students at schools (Ayaş&Horzum, 2012). Cyberbullying is defined as the repetitive usage of information and communication technologies of one group in order to harm other individuals via mail, chat rooms, instant messages and mobile phones (Li, 2006). Many studies indicated that cyberbullying and victimization is a prevalent problem among students. For example, Schneider, O'Donnell, Stueve and Robert (2012) demonstrated that while 69% of the students are exposed to cyberbullying, 16% of them perpetrate cyberbullying. In a study of Walrave and Heirman (2011) which was conducted with 12-18 years of students, one third of students were found to be cyber victim and one fifth of them were cyber bully. Research in Turkey point out that cyberbullying has become an important issue among secondary school students. Erdur-Baker and Kaysut (2007) found that among the students with the ages of 14-19, the rate of cyber bullies were 28%, and cyber victims were 30%. In a study conducted with 413 primary and secondary school students, Ayaş and Horzum (2012) found that 18.6% of the participants were exposed to cyberbullying and 11.6% of them perpetrate cyberbullying.

Much research concluded that individuals who are cyber bullies and victims are affected negatively in many ways. That is to say; young perpetrating cyberbullying tend to have behavior problems such as disobedience and aggression, and have increasing rate of depression, drug addiction and commitment to a crime; young who are victims of cyberbullying feel more upset, anxiety and fear, and have behavior problems related to school such as absenteeism and bringing gun to school, moreover a decrease in their academic achievement are observed because of loss of concentration (Ybarra&Mitchell, 2007; Ybarra, Diener-West&Leaf, 2007; Mitchell, Ybarra

&Finkelhor, 2007; Beran & Li, 2005). Patchin and Hinduja (2006) indicated that a plenty of cyber victims (nearly 60%) were affected from internet negatively and reflect these negative behaviors to their houses and friendships at school. Briefly, cyberbullying and victimization is a prevalent problem among adolescents and they are affected from it negatively.

A part of research on cyberbullying has focused on personal, environmental and conceptual factors while the other part has pointed out the relations of cyberbullying and demographic variables. Gündüz (2015) examined the studies on the relations of cyberbullying and demographic variables and found that the independent variable which was used the most was gender with the rate of 33.9%, and then came class grade (13%) and age. Studies which were conducted to explain cyberbullying and victimization and determine the related variables, independent variables such as gender, psychiatric symptoms, age, time of internet usage, room where computer takes place in, academic achievement, level of internet competency, grade and socio economic level (Arıcak, 2009; Mishna, Khoury-Kassabri, Gadalla & Daciuk, 2012; Yılmaz, 2011; Dilmaç & Aydoğan, 2010; Kowalski & Limber, 2007) were used. Considering the literature review in Turkey and abroad, there seem not much research on parents related factors such as internet literacy of parents, parents' being together, economical status of family. Further research with demographic variables to understand cyberbullying and victimization might help obtain a more holistic picture of the issue and be a base for the psycho-educational programs. In this sense, the purpose of this study is to investigate being a cyber bully and a cyber victim in terms of demographic variables of gender, daily internet usage, purpose of internet usage, daily facebook, twitter and instagram usage, the level of mother, father and self internet competency, and parents' being together. In terms of this purpose, following research questions were examined:

1. Does adolescents' being a cyber bully and victim differ according to their gender and daily usage of internet?
2. Does adolescents' being a cyber bully and victim differ according to their purpose of internet usage and daily facebook, twitter and instagram usage?
3. Does adolescents' being a cyber bully and victim differ according to their parents' being together and the level of parents' internet competency?

METHOD

Study Group

The study group consists of 378 secondary school students selected by proper sampling method and attending a secondary school in Pamukkale district of Denizli. Of the participants, 176 (46.6%) were females and 202 (53.4%) were males. Students were at 6th grade (124-32.8%), 7th grade (100-26.5%) and 8th grade (154-40.7%).

Data Collection Tools

The Revised Cyber Bullying Inventory

Developed by Topçu and Erdur-Baker (2010) and having two forms named cyberbullying and cyber victimization, the inventory includes 28 items. Participants indicated the extent to which they agreed with each statement on a 4 point likert ranging from *1: Never* to *4: More than three*. Exploratory factor analyses indicated that cyberbullying form had one factor with factor loadings from .28 to .83.C confirmatory factor analysis showed good fit of indices (GFI= .93, AGFI =.89, CFI=.93, NFI=.89, TLI=.90 and RMSEA = .06). The cyber victimization form includes one factor having factor loadings from .21 to .78. The model was accepted as good fit considering the results of confirmatory factor analysis (GFI =.93, AGFI =.90, CFI=.89, NFI=.84, TLI=.86 and RMSEA = .06). There is a significant relationship between cyberbullying form and cyber victimization form (r = .36, p<.001). Getting high scores from the inventory indicates being a cyber bully and victim.

Personal Information Form

Demographics of the participants were collected by a personal information form developed by the researcher. This form includes questions about students' gender, grade, the purpose of internet usage, parents' being together, daily internet usage, the level of parents' and self internet competency, education level of parents, daily facebook, twitter and instagram usage.

Data Analysis

T-test and one way ANOVA were used to analyze the data. Tukey test was conducted in order to understand the source of difference if F value is significant. Assumptions were checked and parametric tests were used for the study. Analyses were conducted via SPSS 15.00 with the significance level of .05.

FINDINGS

Whether being a cyber bully and victim in adolescents differs according to gender, daily internet usage, the purpose of internet usage, daily facebook, twitter and instagram usage, parents' being together and education level of parents was examined. Table 1 displays results of t-test analysis whether cyberbullying and victimization differs according to gender.

Table 1. Independent samples t-test whether cyberbullying and victimization differs according to gender

	Gender	N	$\bar{x}$	Sd	df	t	p
Cyber Bully	Female Male	168 191	15,39 16,14	2,18 2,61	357	-2,920	,004*
Cyber Victim	Female Male	168 191	17,02 18,82	4,08 5,04	357	-3,668	,000*

* $p < .05$

As shown in Table 1, there is a significant difference between being a cyber bully (t (357) = - 2.920, p<.05) and a cyber victim (t (357) = -3.668, p<.05) for girls and boys. Boys are under risk of being a cyber bully and victim more than are girls.

Table 2 displays the mean scores and standard deviations of adolescents' being a cyber bully and victim according to their daily internet usage.

Table 2. Mean scores and standard deviations for adolescents' being a cyber bully and victim according to daily internet usage

		n	$\bar{x}$	sd
Being a Cyber Bully	30 min- 1hour	112	14.94	1.58
	1 hour - 2 hour	127	15.74	2.33
	2 hour - 4 hour	93	16.47	2.89
	4 hour and more	27	17.14	3.02
	TOTAL	359	15.79	2.44
Being a Cyber Victim	30 min - 1 hour	112	16.13	3.26
	1 hour - 2 hour	127	18.11	4.48
	2 hour - 4 hour	93	19.09	4.82
	4 hour and more	27	21.22	6.95
	TOTAL	359	17.98	4.69

In order to understand whether being a cyber bully and victim differs according to adolescents' daily internet usage, one way ANOVA was used. Findings indicated that there was a significant difference between adolescents' being a cyber bully [F(3, 355)=10.40, p< .05] and victim [F(3, 355)=10.40, p< .05] and their daily internet usage. To determine the source of this difference, Tukey test was conducted. According to the mean score of adolescents' being a cyber bully and victim, while the lowest score belongs to adolescents who use internet 30 min-1 hour in a day ($\bar{x}$=14.94; $\bar{x}$=16.13), the highest score does of adolescents' who use internet 4 hours and more ($\bar{x}$=17.14; $\bar{x}$=21.22) in a day.

Mean scores and standard deviations of adolescents' being a cyber bully and victim according to daily facebook, twitter and instagram usage were shown in Table 3.

Table 3. Mean scores and standard deviations for adolescents' being a cyber bully and victim according to daily facebook, twitter and instagram usage

		n	$\bar{x}$	sd
Being a Cyber Bully	0 - 30 min	26	14.65	1.32
	30 min- 1 hour	190	15.47	2.15
	1 hour - 2 hour	95	16.28	2.62
	2 hour and more	48	16.66	3.15
	TOTAL	359	15.79	2.44
Being a Cyber Victim	0 - 30 min	26	15.00	1.95
	30 min- 1 hour	190	17.17	3.89
	1 hour - 2 hour	95	20.06	5.55
	2 hour and more	48	18.66	5.15
	TOTAL	359	17.98	4.69

One way ANOVA was used to analyze whether being a cyber bully and victim differs according to adolescents' daily facebook, twitter and instagram usage. Analysis showed a significant relationship between adolescents' being a cyber bully [F(3,355)=6.514, p<0,05] and a cyber victim [F(3,355)=13.09, p<.05] and their daily facebook, twitter and instagram usage. In other words, adolescents' being a cyber bully and victim vary depending on their facebook, twitter and instagram usage in a day. In order to understand the source of difference, Tukey test was used. Findings indicated that, as for being a cyber bully, adolescents who use internet for 0-30 minutes a day have the lowest mean score ($\bar{x}$=14.65) and who use it for 2 hours and more a day have the highest mean score ($\bar{x}$=16.66). As for being a cyber victim, according to adoselcents' daily facebook, twitter and instagram usage, the lowest mean score is of 0-30 minutes users ($\bar{x}$=15.00), and the highest mean score is of 1 and 2 hours users ($\bar{x}$=20.06).

Table 4 displays mean scores and standard deviations for adolescents' being a cyber bully and victim according to the purpose of internet usage.

Table 4. Mean scores and standard deviations for adolescents' being a cyber bully and victim according to the purpose of internet usage

		n	$\bar{x}$	sd
Being a Cyber Bully	To Study	54	14.70	1.38
	To Make a Research	38	15.10	1.50
	To Play a Game	26	16.38	2.84
	To Use Facebook, Instagram, Twitter..etc	65	17.04	2.97
	All	168	15.72	2.42
	Other	8	15.75	1.48
	TOTAL	359	15.79	2.44
Being a Cyber Victim	To Study	54	16.18	3.32
	To Make a Research	38	17.26	4.08
	To Play a Game	26	19.00	5.60
	To Use Facebook, Instagram, Twitter..etc	65	20.03	5.50
	All	168	17.70	4.43
	Other	8	19.50	4.81
	TOTAL	359	17.98	4.69

One way ANOVA was used to analyze whether being a cyber bully and victim differs according to adolescents' purpose of internet usage. Analysis showed a significant relationship between adolescents' being a cyber bully [F(5,353)=7.017, p<0,05] and a cyber victim [F(5,353)=5.025, p<.05] and their purpose of internet usage. In this sense, adolescents' being a cyber bully and a cyber victim varies depending on what they use internet for. In order to understand the source of difference, Tukey test was used. According to the analysis, the lowest mean score is of adolescents who use internet for studying ($\bar{x}$=14.70; $\bar{x}$=16.18), and the highest mean score is of who use internet for facebook, twitter and instagram ($\bar{x}$=17.04; $\bar{x}$=20.03).

Table 5 shows the mean scores and standard deviations for adolescents' being a cyber bully and victim according to their level of internet competency

Table 5. Mean scores and standard deviations for adolescents' being cyber bully and victim according to their level of internet competency

		n	$\bar{x}$	sd
Being a Cyber Bully	No information	7	14.57	1.51
	Limited information	14	15.07	1.38
	Adequate information	159	15.45	2.17
	Advanced	179	16.19	2.69
	TOTAL	359	15.79	2.44
Being a Cyber Victim	No information	7	14.85	2.26
	Limited information	14	16.14	2.90
	Adequate information	159	17.12	4.29
	Advanced	179	19.01	4.99
	TOTAL	359	17.98	4.69

Findings indicated a significant relationship between adolescents' being a cyber bully [F(3,355)=3.702, p<0,05] and a cyber victim [F(3,355)=6.670, p<.05] and their level of internet competency. However, there is no significant difference between being a cyber bully [F(3,355)=.862, p>.05] and a cyber victim [F(3,355)=.814, p>.05] and mother's level of internet competency, and also between being a cyber bully [F(3,355)=.577, p>.05] and a cyber victim [F(3,355)=.480, p>.05] and father's level of internet competency. According to the findings of Tukey test, adolescents who have no information have the lowest score ($\bar{x}$=14.57; $\bar{x}$=14.85), and who are advanced at using internet have the highest mean score ($\bar{x}$=16.19; $\bar{x}$=19.01).

Table 6 displays the mean scores and standard deviations for adolescents' being a cyber bully and victim according to their parents' being together

Table 6. Mean scores and standard deviations for adolescents' being a cyber bully and victim according to their parents' being together

		n	$\bar{x}$	sd
Being a Cyber Bully	Married	323	15.69	2.32
	Divorced	25	16.60	3.06
	Married but live apart	3	15.33	1.52
	Mother or father died	8	17.50	4.27
	TOTAL	359	15.79	2.44
Being a Cyber Victim	Married	323	17.80	4.46
	Divorced	25	18.88	6.37
	Married but live apart	3	20.66	3.51
	Mother or father died	8	21.37	7.11
	TOTAL	359	17.98	4.69

Findings showed that adolescents' being a cyber bully [F(3,355)=2.454, p>.05] and a cyber victim [F(3,355)=2.195, p>.05] do not differ according to their parents' being together.

DISCUSSION

In this study, adolescents' being a cyber bully and victim were invstigated in terms of demographic variables those were gender, daily internet usage, the purpose of interent usage, daily facebook, twitter and instagram usage, the level of parents' and self internet competency, parents' being together and the education levels of parents.

There found a significant relationship between being a cyber bully and victim and gender. Male students have higher possibility of being a cyber bully and victim than females. This finding is in line with some research (Erdur-Baker, 2010; Erdur-Baker ve Kavşut, 2007) while does not with some others which stated that female students are more likely to be exposed to cyberbullying (Kowalski ve Limber, 2007; Vandebosch ve VanCleemput, 2009). This can be explained by the level of internet based information technology usage of male and female students. For instance, according to the data of TUİK (Turkey Statistics Institution, 2014), males use computer and internet more in all age groups. Therefore, they are more likely under risk of being a cyber bully and victim. This finding is also in parallel with the findings of a study by Erdur-Bakır and Kavşut (2007) who stated that there is a positive relationship between the usages of internet based technology and being a cyber bully or victim.

Findings pointed out a significant relationship between being a cyber bully and victim and daily internet usage. Adolescents who use internet 4 hours and more in a day are more probably cyber bullies and victims. This finding is consistent with those of which indicated that as the level of interent usage increases, the rate of cyberbullying and victimization increases as well (Serin, 2012; Çiftçi, 2010).

Findings showed that adolescents whose purpose are to use facebook, twitter and instagram have the possibility of being a cyber bully and victim more than those whose purpose are to study and make a research. Moreover, there is a significant relationship with the adolescents whose purpose is to play games. Serin (2012) also found a significant relationship between the purpose of internet usage and being a cyber bully however he didn't found any with being a cyber victim. Adolescents are supposed to be under risk in terms of behaviors related to cyberbullying and victimization when they have more interaction with other people in social web sites such as facebook, twitter and instagram, when they communicate with strangers, and when they can see others' personal information, pictures and share them. This finding also showed that students are under risk of being a cyber bully and victim in virtual platforms where extensive and interactive relations take plce in rather than in platforms where students interacted with little groups or some materials just for studying. Related literature stated that such risky internet behaviors lead to cyberbullying and victimization (Erdur-Baker ve Tanrıkulu, 2010; Ybarra, Diener-West v.d., 2008).

In this study, a significant relationship was found between being a cyber bully and victim and daily facebook, twitter and instagram usage. Adolescents, who use facebook, twitter and instagram for 2 hours and more a day are more likely to be a cyber bully and victim than those for 0-30 min and 30 min-1 hour. Adolescents are supposed to be under risk in terms of behaviors related to cyber bullying and victimization when they have more interaction with other people in social web sites such as facebook, twitter and instagram, when they communicate with strangers, and when they can see others' personal information, pictures and share them. Nevertheless, further studies are required to support this judgement.

Findings revealed a significant relationship between being a cyber bully and victim and adolescents' level of interent competency, while there was no relationship with their parents' level of interent competency. This finding may indicate a direct association between the internet literacy skills and cyberbullying and victimization. Kocatürk (2014) observed that as the skill of using internet and computer improves the tendency of cyberbullying increases as well. This finding indicates that, as the advanced level of interent usage increases the possibility of being a cyber bully, it also increases the possibility of being a cyber victim. So, adolescents who use interent and computer in an advanced level perpetrate bullying to eachother also. Therefore, in the cases of peer bullying, the factor of "power inbalance inbetween" in social environments (In Kocatürk, 2014) may turn into the competence of using computer and internet in virtual platforms. According to these findings, individuals who use technology more effectively are under risk more in terms of being a cyber bully and victim.

In the study, there was no relationship between being a cyber bully and victim and parents' being together. There seems to be no research on this issue in the literature. Examining the related research, Ybarra and Mitchell (2004) found that weak emotional attachment with parents predicts cyber bullying and victimization positively. Eroğlu and Güler (2005) stated that internal self-worth factors such as family support predict the behaviors related to cyberbullying negatively. Therefore, further studies are needed on the associations of cyberbullying and victimization with adolescents' relations with their parents and the quality of these relations.

In sum, findings of the current study indicated that, male students who spend much more time in using internet in a day; who can use computer technologies more effectively, use interent to interact other groups apart from styding and playing games are under risk of being a cyber bully and victim more. Group counseling and psycho-educational intervention studies at schools may contribute to prevent cyberbullying and victimization for these risk groups.

In this study, some demographic variables which can be related to being a cyber bully and victim were focused on. Further studies might be conducted with different school, district and age groups including different demographic variables. Thus, the relation of cyberbullying and demographic variables may be understood from a more broad perspective. Moreover, further longtidunal and qualitative studies might contribute to understand the experiences of cyberbullying and victimization more deeply.

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Investigation Of General And School Life Satisfaction Of Adolescents With Different Academic Success Level

Tuncay ORAL
Pamukkale Üniversitesi, Denizli, Turkey
toral@pau.edu.tr

ABSTRACT

The aim of the study is to classify students into three groups considering their success levels as low, medium and high and then investigate if there is a significant difference in general and school life satisfaction according to the academic success levels. In line with this aim, a total of 302 high school students consisting of 135 female and 167 male students were implemented The Satisfaction with Life Scale and Multidimensional Student's Life Satisfaction Scale. According to the results of one-way analysis of variance conducted (One-Way ANOVA), no significant difference was found in the scores of general life and school life satisfaction in terms of low, medium and high success levels.

INTRODUCTION

As a natural consequence of the transition from the clinic based counselling concept to the concept of guidance and counselling based on lifelong development, there has been an increase in issues such as processes contributing to an individual's development positively and well-being and happiness in recent years (Yeşilyaprak, 2012). However, the amount of information in the field related to psychological problems is much more compared to psychologically well-being. To illustrate, it can be observed that when the archive of thesis center belonging to Turkish Council of Higher Education is investigated, of all the graduate studies on psychology, psychological counselling and education conducted between 1984 and 2013, 649 are based on anxiety, 377 on depression, 181 on anger while only 86 of them focused on life satisfaction and 43 on subjective wellness and well-being. It can be easily inferred from these statistics that negative emotional states have been studied 10 times more than positive emotional states. However, in our age today, mental health has been started to be perceived as the state of having positive psychological functions such as being happy as well as not having any psychological problems (Özgüngör, Oral and Karababa, 2015). In the literature related to psychology, the term happiness is defined as subjective well-being (Diener, 2000). Subjective well-being reflects cognitive and affective reactions of an individual towards his own life, his judgements and considerations, and it is classified into three separate but related dimensions as positive emotion, negative emotion and life satisfaction (Yetim, 2001). Individuals who have a high level of subjective well-being are expected to have generally positive emotions, rarely negative emotions and high level of life satisfaction (Suldo and Huebner, 2006). Life satisfaction, described as the cognitive dimension of subjective well-being, is a an individual's general cognitive evaluation of whether he is satisfied with his own life as a whole or in terms of some specific areas of life such as family, friends, school experiences (Diener, Suh, Lucas and Smith, 1999). When studies focusing on life satisfaction are analysed, in spite of the increasing interest in literature, it is seen that the number of studies into adolescents' life satisfaction are less than the studies into adults' life satisfaction (Park, Huebner, Laughlin, Valois and Gilman, 2004). Adolescence, as a period in which a great number of changes in physical, emotional, social and cognitive areas are experienced simultaneously and swiftly (Yörükoğlu, 2004), is of critical importance since it includes changes that can affect all aspects of life (Tarhan, 2003). When studies into life satisfaction in adolescents are investigated, it is observed that there are some findings suggesting that this issue should be understood better. For instance, in a study conducted with adolescents by Proctor, Linley and Maltby (2009), it was found that adolescents with high level of life satisfaction have higher self-esteem and low depression levels compared to those with low level of life satisfaction, and it was reported that adolescents with high level of life satisfaction have positive peer and parent relationships. In another study carried out by Gilman in 2001, it was stated that adolescents with high level of life satisfaction have a higher level of social interest and participation in social events in comparison with those having low level of life satisfaction. In their study Suldo and Huebner (2006) reveal that adolescents with high level of life satisfaction have more social, emotional and academic self efficacy; get more support from their environments and have less emotional and behavioural problems than those with low levels of life satisfaction. In another study by Gilman and Huebner (2006), it was found that adolescents with high level of life satisfaction have lower levels of anxiety and depressions and higher self-esteem and hope than those with low level of life satisfaction. In the same study, it was observed that those with high level of life satisfaction have a more positive attitude towards school and teachers.

In the light of these studies presenting the relationship between life satisfaction of adolescents and numerous significant variables, recent studies have focused on the relationships between variables related to school where most adolescents spend a considerable part of their time and life satisfaction. Therefore, it was revealed that the variables of academic self efficacy, the level of perceived social support from teachers (Suldo and Huebner, 2006), school atmosphere (Baker, 1998), perfectionism (Öngen, 2009) and participation in the lessons cognitively (Lewis, Huebner, Malone and Valois, 2011) are all related to life satisfaction in adolescents. On the other hand, in a comprehensive study in which a total of 16374 Norwegian, Finn, Slovakian and Lithuanian students participated, Samdal, Nutbeam, Wold and Kannas (1998) demonstrated that teachers' being supportive, feeling safe at school and being treated fairly are among the variables highly related with school life satisfaction. When the findings of these studies are reviewed, it is seen that both school life satisfaction and general life satisfaction increase to the extent that students perceive academic environment as supportive not threatening and the academic tasks as manageable. Previous studies conducted in the past also indicate that there has been some research into the relationship between life satisfaction and academic success. However, there exist a number of issues showing that this research topic should be dealt deeply. First of all, relationships between academic variables and life satisfaction show cultural differences (Suldo, Riley and Shaffer, 2006). To illustrate, while the relationship between academic success and life satisfaction in American college students were noteworthy (Powers, 2008), some studies conducted with secondary school students revealed that the sense of academic self efficacy (Huebner, Gillman and Laughlin, 1999), rather than the academic success itself (Huebner, 1991), is related to life satisfaction.

On the other hand, Chang, McBride-Chang, Stewart and Au (2003) stated that the relationship between academic success and life satisfaction of Chinese secondary school students is meaningful. In our country, however, due to the fact that the scores of academic success has a crucial potential affecting future directly with the exams such as the transition to higher education examination and undergraduate placement exam and academic success is perceived as vital as an important criterion for the student to be able to be approved by the family and other adults, academic success may be expected to be highly related with school and life satisfaction. Secondly, even though a limited number of studies dealing with this topic (Powers, 2008; Chang et al., 2003) presented information supporting the relationship between academic success and life satisfaction, in these studies, up to now, general life satisfaction mostly measured with one dimension has been investigated.

However, Huebner (1991, 1994) emphasises that life satisfaction is multi-dimensional and has subdimensions such as family, environment and school. Analysing life satisfaction related to academic success and school, where academic practices take place, at the same time are thought to contribute a great deal to literature. In short, the aim of this study is to classify students into three groups considering their success levels as low, medium and high and then investigate if there is a significant difference in general and school life satisfaction according to the academic success levels.

THE STUDY

The sample of the Study

The data of the study was gathered from a total of 302 high school students consisting of 135 female (44,7%) and 167 male (55,3%) students studying in Denizli city centre in 2014-2015 academic year and who are included in the study with simple random sampling. In the study sample, 93 student (30,8%) students study at 9th grade, 65 students (21,5%) in the 10th grade, 68 students (22,5%) in the 11th grade, 76 students (25,2%) in 12th grade.

Data Collection Tools

The Satisfaction with Life Scale: In this study, with the aim of determining life satisfaction level defined as the cognitive dimension of well being, The Satisfaction with Life Scale, originally developed by Diener, Emmons, Larsen and Griffin (1985) and adapted to Turkish by Köker (1991) was used. The scale is a 7-point Likert style with 5 items to measure an individual's perception of his life quality and satisfaction with life. Each item is given a point between 1 and 7. As the scores get higher in the scale, the satisfaction with life also increases. The test retest reliability of the scale was found to be .85. In this study, internal consistency reliability coefficient was calculated as .84.

The Multidimensional Students' Life Satisfaction Scale: This is a scale developed by Huebner (1994), originally consisting of a total of 40 items, 10 of which are negative. This scale is comprised of 5 subscales namely family, friends, school, living environment and self. The Multidimensional Students Life Satisfaction Scale (MSLSS) was adapted to Turkish by Çivitci (2007). In this study, the subscale of school life satisfaction was used. The Croanbach Alpha internal coefficient of consistence of the subscale of school life satisfaction was found to be .76. Within the framework of this study, The Croanbach Alpha internal coefficient of consistence of the subscale of school life satisfaction was calculated as .86.

Academic Success Level: Students participating in the study were asked to fill in "average academic score" part on the top of the scales. Students declaring that they are not so sure about their academic scores were given help to write their averages thanks to the list of the average academic scores obtained from school management.

Data Analysis

In accordance with the aim of the study, in order to divide students into three categories as low, medium and high according to their success levels, grade point averages of all the students and the standard deviation are calculated. As a result of the statistical analysis carried out, academic grade point averages of all the students participated in the study was found to be 73.66 and standard deviation was calculated as 9,10. Thus, scores below 64,56 are determined to be low, those between 64,57-82,76 are medium scores, and those above 82,77 are high. Following this classification, one-way analysis of variance (One-Way ANOVA) was carried out to find if there is a significant difference in general and school life satisfaction according to academic success level. Analyses were conducted in computer medium through the SPSS 16.0 program.

FINDINGS

Descriptive statistics related to the scores of general life and school life satisfaction according to the variable academic success level are presented in Table 1.

Table 1. Descriptive statistics related to the scores of general life and school life satisfaction according to the academic success level

	Academic Success Level	N	$\bar{X}$	Sd
Life Satisfaction	Low	50	22,76	6,76
	Medium	190	24,19	6,45
	High	62	23,29	6,16
	Total	302	23,77	6,45
School Life Satisfaction	Low	50	17,80	4,93
	Medium	190	18,68	5,20
	High	62	18,87	5,74
	Total	302	18,57	5,27

Findings of one-way analysis of variance carried out to find if there is a significant difference in general and school life satisfaction according to academic success level of adolescents are displayed in Table 2.

Table 2. Findings of one-way analysis of variance related to general and school life satisfaction according to academic success level

	Variance Source	S.d.	Sum of Squares	Mean of Squares	F	P
Life Satisfaction	Inter Groups	2	99,546	49,773	1,197	,303
	In-groups	299	12429,689	41,571		
	General	301	12529,235			
School Life Satisfaction	Inter Groups	2	37,514	18,757	,674	,510
	In-groups	299	8316,384	27,814		
	General	301	8353,897			

When the findings of one-way analysis in Table 2 are examined, no significant difference was found in the scores of general life satisfaction according to adolescents' academic success levels (F= 1,197, p>.05). In addition, there is no significant difference in the other dependent variable school life satisfaction according to adolescents' academic success levels (F= ,674, p>.05).

CONCLUSIONS

According to the results of this study, no significant difference was found in the scores of general life and school life satisfaction in terms of low, medium and high academic success levels. The most remarkable result of the study can be considered that although the score of academic success has a crucial potential affecting future directly with the exams such as the transition to higher education examination and undergraduate placement exam and in most cases academic success is perceived as vital as an important criterion for the student to be able to be approved by the family and other adults, it doesn't affect students' general and school life satisfaction. When studies conducted in the past are reviewed, it is seen that in some of them, some important relationships between academic success and life satisfaction are determined (Powers, 2008; Chang et al., 2003). While in some others such relationships couldn't be found (Huebner, 1991). In respect to this, it can be stated that the findings of the present study is consistent with some studies and inconsistent with some others. According to many studies, both school life satisfaction and general life satisfaction increase to the extent that students perceive academic environment as supportive not threatening and the academic tasks as manageable (Samdal et al., 1998). In addition to these, some other studies indicate that variables such as academic self efficacy, perceived social support from teachers (Suldo and Huebner, 2006), school atmosphere (Baker, 1998) and participation in the lesson cognitively (Lewis et al., 2011) are all related to life satisfaction in adolescents. It can inferred that the variables other than academic grade points of the students in our study group may have affected their general and school life satisfaction. As mentioned above, these can be variables such as social support, self efficacy, school atmosphere and participation in the lesson. In order to learn the effect of these variables on the adolescents in study area, as well as the variable of academic success that can affect general and school life satisfaction, it can be advised that new studies including variables such as social support, self efficacy, school atmosphere should be conducted with adolescents of similar ages. Moreover, replicating the study in a city or region other than the one in the present study with a wider group of adolescents can increase the likelihood of the generalisation of the results.

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Investigation Of Relationship Between Just World Perceptions (Belief In A Just World) And Decision Making Process Of Students At The School Of Physical Education And Sports

Gokhan ACAR
Faculty of Sport Sciences
Usak University
Turkey
gokhnacar@gmail.com

Mihriay MUSA
Faculty of Sport Sciences
Usak University
Turkey

Ahmet SAHIN
Physical Education and Sports
Mehmet Akir Ersoy University
Turkey

Nuri KARABULUT
Faculty of Sport Sciences
Usak University
Turkey

Nigar YAMAN
Physical Education and Sports
Bartin University
Turkey

Muhammet OZER
Faculty of Sport Sciences
Usak University
Turkey

ABSTRACT

This study aims to reveal whether personal justice perceptions of students who study at the Faculty of Physical and Sports Sciences has influence over their decision making process. We are observing that just world perceptions, self-confidence at decision making, careful, aversive and panic decision making processes of students do not exhibit difference based on their sport activities. On the other hand, it is observed that there is significant difference with the dilatory decision making factor in regard to sport activities of students. There is significant difference between students at the Department of Coaching and the ones at the Department of Recreation in terms of dilatory decision making factor. Accordingly, mean score of students who study at the department of coaching concerning dilatory decision making is significantly higher than the mean score of students from the department of recreation. A positive but insignificant relationship is observed between students' personal just world perception their self-confidence in decision making process. Thus, it can be concluded that as students' just world perception enhances their self-confidence in decision making process increases slightly.

KEYWORDS: Students at the Physical and Sports Sciences Faculty, Personal Justice (belief in just world), Decision Making.

INTRODUCTION

Who developed the theory of belief in just world, individuals tend to believe in a Notion that the world is a place in which good people are rewarded while bad people are punished (Lerner, 1977). Justice is appropriate to the juridical responsibilities (Kant, 1993). A study supports this contention by emphasizing importance of humane need for believing in the world is a just environment (Bazerman et al, 1995). The belief in a just world is a protective function for individuals against undeserved adverse results psychologically (Dalbert, 1998; Lerner et al, 1978; Lerner, 1980; Mohiyeddini et al, 1998). Based on the belief in just world, individuals tend to believe that adverse consequences faced by persons are caused by themselves (Lipkus et al, 1993). Based on another point of view, belief in just world has an implicit characteristic and thus, individuals not only unaware of its consequences, but also they are unaware about existence of such a belief (Goldberg et al, 1999; Lerner, 2002). Some authors claimed that when there is no opportunity to offset the situation of individuals who suffers from deprivation of basic human needs, belief in just world is continued by insulting these disadvantaged poor people (Furnham, 1989). The understanding of belief in just world requires a perception that the world is a place where everybody gets what they deserve, goods take good, and bad people take bad (Lerner, 1965; Lerner et al, 1978). The high level of belief in just world observed among individuals who face misfortune facilitates process of becoming good people after these bad incidents and adjusting to the new circumstances arise (Dalbert, 2002). It is observed that individuals exhibit a tendency to perceive that their living conditions, social systems and arrangements are just consistent with their belief that the world is a just place; and thus, they rationalize status-quo as fare and legitimate, and support it (Jost et al, 1978). In order to comprehend importance of justice, perspectives of philosophers such as Aristotle would be useful such that they consider justice as total virtue; thus, he stated that “justice is not part of virtue, rather it constitute whole of it” (Aristoteles, 2007). Individuals with strong belief in just world feel more secure and are positive about their future life. Besides, they have higher self confidence regarding accomplishing their personal targets in the future (Otto et al, 1978). In another research, it is reported that people with strong belief in just world can explain the relationship between results and deserving through supernatural powers or divine interferences (Zuckerman, 1975). The belief in just world helps individuals to find different meanings in their life even if unjust circumstances they faced are at irreversible or reimbursable point (Dzuka et al, 2006). It was also reported that reactions against innocent victims such as insulting or embarrassing are result of motivations of individuals to protect their belief in just world from potential threats (Hafer et al, 2005). Especially, within persistent unjust conditions, persons with potential to help victims develop adverse attitudes against victims such as insulting and blaming (Reichle et al, 2002). In another study concerning the belief in just world, Catholic group members live under more disadvantaged life conditions compared to the Protestants. Although this group is more religious than the Protestants, they are of the opinion that the world was unjust due to their social conditions (Furnham et al, 1985).

Decision making is one of the most important life skills. Appropriate and accurate decisions cause positive changes in lives of individuals, mistaken decisions would affect life orientation negatively (Gucray, 1998). Decision making represents not only description of the alternatives during selection of these alternatives considered concerning several incidents, but also execution of the most appropriate one along with our targets, desires, life style, values ant etc. Decision making is defined as reducing suspects and uncertainties sufficiently while selecting the most appropriate option among alternatives (Balkis, 2006). About the information process of the decision making, there are two dimensions described: focal point and amount of the information utilized. The focal point has two poles. Whereas at one pole, decision makers perform single-sided evaluation in their perspective toward information for acting or solution, on the other pole, they see multiple solutions. The amount of information utilized during decision making process varies according to decision makers (Driver et al, 1975). There is view that acquiring detailed information about how a decision made would reveal how decisions could be taken most appropriately because it is seen that majority of individuals do not use this cognitive capacities fully and that they prefer shortcuts (Candangil, 2005). According to another point of view, when an individual faces with decision making process, it is not possible to evaluate all options, each characteristic of them, and their possible results simultaneously (Newell et al, 2004). On the other hand, it is first required that the problem must be defined in the decision making process. The following step to be followed is to collect required information. It would be appropriate to postpone decision making if there are missing critical information concerning our decision (Adair, 2000). Even individual make the decision by utilizing a rational decision strategy, this decision would lose its validity in the future because of the change occur within the society. Therefore, during the decision making process, uncertainty condition faced by the individuals is required to be taken into consideration. Along with the positive uncertainty concept, an individual should not consider this uncertainty as a negative process. This positive uncertainty should be taken as an existing, real, and a certain process (Avsaroglu, 2007). On the other hand, detention or detention fear cause anxiety and individuals experience difficulties in decision making process (Atkinson et al, 1999). People show tendency to high risk exhibit fast decision making process. They spend less time for information acquisition and evaluation of them during decision making process (Tasdelen, 2002).

THE STUDY

In the present research, correlation and causal comparative methods were utilized. Correlation research examines the relationship between two variables without exhibiting effort to create an effect on them. Simply, correlation research which examines the relationship between two variables is capable of examine relationship among more variables as well. Besides examination of relationship among variables, another purpose of correlation researches is regression study. If there is significant relationship between two variables, from the known point of an independent variable called regressive variable, the point of a dependent variable called criterion variable can be estimated.

Causal comparative method aims to determine possible causes of a behavior pattern by comparing the ones having this pattern with the ones do not. There are at least two variables in relationship determination through comparison. Groups are formed based on independent variables and it is examined whether there is difference according to the dependent variable (Borg, 2007).

Research Questions

In the present research, answers for following questions were probed:
1. What is the level of students' personal perception regarding just world?
2. What is the level of students' self confidence during decision making process?
3. What is the characteristic of students' decision making process?
4. Do students' personal perception regarding just world, self confidence level in decision making, and their decision making process exhibit difference in terms of their demographic characteristics?
5. Is there significant relationship between students' personal perception regarding just world and their self confidence level in decision making process?

Data Collection and Data Analysis

The study group is consisted of 212 students from each grade (1st, 2nd, 3rd and 4th grades) at the Physical and Sport Science College of Mustafa Kemal University in the fall semester of 2014–2015 academic year. of these students, 43 were at the department of physical education and sport teaching, 84 were at the department of sport management, 33 were at the department of coaching and 53 were at the department of recreation; while 80 of them female and 132 were male students. The members of this sampling group were selected randomly.

Data acquired in the research was analyzed by means of the SPSS 13.0 statistical software and plot graphic obtained. Frequency (f) analysis was utilized to render demographic information of the participant students. The survey applied to determine decision making styles of students uses 3-scored scale. This survey is consisted of two sections; while six questions in the first section measure self confidence level in the decision making process. These questions are composed of three positive and 3 negative expressions. Concerning positive expressions, 3 of these points are correct, 2 of them are sometimes correct and 1 of them is not correct. Concerning negative expressions, 3 of these points are incorrect, 2 of them are sometimes correct and 1 of them is correct. In order to determine whether students' belief in just world and their decision making styles differ according to their demographic characteristics, *t test* and *one way Anova test* were conducted. A 7-scored scale was used in the survey conducted in order to determine students' personal belief in just world. One of points indicates Quite Wrong (Strongly Disagree), 4 points indicates Neutral Stance (Neutral), and 7 points indicates Quite Right (Strongly Agree). In order to determine whether there is significant relationship between students' personal belief in just world and their decision making styles, *correlation coefficient* between two groups was considered. Interpretation of Pearson Correlation coefficient is that "*R 0.00 – 0.25: the relationship is quite insignificant, R 0.26 – 0.49: the relationship is insignificant, R 0.50 – 0.69: the relationship is at medium level, R 0.70 – 0.89: the relationship is significant and R 0.90 – 1.00: the relationship is highly significant*".

Instruments

One of the data collection method, scale for personal belief in just world (KADİÖ) was developed by (Dalbert, 1999). It was adapted into Turkish; and its validity and reliability studies were conducted by (Goregenli, 2004). Another data collection tool is Melbourne Decision Making Scale. Whereas the original scale was developed by (Mann et al, 1998). Adapted this into Turkish and conducted its validity and reliability studies (Deniz, 2004).

FINDINGS

According to table 1, it can be observed that students' perception of just world does not exhibit difference in terms of decision making styles of self confident, careful, aversive and in panic according to their grades ($p>0.05$). On the other hand, in terms of dilatory decision making style, there is significant difference among students according to their grades ($p<0.05$) [Table 1].

According to table 2, it can be observed that there is significant difference between 1st Grade students and 2nd Grade students. Accordingly, it was found that dilatory decision making means of the 2nd Grade students were significantly higher than the means of the 1st Grade students [Table 2].

According to the table 3, it was observed that perception of students regarding just world and their decision making styles of self confident, careful, aversive and panic do not exhibit difference according their sport practice levels ($p>0.05$). On the other hand, regarding dilatory decision making style, it was observed that there is significant difference according to students' sport practice levels ($p<0.05$) [Table 3].

Mean score of students regarding careful decision making style is 2.47, which indicates CORRECT. Thus, it is possible to conclude that students are usually careful while making their decision [Table 4].

It can be observed that there is significant difference between students who practice sports as an amateur and the ones who practice sports as a professional. Thus, it was found that mean scores of students who practice sports professionally regarding effective decision making style was significantly higher compared to the ones who practice sport activities amateurish [Table 5].

According to table 6, it can be seen that there is insignificant positive ($R=0.181$) relationship between students' personal perception regarding just world and their self confidence in their decision making style. Thus, it can be said that as students' personal perception regarding just world increases, their self confidence in decision making process increases even though it is insignificant amount [Table 6].

It can be observed that there is insignificant positive relationship between students' personal perception regarding just world and their self confidence in decision making process ($R=0.181$). Consequently, it can be concluded that as students' personal perception regarding just world increases, their self confidence in decision making process increases slightly [Table 7]

CONCLUSIONS

There was no significant difference found among students based on their decision making styles such as self confident, careful, aversive and dilatory according to their genders. However, there is significant difference found among levels of students' panic decision making style according to gender (Can, 2009). In another research, (Avsaroglu et al, 2007) reported that mean scores of university students regarding self confidence in decision making and decision making styles do not exhibit significant difference according to their gender. The mean score of students concerning their answers for dilatory decision making style is estimated as 1.92, which indicates SOMETIMES CORRECT level. Consequently, it can be said that students sometimes exhibit dilatory behavior. The mean score of students concerning their answers for panic decision making style is estimated as 2.06, which indicates SOMETIMES CORRECT level. Thus, it can be said that students sometimes act in panic while they are making their decisions. Motivation of human beings for viewing social systems and arrangements in which they live just and legitimate is the most important and frequently investigated area of social psychology (Jost et al, 2004; Kluegel et al, 1986; Major et al, 1994).

This study demonstrated when it is viewed from this angle, it can be seen that students' personal perception regarding just world does not present difference in terms of their self confident, careful, aversive and panic decision making styles according to their grade years ($p>0.05$). On the other hand, concerning dilatory decision making style, it is observed that students exhibit significant difference according to their grade years ($p<0.05$). The significant difference between students at the first grade and the ones at the second grade is remarkable. Hence, dilatory decision making mean scores of students at the second grade were found significantly higher compared to the students at the first grade. It is observed that students' personal perception regarding just world does not exhibit difference in terms of their self confident, careful, aversive and panic decision making styles according to their sport practicing levels ($p>0.05$). In terms of dilatory decision making style, it was notable that there is difference among students according to their sport practicing levels ($p<0.05$). There is significant difference between students practicing sport activities amateurish and the ones practicing professionally. Accordingly, it is found that mean scores of students who practice sport activities professionally regarding their effective decision making styles is significantly higher than the students who practice sport amateurish. It is observed that students' self confident, careful, aversive and panic decision making styles do not exhibit difference according to their department ($p>0.05$). Concerning perception regarding just world and dilatory decision making style, students exhibit significant difference according to their departments ($p<0.05$). Significant difference is observed between students at the sport management department and the students at the coaching department; and the students at the physical education and sport teaching department and at the coaching department and the students at the recreation department concerning the students' just world perception. Consequently;

- Personal perception of students who study at the sport management regarding just world is significantly higher compared to the students at the coaching department;
- Personal perception of students who study at the recreation department is significantly higher

compared to the students at the physical science and sport teaching department and coaching department.

There is significant difference between students at the coaching department and the ones at the department of recreation in terms of dilatory decision making style. Hence, mean scores of the students at the coaching department concerning dilatory decision making styles are significantly higher than the scores of students at the recreation department. There is insignificant positive relationship between students' personal perception regarding just world and their self confidence in decision making (R=0.181). Thus, it can be said that as students' personal perception regarding just world increases, their self confidence in decision making increases slightly. Conclusively, it can be seen that there is insignificant positive relationship between students' personal perception regarding just world and careful decision making style (R=0.186). Thus, it is possible to say that as students' personal perception regarding just world increases, their careful decision making styles increases slightly.

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TABLES

Table 1 Comparison of students' personal perception of just world, their self confidence level in decision making process, and their decision making styles.

Variables		SUM OF SQUARES	MEAN SQUARE	**F**	**P**
Perception of just world	Between class levels	1.141	0.380	0.699	0.554
Self confidence in decision making	Between class levels	0.473	0.158	1.271	0.285
Carefully decision making	Between class levels	0.783	0.261	1.327	0.267
Aversive decision making	Between class levels	0.871	0.290	1.425	0.236
Dilatory Decision making	Between class levels	1.964	0.655	3.715	0.012*
Decision making in panic	Between class levels	0.126	0.042	0.157	0.925

*P<0.05

Table 2 Comparison of students' dilatory decision making styles according to their grades.

Variables	(I) Grades	(J) Grade Level	Differences between means (I-J)	Standard Error	P
DILATORY DECISION MAKING	1st Grade	2nd Grade	-0.172	0.066	0.048*
		3rd Grade	-0.226	0.093	0.072
		4th Grade	0.027	0.108	0.994
	2nd Grade	1st Grade	0.172	0.066	0.048*
		3rd Grade	-0.054	0.089	0.931
		4th Grade	0.200	0.106	0.235
	3rd Grade	1st Grade	0.226	0.093	0.072
		2nd Grade	0.054	0.089	0.931
		4th Grade	0.254	0.124	0.174
	4th Grade	1st Grade	-0.027	0.108	0.994
		2nd Grade	-0.200	0.106	0.235
		3rd Grade	-0.254	0.124	0.174

*P<0.05

Table 3 Comparison of students' personal perception regarding just world in terms of their self confidence level in decision making and their decision making styles according to their sport performance levels.

Variables		SUM OF SQUARES	MEAN SQUARE	F	P
Perception of Just World	Between Sport Levels	2.450	0.817	1.518	0.211
Self Confidence in Decision Making	Between Sport Levels	0.097	0.032	0.258	0.856
Careful Decision making	Between Sport Levels	0.238	0.079	0.399	0.754
Aversive Decision Making	Between Sport Levels	0.959	0.320	1.573	0.197
Dilatory Decision Making	Between Sport Levels	1.963	0.654	3.713	0.012*
Decision Making in Panic	Between Sport Levels	0.224	0.075	0.281	0.839

*P<0.05

Table 4 Careful decision making levels of students participated into the research

	N	ORT	SS
8. I'd like to consider all options.	154	2.57	0.68
10. I try to unravel all disadvantages of options.	154	2.40	0.64
12. I think thoroughly how I would apply the decision.	154	2.56	0.60
14. While making decision, I'd like to gather information regarding the decision.	154	2.32	0.71
18. Before making my decision, I try to clarify my purposes	154	2.51	0.63
MEAN		2.47	0.65

Table 5. Comparison of amateur sportsman students with professional sportsman students.

Variables	(I) Sport Level	(J) Sport Level	Difference between means (I-J)	Standard Error	P
DILATORY DECISION MAKING	Amateur	Leisure activity	-0.155	0.068	0.109
		Professional	-0.259	0.093	0.031*
		National level	-0.186	0.153	0.618
	Leisure activity	Amateur	0.155	0.068	0.109
		Professional	-0.104	0.103	0.743
		National level	-0.031	0.159	0.997
	Professional	Amateur	0.259	0.093	0.031*
		Leisure activity	0.104	0.103	0.743
		National level	0.073	0.171	0.974
	National level	Amateur	0.186	0.153	0.618
		Leisure activity	0.031	0.159	0.997
		Professional	-0.073	0.171	0.974

*P<0.05

Table 6 Comparison of students' perception regarding just world in terms of their self confident and careful decision making styles.

CORRELATION TABLE EXHIBITING THE RELATIONSHIP BETWEEN STUDENTS' PERSONAL PERCEPTION REGARDING JUST WORLD AND THEIR SELF-CONFIDENT DECISION MAKING STYLE

		JUST WORLD PERCEPTION	SELF CONFIDENCE IN DECISION MAKING
JUST WORLD PERCEPTION	Pearson Correlation	1	0.181
	Sig. (2-tailed)		0.008 **
	N	212	212
SELF CONFIDENCE IN DECISION MAKING	Pearson Correlation	0.181	1
	Sig. (2-tailed)	0.008 **	
	N	212	212

** Two-way correlation significant at 0.01 level.

Table 7 Comparison of students’ personal perception regarding just world in terms of their self confident and careful decision making styles.

CORRELATION TABLE EXHIBITING THE RELATIONSHIP BETWEEN STUDENTS’ PERSONAL PERCEPTION REGARDING JUST WORLD AND THEIR SELF-CONFIDENT DECISION MAKING STYLE

		JUST WORLD PERCEPTION	SELF CONFIDENCE IN DECISION MAKING
JUST WORLD PERCEPTION	Pearson Correlation	1	0.181
	Sig. (2-tailed)		0.008 **
	N	212	212
SELF CONFIDENCE IN DECISION MAKING	Pearson Correlation	0.181	1
	Sig. (2-tailed)	0.008 **	
	N	212	212

** Two-way correlation significant at 0.01 level.

Investigation Of Techno-Stress Levels Of Teachers Who Were Included In Technology Integration Processes

Ahmet Naci ÇOKLAR
Necmettin Erbakan University, Ahmet Keleşoğlu Education Faculty,
Konya, Turkey
acoklar@konya.edu.tr

Erkan EFİLTİ
Necmettin Erbakan University, Ahmet Keleşoğlu Education Faculty
Konya, Turkey
eefilti@konya.edu.tr

Yusuf Levent ŞAHİN
Anadolu University, Education Faculty
Eskişehir, Turkey
levent81@hotmail.com

Arif AKÇAY
Kastamonu University, Education Faculty
Kastamonu, Turkey
arifakcay@yandex.com

ABSTRACT

Techno-stress is defined as a modern adaptation disorder resulting from the failure in coping with new technologies in a healthy way. Techno-stress affects many occupational groups, including teachers. FATIH project and many other previous studies conducted in Turkey in recent years have necessitated the use of technology for teachers. The present research investigates the techno-stress levels of teachers in these processes. Techno-stress scale for teachers was conducted on 370 teachers from different levels of education and branches in 2015-2016 school years. According to the findings obtained in the present research, general techno-stress levels of teachers were medium level, and in terms of sub-scales, teachers had medium level learning-teaching process oriented, technical issue oriented and social oriented techno-stress, and low level profession oriented and personal oriented techno-stress. In terms of demographic variables, general techno-stress levels of teachers didn't vary by gender and length of service, and varied by average Internet use time variable.

Keywords: Teachers, Techno-stress, FATIH Project, Technology Integration, ICTs.

INTRODUCTION

Information and Communication Technologies (ICTs) have removed the concepts of time and place in business life, labour decreased as the production increased, and accordingly productivity of work has increased. This type of technological developments provided benefits in terms of work force in business life, but created some negativity for the employees (Nelson, 1990; Nelson & Kletke, 1990). Technological advancements in business life have decreased the difficulty at a significant level while psycho-physical work load has increased due to increased work speed (Bayazıt Hayta, 2007). Additionally, computer operating systems and software change so fast that, before users can adapt to software, new editions of those software are released. Due to these technological changes, the users may experience lack of confidence, technological exhaustion and fear (Sami & Panganniah, 2006). The concept of techno-stress emerged as a negative result of this case (Ragu-Nathan, et al., 2008; Weil & Rosen, 1997).

Stress and Techno-Stress as A Type Of Stress

Selye (1956), who was one of the scientists who conducted pioneer studied on the subject of stress, defined stress as a reaction of the body to a volition loaded to the body and couldn't be special (Johnstone, 1989). On the other hand, according to a definition provided by Brod (1984), techno-stress is modern disease resulting from the sense of incompetence while trying to adapt to computer technologies.

With the constant advancement of technology, many employees are suffering from techno-stress (Ahmad, Amin & Ismail, 2009). Basically, techno-stress refers to negative feelings, ideas, behaviours and attitudes employees feel in their body, such as anxiety, during the time they should cope with new technologies (Kupersmith 1992; Weil & Rosen, 1997). In recent years, some scientists (Weil & Rosen, 1997; Brillhart, 2004) have focused on a new structure called techno-stress. Techno-stress refers to direct or indirect negative effects of the use of computer-based technologies on people's attitudes, thoughts, behaviours and psychologies (Tu, Wang & Shu, 2005). Psychologies and behaviours that prevent the best use of computer-based ICTs, such as fear, anxiety and enmity take the form of resistance (Shu, Tu & Wang, 2011). On the other hand Salanova, Llorens, Cifre and Nogareda (2007) define the concept of techno-stress as anxiety, mental fatigue, scepticism and ineffectiveness resulting from the focusing on ICT use or its future use. Many company employees are exposed to expectations of more efficiency with more complicated systems in order to adapt to rapid changes as a requirement of information age, which requires them to increase their technological knowledge and skills. For this reason, techno-stress refers to the technology management problem that employees encounter in their work environment (Hung, Chen & Lin 2014). As can be understood from the above mentioned definitions, in the most basic sense, techno-stress is a stress phenomenon occurring before and after ICT use in work life.

Techno-Stress and Teaching Profession

This concept, which emerged from the development of technologies that is a necessity of modern life, was claimed to be very different for the previous generations (Shu, Tu & Wang, 2011). This case may be resulting from the maladaptation to new technologies arriving at the employees work environment. First of all, it can be claimed that these technologies have removed the wall between work life and out of work life, since they are independent of the concepts of time and place. Additionally, because ICTs have found a broad field of application in various sectors, especially the employees in management level try to enable high work efficiency. Finally, it can be claimed that ICT isn't developing at a huge and unprecedented pace for employees. For these reasons, it is more likely that techno-stress occurs at work places, and it is intertwined with the individuals' out of work life (Karuppan, 1997; Smith & Carayon, 1995).

According to Zuboff (1988) three factors are effective on the formation of techno-stress. Working environments of the employees are constantly equipped with the updated software and hardware of new and great technologies (personal computers, organization applications, production application, connection devices, etc.). Additionally, due to ICTs, there is a significant difference between existing knowledge and required knowledge for certain tasks among employees and managers. It can also be claimed that in modern life, the development of ICTs has changed the working environment and culture.

As is the case very every occupational group, techno-stress is as important problem for teaching profession. Because of the facilities it provides, ICTs have taken its place as a pedagogical tool in education as of 2000s (Peeraer & Van Petegem, 2015) and been integrated to educational systems rapidly (Trucano, 2005). Teachers, who have an important role in the integration process (Roblyer, 2006), are affected from various factors. Techno-stress is one of these factors. In additional to the changing sense of education, the nature of technology (technical support, inability to use, vision of the school, social pressure, etc.) is among the reasons for techno-stress among teachers. Teachers especially experience techno-stress in the process of integrating new technologies, which is a common condition encountered with digital technologies (Lei, 2010; Lei & Zhao, 2007; Zhao & Frank, 2003). Moreover, the continuation of the pressure for technology integration in education both from the institutions and the society, and the lack of knowledge and support result in techno-stress among teachers (Longman, 2013).

In Turkey, where the present research is conducted, there has been an intensive technology investment in education for the last two decades. Especially, technology use is no longer an option for teachers in recent years, with a national level investment in the integration of technology (FATIH Project – Movement to Increase Opportunities and Technology), and it has become a must. Many researches conducted after FATIH project indicate that teachers are experiencing techno-stress (Aktaş, Gökoğlu, Turgut & Karal; 2014; Banoğlu et al., 2014; Çetinkaya & Keser, Ozkan & Deniz, 2014; Çiftçi, Taşkaya & Dursun et al., 2013; Genç & Genç, 2013).

Purpose of The Research

The main purpose of the present research is defining techno-stress levels of teachers. Accordingly, the answers are sought for the following question;

1. What are techno-stress levels of teachers?
2. Do techno-stress levels of teachers vary by
    a. gender,
    b. length of service,
    c. Internet use time variables?

METHODOLOGY

Research Model

The present research, which was conducted to define techno-stress levels of teachers, was designed in survey model, with a quantitative approach. Researches in survey model describe the existing case of the variables of the research one by one or in quantities, and investigate the relationships between two or more variables, related to the behaviours, attitudes, expectations, requirements and knowledge levels about the subject of the research (Gay, Mills & Airasian, 2006; Neuman, 2000).

Research Population and Sample

The population of the present research consists of all teachers who served in all central districts (Meram, Karatay and Selçuklu) of Konya province of Turkey in 2015-2016 school year. Due to size of the population, problems of time and access, the population was sampled with stratified sampling method. In accordance with the sub-purposes of the research, the type of schools (primary, secondary and high schools) teachers serve at was taken as a significant parameter for stratification, and the researchers tried to reach at least 90 teachers from each type of schools. In this context, the totals of 370 teachers were reached at, and the statistical data for the sample of the present research are presented in Table 1.

Table 1: Demographic Data of the Teachers who Participated in the Present Research

Variables		**f**	**%**
Type of School	Primary	109	29.5
	Secondary	171	46.2
	High	90	24.3
Gender	Female	191	51.6
	Male	179	48.4
Length of Service	Less than 5 years	83	22.4
	5 to10 years	64	17.3
	11 to 15 years	78	21.1
	16 and more	145	39.2
	Total	**370**	**100**

Data Collection Tools and Data Collection Process

In order to define techno-stress levels among teachers, “Techno-stress Scale for Teachers” developed by the researchers was employed. The scale, which consists of 5-point likert type items and was conducted on 395 teachers, consists of 28 items and five factors. Construct validity of the scale was tested with exploratory and confirmatory factor analyses, and the factors were named as “Learning-Teaching Process Oriented”, “Profession Oriented”, “Technical Issue Oriented”, “Personal Oriented” and “Social Oriented” techno-stress. Internal consistency coefficient (Cronbach Alpha) of the scale was calculated as .917.

Data Analysis and Interpretation

Descriptive statistics were used to define teachers’ techno-stress levels. In addition, in order to find out whether techno-stress levels of teachers varied by gender independent samples t-test, and in order to define the variation by length of service and Internet use time variable, which had more than two groups, one-way analysis of variance (ANOVA) were used. Additionally, a three level assessment range as low, medium and high, was used for the techno-stress levels obtained from the five point likert type items. Accordingly, based on (highest value-lowest value)/assessment range equation, ie. (5-1)/3, the assessment criteria presented in Table 2 was adopted.

Table 2: Assessment Ranges and Values for Techno-Stress Levels of Teachers

Assessment Range (Arithmetic Average)	**Assessment Criteria**
1,00 – 2,33	Low Level
2,34 – 3,67	Medium Level
3,68 – 5,00	High Level

For data analysis, significance level was taken as .05, and SPSS 21.0 (Statistical Package for the Social Sciences) program was used for analyses.

FINDINGS

Findings obtained in accordance with the sub-purposes of the present research, and their interpretations are presented below in sub-titles.

Techno-Stress Levels of Teachers

In order to define techno-stress levels of teachers, data collected from 370 teachers were analysed in accordance with descriptive statistics, and interpreted according to assessment ranges and criteria presented in Table 2. Obtained results from the analyses are presented in Table 3.

Table 3: Descriptive Statistics for Techno-Stress Levels of Teachers

Techno-stress Factors	$\overline{X}$	**sd**	**Techno-stress Level**
Learning-Teaching Process Oriented Techno-Stress	2,77	,776	Medium
Profession Oriented Techno-Stress	2,09	,762	Low
Technical Issue Oriented Techno-Stress	2,87	,906	Medium
Personal Oriented Techno-Stress	2,32	,903	Low
Social Oriented Techno-Stress	3,00	,934	Medium
TECHNO-STRESS AVERAGE	**2,60**	**,665**	**Medium**

According to Table 3, it can be reported that general techno-stress levels of teachers is medium ($\overline{X}$ =2.60). In other words, teachers experience medium level techno-stress from technology use. In terms of the dimensions, teachers experience medium level Learning-Teaching Process Oriented Techno-Stress ($\overline{X}$ =2.77), echnical-Issue Oriented Techno-Stress ($\overline{X}$ =2.60), and Social Oriented Techno-Stress ($\overline{X}$ =3.00). On the other hand, they experience low level Profession Oriented Techno-Stress ($\overline{X}$ =2.09) and Personal Oriented Techno-Stress ($\overline{X}$ =2.32). In terms of techno-stress dimensions, it can be stated that teachers suffer medium level techno-stress in terms of teaching process, and social and technical terms, however, teaching process and personal oriented techno-stress aren't considered as a problem, as these are low level.

Investigation of Techno-Stress Levels of Teachers in terms of Some Variables

In accordance with sub-purposes of the present research, techno-stress levels of teachers were investigated in terms of gender, professional length of service, and Internet use time variables.

Techno-Stress Levels of Teachers in terms of Gender

Table 4 presents the analysis results for the techno-stress levels of teachers in terms of gender.

Table 4: t-Test Results for Techno-Stress Levels of Teachers in terms of Gender

Gender	**N**	$\overline{X}$	**Sd**	**sd**	**t**	**p**
Female	191	2,63	,648	368	,750	,454
Male	179	2,57	,684			

According to Table 4, techno-stress levels of teachers aren't affected by gender variable [t(368)=0.454, p>.05]. In other words, female teachers ($\overline{X}$ =2,63), and male teachers ($\overline{X}$ =2,57) experience the same levels (medium level) of techno-stress, and the difference between is not significant at .05 significance level.

Techno-Stress Levels of Teachers in terms of Length of Service

Within the scope of the present research, it was investigated whether techno-stress levels of 370 teachers varied by professional length of service. Accordingly, descriptive statistics for teachers' techno-stress levels in terms of professional length of service, and one-way variance analysis results for the difference between groups were studied, and the obtained results are presented in Table 5.

Table 5: Comparison of Teachers' Techno-Stress Levels in terms of Professional Length of Service

Professional Length of Service	f	$\bar{X}$	sd	Source of Variance	Sum of Squares	df	Mean Square	F	p	Significant Difference
A- Less than 5 years	83	2,48	,612	**Within Group**	2,143	3	,714	1,620	,184	-
B- 5 to 10 years	64	2,65	,571	**Between Groups**	161,380	366	,441			
C- 11 to 15 years	78	2,57	,708	**Total**	163,524	369				
D- 16 and more	145	2,66	,704							

According to Table 5, general techno-stress levels of teachers aren't affected from their professional length of service (F(3-366)= 1.620, p>.05). In other words, techno-stress levels of teachers are at the same level regardless of their length of service.

Techno-Stress Levels of Teachers in terms of Internet Use Time

Assuming that, there is a significant relationship between Internet use, which has increased in recent years, and technology use skill, therefore techno-stress, the relationship between Internet use time and techno-stress level was analysed. All of the teachers, who participated in the present research, stated that they used Internet. Therefore, no findings related to teachers, who don't use Internet, were presented. Descriptive statistics on teachers' techno-stress levels in terms of Internet use time and variance analysis results on the differences between groups are presented in Table 6.

Table 6: Comparison of Teachers' Techno-Stress Levels in terms of Internet Use Time

Internet Use Time	f	$\bar{X}$	sd	Source of Variance	Sum of Squares	df	Mean Square	F	p	Significant Difference
A- A few hours a week	39	3,01	,572	Within Group	11,009	4	2,752	6,587	,000*	A-C, A-D, A-E
B- 5-10 hours a week	31	2,65	,668	Between Groups	152,514	365	,418			
C- 1-2 hours a day	171	2,62	,673	Total	163,524	369				
D- 3-4 hours a day	72	2,53	,625							
E- More than 4 hours a day	57	2,34	,622							

According to Table 6, Internet use time is a significant factor affecting techno-stress levels among teachers (F(4-365)=6.587, p<.05). According to the results of the analyses conducted to define between which groups the differences were, techno-stress levels of the teachers, who used Internet for a few hours a week ($\bar{X}$ =3.01) are higher than the teachers, who used Internet for 1-2 hours a day ($\bar{X}$ =2.62), 3-4 hours a day ($\bar{X}$ =2.53) and more than 4 hours a day ($\bar{X}$ =2.34). The differences between all other groups are not significant. In other words, the teachers, who use Internet for a few hours a week, experience more techno-stress than other teachers at a significant level.

CONCLUSIONS AND DISCUSSION

There are various models related to the integration of technology to educational environments and these models report that teachers have an important role for a successful integration process (Roblyer & Doering, 2013; Harris & Hoffer, 2011; Paraskeva, Bouta & Papagianna, 2008; Koehler & Mishra, 2005). In terms of the use of technology in integration process, teachers are in an important position with different visions, such as leadership, and guidance for students (Paraskeva, Bouta & Papagianna, 2008; Finger, Russell, Jamieson-Proctor & Russell, 2007). From this perspective, personal features of teachers (attitude, knowledge, anxiety, etc.) are considered among the important parameters of technology integration process (Roblyer & Doering, 2013; Imhof, Vollmeyer & Beierlein, 2007). Techno-stress is one of individuals' personal features related to technology use (Ahmad &Amin, 2012; Ayyagari, Grover& Purvis, 2011; Fudail & Mellar, 2008; Shepherd, 2004).

There has been an intensive ICT investment in the last two decades in Turkey. Especially with FATIH project, teachers are expected to use technology. From this perspective, teachers' techno-stress levels were investigated.

In order to define teachers' techno-stress levels, data were collected from the total of 370 teachers of 24 different branches at primary, secondary and high school levels, from central districts of Konya province. According to the findings, teachers general techno-stress is at medium level, and in terms of sub-dimensions, they experience medium level Learning-Teaching Process Oriented, Technical Issue Oriented, and Social Oriented techno-stress. Another finding of the present research is that, teachers experience low level Profession Oriented Techno-Stress and Personal Oriented Techno-Stress. The review of the related literature, provided studies conducted in different work fields (Fuglseth & Sørebø, 2014; Shu, Tu & Wang, 2011; Suharti & Susanto, 2014; Şahin & Çoklar, 2009; Tarafdar et al., 2011). In different studies, sub-dimensions of techno-stress levels were named differently (Quinn, 2000; Suharti & Susanto, 2014). It was reported that, there were higher levels of techno-stress in computerized work environments (Kinman & Jones, 2005). Factors, such as over work load in work environments where information and communication technologies are used (Hind, 1998; Shu, Tu & Wang, 2011; Suharti & Susanto, 2014), irrepressible development of technology and the necessity to use it (Fuglseth & Sørebø, 2014; Karuppan, 1997; Smith & Carayon, 2005), imbalance between work and life (Shu, Tu & Wang, 2011; Tarafdar et al., 2011) and failure in time management (Wang, Shu & Tu, 2008) are the reasons increasing techno-stress levels. There are limited numbers of studies conducted to study techno-stress levels among teachers. In one of these studies conducted on 145 primary school teachers, Longman (2013) reported that primary school teachers had low levels of techno-stress. It was also reported that teachers, who spend too much time on determining and planning technology sources in the classroom in learning-teaching processes, suffered from high-level techno-stress while teachers, who could highly integrate technology to their classroom, had low levels of techno-stress. Additionally, it was found that teachers, who took education on technology, had low levels of techno-stress, and teachers experienced higher techno-stress when they use technological devices they couldn't trust (Longman, 2013). Jena (2015), who conducted a research on Indian academicians, reported that academicians had medium level techno-stress. In another study conducted on nurse trainers, Burke (2009) reported that trainers had medium level techno-stress during hardware problems in the classroom, and low level techno-stress in Internet access.

The effect of gender on techno-stress level, which was studied in the present research, was also studied in many other researches (Ragu-Nathan et al., 2008; Venkatesh & Morris, 2000). Some of these studies (Shepherd, 2004; Tarafdar et al., 2011) reported that gender had a significant effect on techno-stress, while some others (Goddard, 2011; Wang, Shu & Tu, 2008) reported that it didn't. According to the findings obtained in the present research, general techno-stress levels of teachers didn't vary by gender, and female and male teacher had similar and medium level techno-stress. Ragu-Nathan et al. (2008) found that female experienced techno-stress more than male. However, with FATIH project conducted in Turkey by the Ministry of National Education, all teachers were provided with the same levels of technological opportunities, and the same in-service trainings, which may have prevented the variation in teachers' techno-stress levels.

On the other hand, another finding of the present research is that professional length of service didn't affect teachers' techno-stress levels at a significant level. In terms of sub-dimensions, teachers, who had 5 to 10 years of length of service, had higher level of technical oriented techno-stress than the teachers, whose length of services were less than 5 years. In many previous related studies, the ages of the participants were considered as a variable that was worth investigating (Evans, 2013; Ragu-Nathan et al., 2008; Rosen & Maguire, 1990). However, the number of researches, which studied length of service, is limited. In one of the studies in the related literature, Longman (2013) studied the techno-stress levels of teachers, who had less than 10 years and more than 10 years length of service, and reported that length of service didn't have a significant effect of techno-stress levels. In another study, Quinn (2000) stated that young learners had lower levels of techno-stress than older learners. On the other hand, Tarafdar et al. (2011) claimed that younger users were more familiar with technology in occupations related with information technologies, but experienced employees had lower levels of techno-stress because they were better at coping with stress. From this perspective, it can be claimed that technology use competence and teaching experience balance each other in techno-stress.

Another finding of the present research is that, techno-stress levels of teachers varied by the time spent on Internet, which is an important source of information and communication today. Teachers, who used Internet for a few hours a week, experienced higher techno-stress than the teachers, who used Internet everyday for 1-2, 3-4 and 4 and more hours, and accordingly Internet use time can be reported as a significant variable. The number of researches, which studied the effects of Internet use time of techno-stress levels, is limited. Similarly, these studies report that participants, who spend more time with technologies, such as computers and Internet and use computers more effectively, have lower levels of techno-stress (Jane, 2015; Shepherd, 2004; Tarafdar et al., 2011).

SUGGESTIONS

According to the findings of the present research, teachers experience medium-level general techno-stress and learning-teaching process oriented, technical issue oriented and social oriented techno-stresses. In order to decrease the levels of techno-stress, teachers experience in these dimensions, in-service trainings can be organized. Shepherd (2004) emphasized the relationship between computer using skills and techno-stress. Accordingly, experimental studies can be conducted on trainings on education planning and defining the efficiency of these trainings, to define and decrease techno-stress levels of teachers. Additionally, it was found that average Internet use time varied techno-stress levels at a significant level, so it is a significant predictor of techno-stress. Studies to develop structural equation modelling can be conducted in this direction.

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Investigation Of The Attitudes Of College Students Towards Dating Violence According To Demographic Variables

Ebubekir ÖZDEMİR
Pamukkale University, Department of Educational Sciences
Psychological Counseling and Guidance, Denizli, Turkey
ebubekiro@pau.edu.tr

Erdinç DURU
Department of Educational Sciences
Psychological Counseling and Guidance, Denizli, Turkey
eduru@pau.edu.tr

ABSTRACT

The purpose of this study is to investigate the relationship between the attitudes of college students towards dating violence and their gender, department, parents' education level and number of sibling. The study group consisted of 285 female and 132 male students attending different departments in faculty of education in Pamukkale University. Data was collected by the attitudes towards dating violence scales and demographic information sheet, and analyzed by SPSS 23.00. In order to examine the relation of attitudes and demographic variables, t-test and one way ANOVA were used. Analyses showed a significant relationship between attitudes and the variables of education level, number of sibling, department and gender. Findings have been discussed in term of related literature.

Key Words: Attitude towards dating violence, demographic variables

INTRODUCTION

World Health Organization (1996) defines violence as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (In Dahlberg&Krug, 1996: 279). According to Michaud (1991), violence is the behavior of one or more than one partner of relationships as directly or indirectly, collectively or separately injuring to the integrity or properties, or symbolic or cultural values of others or some of the others to whatever extent. Although the definition of violence varies according to researchers, the common point is that violence occurs when someone use force or pressure, do or make do something out of desire, attack, use brutal force, torture, hit and injure (Aktaş, 2006; Birimoğlu, 2012; Budak, 2000). Examining the definitions, in the concept of violence there underlies society, individuals and interpersonal relationships. One of the interpersonal relationships is dating. The problems arising in dating relations can be concluded as behaviors including psychological and physical violence.

Dating violence is one of the types of interpersonal violence which includes sexual, emotional and physical abuse (Aslan et al., 2008). While physical dating violence includes slapping, pushing, scratching, biting, choking, and beating up and assault with a weapon (Foshee et al., 2007); emotional dating violence is hurting someone psychologically through humiliating and insulting without a physical attempt (Offenhauer&Buchalter, 2011). Sexual dating violence can be seen as having a tendency to another women, forcing a sexual intercourse, raping or attempting to rape (Rickert, Wiemann, Vaughan & White, 2004; Miller et al., 2007). Much research has referred to dating violence among adolescents and adult intimate relationships (Ackarda&Neumark-Sztainer, 2002; Chen, 2012; Swart, Seedat, Stevens&Ricardo, 2002). In light of these studies, in romantic relationships of adolescents and adults, some dating violence can be expected to arise.
(Kılınçer&Dost, 2015). The base of adult relationships is constructed in this period (Saraç, Hamamcı&Güçray, 2015). Erikson (1968) had handled this issue, and according to his psycho-social development theory, this period includes having intimate relations against isolation. He stated that if individuals who pace towards adulthood in this period do not have deep personal attachments with others, they might live the feeling of isolation and focus on themselves. In order to get over this period successfully, more healthy relationships are required to have. In the context of Erikson's psycho-social development theory, the attitudes of young adults towards dating violence is supposed to be understood better in college years when intimate relations increase. In this sense, the theoretical framework of this study is based on Erikson's psycho-social development theory.

Dating violence is an important problem which affects the lives of college students negatively in their intimate relationships (Yumuşak, 2013). Students have various problems about their dating relations, moreover they demand psychological help. A study in abroad declared that 22 % of college students who had applied to a counseling center at a university had relation problems, and 7.4 % of them were harassed (Aluede, Imhonde&Eguavoen, 2006). Considering the related literature, there seems to be no research examining the relationship between the attitudes of college students towards dating violence and the demographic variables of this study those are department, gender, **grades**, parents' living together and parents' education level. The current study is supposed to contribute to the literature in this sense. Furthermore, this research might contribute to and be a base for the organization of preventive psychological counseling services and psycho-educational programs. In this context, this research, in which 1st, 2nd, 3rd and 4th grades of students attending Faculty of Education in Pamukkale University, is aimed to answer the following questions:

1. Do the attitudes of college students towards dating violence significantly differentiate according to *gender*?
2. Do the attitudes of college students towards dating violence significantly differentiate according to *parents' education level*?
3. Do the attitudes of college students towards dating violence significantly differentiate according to *their department*?
4. Do the attitudes of college students towards dating violence significantly differentiate according to *their grades*?
5. Do the attitudes of college students towards dating violence significantly differentiate according to *number of sibling*?

METHOD

This research is a descriptive study which examines the relationships between the attitudes of college students towards dating violence and demographic variables.

Participants

A total of 417 college students of whom 285 were females (63.9%) and 132 were males (29.6%), and attending various departments of faculty of education in a state university in 2015-2016 academic years took part in the study. The age mean of the participants was 20.83 (Sd= 1.98).

Data Collection Tools

The Attitudes towards Dating Violence Scales

Adapted by Yumuşak and Şahin (2014), the attitudes towards dating violence scales include four subscales those are the Attitudes towards Male Psychological Dating Violence, the Attitudes towards Male Physical Dating Violence, the Attitudes towards Female Psychological Dating Violence, the Attitudes towards Female Physical Dating Violence. The Cronbach Alpha coefficients of the subscales were found to be .81, .87, .75 and .82 respectively.

Personal Information Form

Personal information form was prepared by the researchers in order to collect data about the independent variables of the research. Questions about students' department, gender, grades and parents' education level were posed in the form.

Procedure

Before data collection, researchers made an arrangement with the lecturers of faculty of education in the state university for an appropriate day and time. Personal information form and scales were implemented in the same session. Data collection took approximately 20-25 minutes and voluntariness was considered for the participants.

Data Analysis

In order to reveal the demographic structure of the study group, descriptive statistics and frequency/percentage analyses for the independent variables were used. According to the data type, t-test and one way ANOVA were chosen, and Tukey test was used in order to understand the source of significant difference iF value was significant. As the data was normally distributed, parametric tests were used for the analyses. Data was analyzed with SPSS 23.00 with significance value of .05.

FINDINGS

Whether the attitudes of college students towards dating violence differ according to socio-demographic variables which are gender, department, mother's education level, father's education level and number of sibling was examined.

Table 1 displays the result of t-test conducted to understand whether the attitudes of college students towards dating violence significantly differ.

Table 1

Independent samples t-test whether the attitudes towards male and female psychological and physical dating violence differ according to gender

	GENDER	N	$\bar{x}$	Sd	df	t	p
Attitudes towards Male Psychological Dating Violence	FEMALE MALE	285 132	27.91 38.09	7.65 8.73	415	-12.07	.000*
Attitudes towards Male Physical Dating Violence	FEMALE MALE	285 132	19.24 26.84	7.28 9.75	415	-8.86	.000*
Attitudes towards Female Psychological Dating Violence	FEMALE MALE	285 132	23.16 25.96	8.16 7.40	415	-3.34	.001*
Attitudes towards Female Physical Dating Violence	FEMALE MALE	285 132	24.57 27.51	9.16 9.00	415	-3.06	.002*

* $p < .05$

As shown in Table 1, there is a significant difference between the attitudes towards male psychological dating violence (t_{415}=-12.07; p<.05); the attitudes towards male physical dating violence (t_{415}=-8.86; p<.05); the attitudes towards female psychological dating (t_{415}=-3.34; p<.05), and the attitudes towards female physical dating violence according to gender. In this sense, examining the attitudes scores of male psychological and physical dating violence and female psychological and physical dating violence, boys got higher scores than girls.

Table 2 displays score means and standard deviations of college students' attitudes towards physical and psychological dating violence according to department.

Table 2

Mean scores and standard deviations of the level of attitudes towards male and female physical and psychological dating violence according to department

		n	$\bar{x}$	sd
Attitudes towards Male Psychological Dating Violence	Psychological Guidance and Counseling	90	28.60	8.85
	Turkish Language Teaching	62	32.33	8.86
	Classroom Teaching	61	30.31	8.52
	English Language Teaching	74	30.16	9.31
	Social Science Teaching	68	33.76	9.70
	Elementary Science Teaching	61	32.77	9.74
	TOTAL	416	31.13	9.30
Attitudes towards Male Physical Dating Violence	Psychological Guidance and Counseling	90	18.48	7.12
	Turkish Language Teaching	62	22.62	8.20
	Classroom Teaching	61	22.01	8.92
	English Language Teaching	74	19.92	7.65
	Social Science Teaching	68	24.61	9.46
	Elementary Science Teaching	61	23.75	10.76
	TOTAL	416	21.64	8.87
Attitudes towards Female Psychological Dating Violence	Psychological Guidance and Counseling	90	21.57	6.44
	Turkish Language Teaching	62	23.61	6.62
	Classroom Teaching	61	25.21	8.68
	English Language Teaching	74	23.48	7.69
	Social Science Teaching	68	26.11	9.00
	Elementary Science Teaching	61	25.39	9.15
	TOTAL	416	24.05	8.02
Attitudes towards Female Physical Dating Violence	Psychological Guidance and Counseling	90	21.03	6.66
	Turkish Language Teaching	62	26.00	7.80
	Classroom Teaching	61	29.67	10.09
	English Language Teaching	74	24.46	8.50
	Social Science Teaching	68	29.98	10.66
	Elementary Science Teaching	61	25.96	9.21
	TOTAL	416	25.50	9.20

One way ANOVA was used in order to understand whether there is a significant difference between the attitudes towards male physical and psychological dating violence and the attitudes towards female physical and psychological dating violence in terms of departments of the college students. Findings indicated a significant difference between the attitudes towards male physical and psychological dating violence (F(5-411 =5.519; p<.05 and F(5-411 =3,363; p<.05) and the attitudes towards female physical and psychological dating violence (F(5-411 = 8,737; p<.05 and F(5-411 =3.416; p<.05) according to the variable of department.

Tukey test was conducted due to understand the source of the difference. Findings showed that while the lowest mean score belongs to the students of Psychological Counseling and guidance Department ($\bar{x}$=28.60; $\bar{x}$=18.48; $\bar{x}$=21.57; $\bar{x}$=21.03), the highest mean score is the students' of Social Science Teaching Department ($\bar{x}$=33.76; $\bar{x}$=24.61; $\bar{x}$=26.11; $\bar{x}$=29.98). Put differently, as for the attitudes towards male and female physical and psychological dating violence, students from psychological counseling and guidance department have higher scores than the students' from social science teaching department ($\bar{x}$=28.60; $\bar{x}$=18.48; $\bar{x}$=21.57; $\bar{x}$=21.03 p<0.05).

Mean scores and standard deviations of college students' attitudes towards physical and psychological dating violence in terms of mother's education level are shown in Table 3.

Table 3
Mean scores and standard deviations of the attitudes towards male and female dating violence according to mother's education level

		n	$\bar{x}$	sd
Attitudes towards Male Psychological Dating Violence	Illiterate	32	38.25	9.48
	Primary School Graduate	217	31.68	8.97
	Secondary School Graduate	61	30.11	9.17
	High School Graduate	77	28.12	8.57
	University Graduate	29	29.23	9.43
	Total	416	31.13	9.30
Attitudes towards Male Physical Dating Violence	Illiterate	32	30.43	8.75
	Primary School Graduate	217	22.21	9.02
	Secondary School Graduate	61	19.19	6.58
	High School Graduate	77	18.93	7.84
	University Graduate	29	20.18	8.49
	Total	416	21.64	8.87
Attitudes towards Female Psychological Dating Violence	Illiterate	32	36.81	9.24
	Primary School Graduate	217	24.33	8.18
	Secondary School Graduate	61	24.37	7.33
	High School Graduate	77	21.93	7.62
	University Graduate	29	23.30	6.97
	Total	416	24.05	8.02
Attitudes towards Female Physical Dating Violence	Illiterate	32	29.37	7.23
	Primary School Graduate	217	25.88	9.31
	Secondary School Graduate	61	24.27	8.95
	High School Graduate	77	23.85	9.60
	University Graduate	29	26.15	8.78
	Total	416	25.50	9.20

Findings of one way ANOVA indicated that the attitudes towards male physical and psychological dating violence ($F_{(5-411}$ =10.096; p<.05 ve $F_{(5-411}$ =6,761; p<.05) and towards female physical dating violence ($F_{(5-411}$ = 2,274; p<.05) significantly differentiate according to mother's education level. There is no significant difference for the attitudes towards female psychological dating violence in terms of mother's education level.

In order to understand the source of this difference, Tukey test was used. Findings revealed that the levels of the attitudes of students whose mothers are illiterate towards male physical and psychological dating violence ($\bar{x}$=30,43; $\bar{x}$=38,25) is significantly higher than (p< .05) the students' whose mothers are primary school graduate ($\bar{x}$=31,68), secondary school graduate ($\bar{x}$=30,11), high school graduate ($\bar{x}$=28,12) and university graduate ($\bar{x}$=26,43). In other words, as the education level of mother increases, the level of the attitudes towards male date violence increases as well.

Examining the means of the attitudes towards female physical and psychological dating violence, the attitude levels of the students whose mothers are illiterate towards female physical dating violence ($\bar{x}$=29,37) significantly differ from the students' whose mothers are high school graduate ($\bar{x}$=23,85). There are no significant differences (p> .05) between illiterate mothers and primary school graduate ($\bar{x}$=25,88), secondary school graduate ($\bar{x}$=24,27) and university graduate ($\bar{x}$=26,43) mothers.

Mean scores and standard deviations of college students' attitudes towards physical and psychological dating violence in terms of father's education level are shown in Table 4.

Table 4
Mean scores and standard deviations of the attitudes towards male and female dating violence according to father's education level

		n	$\bar{x}$	sd
Attitudes towards Male Psychological Dating Violence	Illiterate	9	34.44	6.96
	Primary School Graduate	151	32.23	9.64
	Secondary School Graduate	75	31.26	9.35
	High School Graduate	101	30.20	9.09
	University Graduate	80	28.85	8.50
	Total	416	30.13	9.30
Attitudes towards Male Physical Dating Violence	Illiterate	9	26.44	10.18
	Primary School Graduate	151	23.56	9.62
	Secondary School Graduate	75	21.23	8.86
	High School Graduate	101	20.36	7.80
	University Graduate	80	18.60	6.86
	Total	416	21.64	8.87
Attitudes towards Female Psychological Dating Violence	Illiterate	9	22.33	8.67
	Primary School Graduate	151	24.51	7.96
	Secondary School Graduate	75	24.32	8.35
	High School Graduate	101	23.42	8.18
	University Graduate	80	24.76	8.27
	Total	416	24.05	8.02
Attitudes towards Female Physical Dating Violence	Illiterate	9	25.44	6.67
	Primary School Graduate	151	26.35	8.88
	Secondary School Graduate	75	24.88	9.15
	High School Graduate	101	24.69	9.54
	University Graduate	80	26.40	9.31
	Total	416	25.50	9.20

Findings of the one way ANOVA suggested that the attitudes towards male physical dating violence differ according to father's education level ($F_{(5-411}$ =3.478; p<.05). There are no significant differences in the attitudes towards male psychological dating violence ($F_{(5-411}$ =1,234; p>.05) and female physical ($F_{(5-411}$ =,508; p>.05) and psychological ($F_{(5-411}$ =,416; p>.05) dating violence in terms of father's education level.

In order to understand the source of the difference, Tukey test was conducted. Findings indicated that the means of the attitudes of students whose father is primary school graduate towards male physical dating violence ($\bar{x}$=23,56) is significantly higher than the students' whose father is high school graduate ($\bar{x}$=20,36). There is no significant difference according to illiterate father ($\bar{x}$=26,44), secondary school graduate ($\bar{x}$=21,26) and university graduate ($\bar{x}$=18,60) fathers. In other words, the attitudes towards male physical dating violence change according to father's education level, while the attitudes towards male psychological dating violence and towards female physical and psychological dating violence do not.

Mean scores and standard deviations of college students' attitudes towards physical and psychological dating violence in terms of number of sibling are shown in Table 4.

Tablo 5
Mean scores and standard deviations of the attitudes towards male and female dating violence according to number of sibling

	Number of Sibling	n	$\bar{x}$	sd
Attitudes towards Male Psychological Dating Violence	0	19	31.63	9.09
	1	40	28.87	8.60
	2	159	29.89	8.79
	3	114	30.47	8.99
	4	39	34.15	9.70
	5	45	36.40	10.08
	TOTAL	416	31.13	9.30
Attitudes towards Male Physical Dating Violence	0	19	20.78	6.99
	1	40	20.97	8.73
	2	159	19.92	7.67
	3	114	20.37	8.23
	4	39	25.97	11.17
	5	45	28.20	9.23
	TOTAL	416	21.64	8.87
Attitudes towards Female Psychological Dating Violence	0	19	23.84	7.49
	1	40	23.85	9.33
	2	159	23.29	7.68
	3	114	23.74	7.75
	4	39	26.66	7.49
	5	45	25.51	9.07
	TOTAL	416	24.05	8.02
Attitudes towards Female Physical Dating Violence	0	19	25.42	9.48
	1	40	26.67	10.12
	2	159	24.68	9.19
	3	114	24.57	9.09
	4	39	27.25	8.49
	5	45	28.28	8.76
	TOTAL	416	25.50	9.20

Findings from one way ANOVA showed that the attitudes towards male physical and psychological dating violence ($F_{(5\text{-}411}$ =9.376; p<.05 and $F_{(5\text{-}411}$ =5,106; p<.05) significantly differ according to number of siblings (p<.05). The attitudes towards male psychological dating violence significantly differ according to having 5 siblings ($\bar{x}$=36,40) and 1 sibling ($\bar{x}$=28,87), 2 siblings ($\bar{x}$=29,89) and 3 siblings ($\bar{x}$=30,47). Similarly the attitudes towards male physical dating violence significantly differ according to having 5 siblings ($\bar{x}$=28,20) and 1 sibling ($\bar{x}$=20,97), 2 siblings ($\bar{x}$=19,92) and 3 siblings ($\bar{x}$=20,37). In other words, increasing number of sibling affect the attitudes towards male physical and psychological dating violence. There is no significant difference in the attitudes towards female physical and psychological dating violence according to number of siblings (p> .05).

DISCUSSION

In this study the attitudes of college students towards dating violence were examined in terms of demographic variables. It was aimed to determine whether the attitudes of the students from faculty of education, where the study was conducted, towards male and female physical and psychological dating violence differ according to their gender, department, mother's education level, father's education level and number of sibling.

Findings suggested that male students have higher attitude scores towards dating violence. This finding is in line with those of previous studies (O'Keefe, 1997; Sezer, 2008). This finding might be related to gender role socialization. Considering the related literature, boys and girls have different process of socialization. The possible explanation of this finding might because of that boys are trained in a different way socially; their aggressive behaviors are supported since the childhood, and moreover, violent behavior is considered to be normal for boys. Apart from this, more adaptive behaviors are approved for girls in the society (Kaya Sarıkaya, 2013).

As for the variable of department, the attitude mean scores of the students, attending Psychological Counseling and Guidance (PCG) department, towards dating violence are low while students' of Social Science Teaching department is high. There seems to be no other research which can be compared with this finding. Nevertheless this can be explained by high awareness of students attending PCG department about self-control, empathy and interpersonal relationship skills. Ekinci (2009) found that the emphatic inclination of PGC students is higher than those attending social science and the other departments of faculty of education. Similarly, Alper (2007) found that the emphatic skill scores of PGC students are higher than those of classroom teaching. Moreover, in their studies Duru (2002), Karagözoğlu, Kahve Koş and Adamışoğlu (2008) and Pala (2008) stated that the level of empathy varies according to the department. Taken together, it is meaningful that students' level of attitudes towards dating violence in PGC department is lower than those of Social Science teaching department.

Findings demonstrated that male's attitudes towards psychological violence differ according to mother's education level. Put differently, males' attitude scores, whose mothers are illiterate, towards psychological violence are low. This indicates as the education level of males' mother increases, the frequency of violence decreases. Increasing level of education may lead to increasing awareness, and in turn decreasing violence. The attitudes of males whose mothers are illiterate towards violence are high. Being a high school graduate is a significant point here. The attitude of males whose mothers are at least high school graduates towards violence are low. Mothers' being illiterate is important in terms of females' attitudes towards physical violence, and males' attitudes towards physical and psychological violence. There is no research compared with this finding directly however, considering the studies which examined the attitudes of dating adolescents towards the violence, the group which accepts violence more normally is the one whose mothers are illiterate while the group which accepts violence less is the one whose mothers are high school and its equivalent graduates (Yavuz, 2009; Kaya Sarıkaya, 2013). Therefore it can be concluded that mother's education level is important so as to lessen the attitudes towards violence. Moreover, individuals whose mothers are illiterate might be in risk groups in terms of dating violence.

As for father's education level, the attitude towards male physical dating violence differs in terms of father's being primary school graduate and university graduate. The attitude level of college students, whose fathers are primary school graduate, towards physical violence is higher. This finding is in line with those of which indicated that father's education level of the adolescents who have a tendency to violent behavior is lower than those of who have never perpetrated any violence (Yıldırım, 2007; Kaya-Sarıkaya, 2013). This finding might be associated with domestic violence and the process of role modeling. Supposing that, as the education level decreases, domestic violence and the tendency of violence increases as well; boys who witness male domestic violence in their family might model their fathers and through this modeling they reflect this tendency to their relationships in adulthood. Nevertheless, further studies are needed to support these judgments. Finally, attitudes towards male psychological dating violence and female physical and psychological dating violence do not significantly differentiate according o father's education level.

Findings showed that increasing number of sibling increases the level of attitudes towards male physical and psychological dating violence. There is a significant difference between having 1, 2, 3 siblings and 4 siblings. Put differently, the tendency of physical and psychological dating violence for males, who have 4 or more siblings, are supposed to increase. There seems to be no study which can be compared with this result. However, having illiterate parents and so many numbers of siblings might lead to a competition in family and this may affect the dating relations.

Taken all together, the attitude responses of students who are attending social science teaching department, have parents with low level of education and have 4 and more numbers of siblings towards dating violence are higher. As for females, while having an illiterate mother does not affect the attitudes towards physical violence, there is no difference in the attitudes of college students according to father's education level and number of sibling. Students attending social science teaching department have higher level of attitude scores towards dating violence.

In light of the findings, it seems to be important to develop psycho-education programs in psychological counseling and guidance centers at universities as a professional support to prevent dating violence among college students. Furthermore, considering that dating relations can be seen in high school, and even in secondary school periods, students are required to be informed about healthy dating relationships in school psychological counseling and guidance services. This study has focused on whether dating violence differs according to come demographic variables. Further studies might be conducted to understand the dynamics which leads to dating violence and the results of this violence in order to obtain a more holistic picture. Moreover, the study group consists of college students. Similar studies might be conducted in different age groups considering that dating relations can occur in all periods of life.

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Investigation Of The Perceptions Of Self-Efficacy Of Secondary School Students With Different Levels Of Friend, Family And Teacher Social Support

Tuncay ORAL
Pamukkale Üniversitesi, Denizli, Turkey
toral@pau.edu.tr

ABSTRACT

The purpose of this study is to divide the students whose friend, family, and teacher support levels are determined into three groups as students with low, moderate, and high support level and then to investigate whether there is a significant difference in their self-efficacy scores based on their level of social support. For this purpose, Social Support Rating Scale and Perception of Self-Efficacy Scale for Children and Adolescents were applied to a total of 283 secondary school students, including 148 girls and 135 boys. According to the results of the one-way analysis of variance (One-Way ANOVA) carried out, the self-efficacy scores of the students with a high level of friend, family, and teacher social support were found to be significantly higher than those of the students who had moderate and low levels of friend, family, and teacher social support.

INTRODUCTION

Industrialization and requirements of modern life have affected social life in many aspects. Large families, relatives, close neighbourly relations, and intimacy, which were once among the powerful sources of social support, have been replaced by core families, poor family relations, relations of neighbours that do not know each other, and internet friendships (Bingöl, 2013). According to the widely accepted definition, social support is the perception that helps people believe that they are loved, valued, cared and that they are members of a social network where there are mutual obligations (Cobb, 1976). Social support is a very broad concept that includes providing emotional support besides giving information and advice (Duru, 2008). Kef (1997) divides social support into two, as provided social support and perceived social support. Perceived social support is the cognitive perception and subjective evaluation of an individual with respect to the fact that the individual has reliable bonds with other individuals and will be provided with the social support. Provided social support is defined as the amount of support obtained from the sources of social support in a particular process of time (Kef, 1997).

The interaction with other individuals and the support received from them since the first years of adolescence, a period which is challenging and requires struggle, can be quite effective in finding solutions for problems, establishing healthy relationships for the future, and being able to take appropriate decisions (Dülger, 2009). According to Yıldırım (1997), students' most important sources of support in the early adolescence include family, friends, and teachers. In a study by Robbins and Tanck (1995), which was conducted with adolescent students and which supported Yıldırım (1997), it was seen that in order to cope with difficulties, students primarily preferred their families for social support. The evaluations of mothers and fathers regarding their children shape children's perceptions of themselves and their relationship with their families. Love, balanced care, nutrition, and support provided by mother and father reinforce children's sense of basic trust (Kulaksızoğlu, 2008). It is observed that children growing up in families where positive communication whose interpersonal boundaries are well defined exists are more successful in dealing with problems and develop a positive attitude towards school; however children who grow up in unhappy families which have negative communication are observed to develop introvert and dependent personality characteristics (Erol, 1992). On the other hand, the fact that both mothers and fathers have been in the business world in recent years is reducing the impact of family on children. Although students' most effective source of social support is families, they spend a large portion of their time apart from them. In this case, sources of social support aside from family become important (Pavri and Monda-Amaya, 2001). Adolescents spending a large part of their time with their friends or teachers at school or at social and cultural places acquire new behaviours while playing together, studying, and listening to their teacher in the class and outside the classroom (Fidan, 1996). Social support received from a friend since the early adolescence is an important factor in an adolescent's interacting with friends and socializing through friend relations (Aydın, 2005). During this period, adolescents have independence attempts with their peers and make an effort to comply with the values of their peers. The values, behaviour patterns and habits of the peer group are very important for adolescents (Çakır, 1993). Although friend relationships and group members change over time, feeling a sense of belonging to the group is an important factor in reducing negative emotions and depression (Newman, Newman, Griffen, O'Connor and Spas, 2007). Schools, which give adolescents an opportunity to be with their friends and are acknowledged as a social environment, are also important elements of the educational process (Yavuzer, 1992). Teachers are the most important elements of the educational process. Students can learn the values and cultural characteristics of the society in which they live with the help of teachers (Balkıs, 2006). Since the first years of adolescence, individuals may feel the need to be recognized and understood by the teacher. Therefore, the social support provided by teachers is important. In addition, teachers should always keep in mind that every student is a member of a family, and a social circle; and also they must try to provide the necessary social support by establishing positive communication with the students who they observed could not receive the necessary social support from these groups (Cırık, 2010). It is possible to encounter some difficulty as a result of adverse environmental conditions in the processes of personality development and socialization during the first years of adolescence. If adolescents cannot receive the necessary social support from their family, friends and teachers, which are the most important sources of support in this process (Yıldırım, 1997), they may not develop the skills necessary for adult life, may be insufficient to cope with stress, and may have low self-confidence (Geçtan, 2003). According to Bandura (1997), the concept of self-efficacy, which takes its source from verbal/social support, is a concept with clearer borders compared to self-confidence, and is defined as one’s belief about the competences he/she has, is an important concept in childhood and adolescence. If individuals have not developed self-assessment skills, they are usually dependent on getting feedback about themselves from others. In this case, verbal/social support may increase self-efficacy or can mobilize the sources of self-efficacy (Britner and Pajares, 2006). Self-efficacy has three sources other than verbal/social support. These include past experiences, indirect observation and psychological state. Past experiences are defined as students’ commenting on activities after they are involved in tasks and activities and using these comments to develop their beliefs about their capacity to take part in future activities. If the comments resulting from these experiences are positive, the perception of self-efficacy increases in positive way as well (Britner and Pajares, 2006). Indirect observation is described as individuals’ gaining self-efficacy by observing others’ actions and taking them as a model. Individuals can use the information they obtained from them to evaluate the probability of success for themselves in similar situations, and evaluate their performance in comparison with other students (Britner and Pajares, 2006; Usher and Pajares, 2008). Audio and aural models as well as live models can be used for indirect observations (Alderman, 2004). These models are especially effective when individuals cannot be sure about their abilities and do not have enough experience of the existing situation (Usher and Pajares, 2008). Individuals’ being aware of their psychological or emotional states affect their perceptions of talent in various tasks indirectly, which is called the source of psychological state (Palmer, 2011).

Considering that verbal/social support is a concept which can enhance self-efficacy or mobilize other self-efficacy sources (Britner and Pajares, 2006), it is important to investigate whether there is a difference in self-efficacy levels of students with different social support levels. When the literature is examined, it can be seen that there are no scientific studies that investigate the self-efficacy levels of secondary school students with different levels of social support. In this respect, it is believed that the results obtained from this study will have significant contributions to the literature. The variables addressed in this study are extremely important concepts for the psychological and social lives of secondary school students that constitute a major part of the society. In this regard, it can be stated that the importance of the results obtained from the present research have increased more. To sum up, the purpose of this study is to divide the students whose friend, family, and teacher support levels are identified into three groups as students with low, moderate, and high support levels and then to investigate whether there is a significant difference in their perceptions of self-efficacy based on their level of social support.

THE STUDY

Study group

The data of the study was obtained from a total of 283 secondary school students, including 148 girls (52.3%) and 135 boys (47.7%) who were involved in the study through simple random sampling method in the 2014-2015 academic year in the province of Denizli. In the study group, a total of 97 students (34.3%) studied at the sixth grade, 103 students (36.4%) studied at the seventh grade, and 83 students (29.3%) were at the eighth grade.

Data Collection Tools

Social Support Rating Scale for Children and Adolescents

The scale developed by Dubow and Ullman (1989) measured how the child evaluates himself/herself as someone loved, cared, valued and accepted within his/her social network. In this context, children’s perceptions of social support they received from their friends, family, and teachers were evaluated (cited in Gökler, 2007). The scale adapted to Turkish by Gökler (2007) was 5-point Likert-type and consisted of 41 items. The scale can be applied to all students, from the primary school third grade students to the secondary school eighth grade students. As a result of the factor analysis performed, it was determined that the scale had friend, family, and teacher sub-dimensions. The internal consistency coefficients obtained for the friend, family, and teacher sub-dimensions of the scale were calculated as .89, .86, and .88 respectively. The Cronbach Alpha internal consistency coefficient for the whole scale was .93 (Gökler, 2007). As a result of the analysis conducted within the context of this research, the internal consistency coefficients obtained for the sub-dimensions of friend, family, and teacher were found to be 89, .86 and .88 respectively; and the internal consistency coefficient was found to be .93 for the whole scale.

Perception of Self-efficacy Scale

"Perception of Self-efficacy Scale" developed by Pintrinch and De Groot (1990) and adapted to Turkish by Üredi (2005) was implemented in the study in order to collect data about students' perceptions of self-efficacy. This scale consisted of nine items and was a one-dimensional scale. The scale was a 7-point likert type scale. The minimum score one could get from the scale was 9 and the maximum score was 63. Cronbach's alpha internal consistency reliability coefficient was .92. This result indicates that the reliability of the test was relatively high (Üredi, 2005). In the analysis conducted with the data collected within the scope of this study, the internal consistency was determined to be .91.

Data Analysis

In line with the purpose of the study, the mean scores and standard deviations for all students' friend, family, and teacher social support scores were calculated to be able to divide the students into three categories as low, moderate, and high based on their friend, family, and teacher support levels. According to the statistical analysis performed, the mean score for the friend social support level of all the students participating in the study was found to be 74.54 and its standard deviation was detected to be 12.73. In this case, the scores below 61.81 were called low level of friend social support, the scores between 61.81 and 87.27 were called moderate level of friend social support, and the scores above 87,27 were called high level of friend social support. According to another statistical analysis carried out, the mean score for the family social support level of all the participants in the study was found to be 51.39 and its standard deviation was determined to be 8.41. In this case, the scores below 42.98 were called low level of family social support, the scores between 43.98 and 59.80 were called moderate level of family social support, and the scores above the 59,80 were called high level of family social support. Finally, according to the statistical analysis conducted, the mean score for the teacher social support level of all the students participating in the study was found to be 39.07 and its standard deviation was identified to be 7,38. In this case, the scores below 31.69 were called low level of teacher social support, the scores between 31,69 and 46,45 were called moderate level of teacher social support, and the scores above the 46,45 were called high level of teacher social support. After that, one-way analysis of variance (One-Way ANOVA) technique was used in order to find out whether the perceived self-efficacy differed significantly based on friend, family and teacher social support level. The analyses were tested via computers by using SPSS 16.0 software package.

FINDINGS

Descriptive statistics for the secondary school students' perception of self-efficacy scores based on the friend social support level variable are presented in Table 1.

Table 1. Descriptive Statistics for the Perception of Self-Efficacy Scores based on the level of Friend Social Support

	Friend Social Support Levels	**N**	**$\bar{X}$**	**Sd**
Perception of Self-Efficacy	Low	49	45,65	10,71
	Moderate	185	51,28	8,80
	High	49	57,00	5,71
	Total	283	51,29	9,32

The findings of the one-way analysis of variance performed in order to determine whether the perception of self-efficacy scores of the secondary school students differed significantly based on the friend social support level variable are presented in Table 2.

Table 2. One-Way Analysis of Variance Results related to Secondary School Students' Perception of Self-Efficacy based on the Friend Social Support Level Variable

	Source of Variance	Sd.	Sum of Squares	Mean Square	F	p
Perception of Self-Efficacy	Between groups	2	3154,546	1577,307	20,717	,000
	Within groups	280	21318,043	76,136		
	Total	282	24472,235			

When the results of the one-way analysis of variance in Table 2 were analyzed, a significant difference was detected in secondary school students' perception of self-efficacy based on the level of friend social support (F = 20.717, p <.01). According to the results of the Tukey test performed to find out the source of the difference related to the perception of self-efficacy are given in Table 3.

Table 3. Tukey Test Results for the Secondary School Students' Perception of Self-Efficacy Scores based on the Friend Social Support Level

Friend Social Support Levels	Low	Moderate	High
Low	-	,000	,000
Moderate	,000	-	,000
High	,000	,000	-

According to Tukey test results, the mean scores of the perception of self-efficacy of the students with a high level of friend social support (X=57,00) were found to be significantly higher than the mean scores of the students who had moderate level (X=51,28) and low level (X=45,65) of friend social support. In addition, the mean scores of the perception of self-efficacy of the students with a moderate level of friend social support (X=51,28) were identified to be significantly higher in comparison with the mean scores of the students who had low level of friend social support (X=45,65) (p<.01).

Descriptive statistics for the secondary school students' perception of self-efficacy scores based on the family social support level variable are illustrated in Table 4.

Table 4. Descriptive Statistics for the Perception of Self-Efficacy Scores based on the level of Family Social Support

	Family Social Support Levels	N	$\bar{X}$	Sd
Perception of Self-Efficacy	Low	45	45,29	10,29
	Moderate	186	51,35	8,89
	High	52	56,27	6,69
	Total	283	51,29	9,32

The results of the one-way analysis of variance performed in order to determine whether the perception of self-efficacy scores of the secondary school students differed significantly based on the family social support level variable are presented in Table 5.

Table 5. One-Way Analysis of Variance Results related to Secondary School Students' Perception of Self-Efficacy based on the Family Social Support Level Variable

	Source of Variance	Sd.	Sum of Squares	Mean Square	F	p
Perception of Self-Efficacy	Between groups	2	2910,601	1455,301	18,898	,000
	Within groups	280	21562,056	77,007		
	Total	282	24472,657			

When the results of the one-way analysis of variance in Table 5 were examined, a significant difference was revealed in secondary school students' perception of self-efficacy based on the level of family social support (F = 18.898, p <.01). According to the results of the Tukey test performed to find out the source of the difference related to the perception of self-efficacy are demonstrated in Table 6.

Table 6. Tukey Test Results for the Secondary School Students' Perception of Self-efficacy Scores based on the Family Social Support Level

Family Social Support Levels	Low	Moderate	High
Low	-	,000	,000
Moderate	,000	-	,001
High	,000	,001	-

According to Tukey test results, the mean scores of the perception of self-efficacy of the students with a high level of family social support (X=56,27) were found to be significantly higher than the mean scores of the students who had moderate level (X=51,35) and low level (X=45,29) of family social support. In addition, the mean scores of the perception of self-efficacy of the students with a moderate level of family social support (X=51,35) were found to be significantly higher compared to the mean scores of the students who had low level (X=45,29) of family social support (p <.01).

Descriptive statistics for the secondary school students' perception of self-efficacy scores based on the teacher social support level variable are demonstrated in Table 7.

Table 7. Descriptive Statistics for the Perception of Self-Efficacy Scores based on the level of Teacher Social Support

	Teacher Social Support Levels	N	$\bar{X}$	Sd
Perception of Self-Efficacy	Low	45	45,48	10,84
	Moderate	186	50,66	8,70
	High	54	58,32	4,75
	Total	283	51,29	9,32

The results of the one-way analysis of variance performed in order to determine whether the perception of self-efficacy scores of the secondary school students differed significantly based on the teacher social support level variable are presented in Table 8.

Table 8. One-Way Analysis of Variance Results related to Secondary School Students' Perception of Self-Efficacy based on the Teacher Social Support Level Variable

	Source of Variance	Sd.	Sum of Squares	Mean Square	F	p
Perception of Self-Efficacy	Between groups	2	4264,380	2132,190	29,543	,000
	Within groups	280	20208,277	72,172		
	Total	282	24472,657			

When the results of the one-way analysis of variance in Table 8 were examined, a significant difference was revealed in secondary school students' perception of self-efficacy based on the level of teacher social support (F= 18,898, p<.01). According to the results of the Tukey test performed to find out the source of the difference related to the perception of self-efficacy are given in Table 9.

Table 9. Tukey Test Results for the Secondary School Students' Perception of Self-Efficacy Scores based on the Teacher Social Support Level

Teacher Social Support Levels	Low	Moderate	High
Low	-	,001	,000
Moderate	,001	-	,000
High	,000	,000	-

According to Tukey test results, the mean scores of the perception of self-efficacy of the students with a high level of teacher social support (X=58,31) were found to be significantly higher than the mean scores of the students who had moderate level (X=50,66) and low level (X=45,47) of teacher social support. In addition, the mean scores of the perception of self-efficacy of the students with a moderate level of teacher social support (X=50,66) were identified to be significantly higher than the mean scores of the students who had low level (X=45,47) of teacher social support (p <.01).

CONCLUSIONS

According to the results of this study, it was revealed that the self-efficacy scores of the students with a high level of friend, family, and teacher social support were significantly higher than the self-efficacy scores of the students with moderate and low levels of friend, family, and teacher social support.

During the early adolescence, one can encounter with some difficulty in personality development and socialization processes due to the adverse environmental conditions. In this process, if adolescents cannot receive the necessary social support from family, friends and teachers which are the most important sources of support (Yıldırım, 1997), they may not develop the skills necessary for adult life, may be incompetent to cope with stress, and may have low self-confidence (Geçtan, 2003). According to Bandura (1997), the concept of self-efficacy taking its sources from verbal/social support and having clearer boundaries compared to self-confidence is also an important concept in childhood and adolescence (Bandura, 1997). If individuals have not developed their own assessment skills, they are often dependent on others to get feedback about themselves. In this case, verbal/social support may increase self-efficacy or evoke other sources of self-efficacy such as indirect observation and psychological status (Britner and Pajares, 2006). Considering that verbal/social support is a concept that can enhance self-efficacy or mobilize other sources of self-efficacy (Britner and Pajares, 2006) as stated in the literature, it is seen that research results are consistent with the literature. In addition, according to research results it was revealed that the self-efficacy scores of the students with a moderate level of friend, family, and teacher social support were significantly higher than the self-efficacy scores of the students who had a low level of friend, family, and teacher social support. This result indicates that the more students are provided with social support by friends, family and teachers, the higher level of self-efficacy they have.

In conclusion, social support was found to be an important variable for self-efficacy in secondary school students. Therefore, it could be beneficial for friends, families and teachers, who are the ones to provide social support to students, to be informed by experts in the field about the importance of social support for self-efficacy. Also conducting this study in different cities or regions from the city or the region where this study was carried out may increase the possibility of generalizing the results.

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Investigation Of The Reading Habits And Interests Of The Elt Students Who Study At Atatürk University: A Case Study

Furkan CANBAY
Ataturk University, Turkey
furkancanbay102325@gmail.com

ABSTRACT

Purpose: The purpose of the study is to investigate the reading habits and interests of the ELT students who study at Atatürk University.

Methodology: The research was a case study which was carried out qualitatively. The sample of the study was formed by 15 students who were willing to participate in the research. The data were gathered between January 29 and March 30, 2016 at Atatürk University ELT Department. In-depth interview method was used for data collection. The interviews took almost 30 minutes for each participant.

Findings: Most of the participants appreciate the importance of reading habit. They believe that reading is a habit which should be started at young ages. They mainly prefer the books they bought because they can draw or take notes on their own books. They like to read, however they cannot find enough time for reading. They notice the content of the reading material while choosing it.

Conclusion: These findings reveal that the participants have an interest in reading, but suffer from some troubles.

Key Words: reading, reading habit, teacher candidates, ELT students,

INTRODUCTION

Reading is a significant activity which influences intellectual development of people and has an impact on critical thinking, gaining different perspectives and comprehending oneself, other people and events which can be come across (Karadeniz and Can, 2015). Kırmızı et al. (2014) express that we are living in the information age which requires people to read, think, criticize, search, apply the knowledge and transfer it to others. They also say that reading is a skill which is benefitted from in both first and second language education. According to Odabaş et al. (2008), reading continually and regularly, which simply means reading habit, can be considered as the base of lifelong learning. Erdamar and Demirel (2009) define reading habit as the act of reading which emerges due to regarding reading as a requirement and is performed continually and regularly. According to Erdem (2015), gaining reading habit and maintaining it lifelong is an educational objective. Ilgar and Ilgar (2012) also put forward that reading habit is useful due to its contribution to reading comprehension, problem solving and critical thinking. They emphasize the significance of reading habit for the students of educational faculty since they will educate the upcoming generations. Yusof (2010) clarifies the importance of reading in a good way by approaching the issue from educational perspective. He says that people who have reading habit constitute a successful community. They may generate quality manpower which can be improved much in the future. Kırmızı et al. (2014) put forward that reading habit can be seen as an important subject in understanding the real condition of teacher training. Therefore, investigating the reading habits and interests of teacher candidates can make contribution to education of English language teachers.

The Purpose of Study

The aim of the study is to investigate the reading habits of the ELT students who study at Atatürk University.
In line with this purpose, answers were searched for the research questions below:

1. What are the views of the students towards reading habit and importance of gaining it?
2. How much time do the students spend time for reading?
3. What are the reading sources that the students usually use?
4. What are the factors that motive or impede students from reading?
5. What are the kinds of books or topics that the students especially like or dislike?

METHODOLOGY

The research was a case study which was carried out qualitatively. The sample of the study included 15 students who were willing to participate in the research. The data were gathered between January 29 and March 30, 2016 at Atatürk University ELT Department. In-depth interview method was used for data collection. The interviews took almost 30 minutes on average for each participant. The interviews were recorded by the researcher and they were turned into text for the evaluation of data. Before coding the data, an integrative point of view was tried to emerge by reading every sentence. Content analysis method was used for the data analysis. In line with the purpose of the study, 5 themes were identified for the research and examined in the findings section.

FINDINGS

Theme 1. Views about reading habit and its importance

Most of the participants appreciate the importance of reading habit. They regard it as the basis of reaching information. They claim that it is beneficial for educational and developmental purposes as it facilitates learning, provides personal development, improves critical thinking, helps people gain different perspectives, presents a wide range of linguistic items, affects attitudes of people and is beneficial for teachers. It can even contribute to socialization of individuals by increasing their self-confidence. They believe that reading is a habit which should be started at young ages. Otherwise it may be too late for people to enjoy reading.

Student 1: *"I think reading habit should be gained at young ages. Because I believe formation of all habits in childhood is important. I think having reading habit is vital since in fact it is perhaps the easiest way of reaching information."*

Student 4: *"According to me, it is a habit which everybody should have at young ages. Because, a book we read may cause many changes for us. I think it mostly leads to positive changes. So, everybody should read book. It is important as people can develop themselves by reading."*

Student 9: *"In my opinion, reading habit is significant. Because I think it makes contributions to both learning and teaching of people. I think everybody should read books, journals and scientific publications. It broadens people's horizons and improves their vocabulary knowledge. It increases education levels and helps people change their points of views."*

Theme-2. The time spent for reading habit

It was found out that the students have the opportunity of reading almost 9 hours per week on average.

Student 1: *"I certainly try to read 1 hour a day at least. I can read 1 hour during school time. Thus, I can read 7 hours a week in school time and in my spare time it can increase to 10 hours a week."*

Student 12: *"As I am a senior student, I cannot spare much time for reading. But, in my leisure time I can devote 7 hours a week. I cannot allocate much time for reading due to heavy course load."*

Student 15: *"I spare 4 hours at least for reading. Because, the tasks and presentations which were given at school require that."*

Theme-3. The reading sources that the students usually use

The sources which they use for reading are the printed books which they bought or took from libraries and internet. They mainly choose the books they bought because they can draw or take notes on their own books. They also prefer books from libraries because there are a large number of options. The reason why they favor printed books over internet is that they want to feel the book and internet can harm their eyes and have deceptive information.

Student1: *"Generally I prefer buying book. In other words, I like printed materials. I prefer possessing the books rather than getting them from the library. Reading from a paper is easier just because in my opinion, reading from a screen on the internet is harder. I think both following the sentences and high quantity of light are tiring."*

Student 4: *"I benefit from the books from the library. I do not prefer reading on the internet as it does not give the sense of reading a book really. In my opinion, feeling the book is nicer. Internet does not make me feel as if I am reading a book actually."*

Student 7: *"I sometimes get books from the library, but usually buy my own books I dislike internet. Because printed books give more comfort. I can draw the pieces which I like on the book and take notes. However, the internet leads to eye strain. It does not arouse a reading desire, but printed books are better. I can draw and take notes I like."*

Theme-4. Motivating and demotivating factors

The participants like to read, however they have difficulty in finding enough time for reading. They state that they have heavy course load, places for reading are insufficient and book prices can be high. They also express that the attractiveness of reading material, the idea of self-development, their learning desire and advices of instructors motivate them. Spending time on the phone and internet, and insufficiency of the reading places prevent them from reading.

Student 7: *"If my favorite instructor advices, I think I should definitely read that book. If the book is important for me and I think it will be beneficial for me, this motivates me. The negative opinions about a book demotivate me. Noisy environments also impede me to read. Otherwise, I can read in suitable conditions."*

Student 12: "*Attractiveness of the material motivates me. Course loud and spending much time on the internet are the factors which prevent me from reading."*

Student 14: *"Demotivating factors are telephone, internet and computer. These factors constrain me from reading. Normally I read much, but I cannot read because of them. When it comes to the motivating factors, I read the book if it has a flowing content."*

Theme 5. The kinds of books or topics that the students especially like or dislike

They mostly dislike the books which deal with unreal events and have a boring content. They fancy the books which include adventurous and real-like events and academic materials which allows personal and critical development.

Student 1: "*I dislike science fiction and fantastic books. Because they do not attract me as they are away from reality. I like the books dealing with personal development. I show interest to the books which explain improvement of people."*

Student 7: *"I generally like reading novels. I do not like reading historical books. I find such kind of books boring. The events which are daily and possible to happen appeal me much."*

Student 11: *"There is not a specific kind of book which takes my interest. But if there is a topic which arouses my interest, I can read it. My condition at that time determines these topics."*

DISCUSSION

All of the participants have a positive attitude towards reading and admit the significance of reading habit. They regard it as a useful habit which needs to be started in childhood. They mostly emphasize its benefits by touching upon its educational, individual and social advantages. Considering their potential influence on their students, it is remarkable that the participants, who are the educators of the future, have awareness of reading habit. In line with the current study, Roca and Rius (2015) deal with the importance of reading in society and education. They also talk about reading socialization, which provides readers with the sense of being a part of a group, regarding the positive sides of reading. Karadeniz and Can (2015) claim that reading habit is a factor which increases critical thinking. Yusof (2010) mentions about the influence of parents on the formation of reading habit. In contrast with this study, Odabaş et al. (2008) say that reading habit can be formed later ages.

The study reveals that the participants can read nearly 9 hours a week on average. This may be acceptable, but as the participants are university students, it can be expected them to have a high intellectual capacity and read more. Generally, the participants put the blame on extreme use of internet and computer, their heavy course loads and school tasks given them regarding their average reading time. Similarly, Karadeniz and Can (2015) regard school tasks and internet as factors which decrease reading time. Odabaş et al. (2008) state that students read little as they waste their time by using technological devices unnecessarily. They also claim that work load and economic reasons prevent students from reading.

The participants prefer printed materials rather than technological items which they regard them as potentially harmful for their eyes and deceptive. They value feeling the book. They also tend to use the materials which they own instead of obtaining from libraries. They put forward such kinds of materials offer them comfort in use. It seems that they prefer being free while reading. Likewise, Erdem (2015) claims that students choose reading books by buying them. Odabaş et al. (2008) express that students do not enjoy utilizing libraries. On the other hand, some of the participants appreciate the books of libraries as they provide them with a number of options. Yusof (2010) claims that many students depend on libraries for using reading materials. In contrast with this study, Zorba (2013) says that internet is a tool which facilitates reaching reading materials.

In the study, it was found out that the participants have a desire of reading. However, they suffer from several problems which impede them to read such as inappropriate reading places, noisy environments and wasting their time on technological devices. Thus, it is possible to say that they complain about the conditions which break their concentration. On the other hand, their developmental ideas, suggestions of their instructors and content of the reading material can motivate them to read. Odabaş et al. (2008) say that watching TV, using computer and listening to music impede students to read. Erdem (2015) puts forward that school tasks and use of electronic devices demotivate students regarding reading. According to Yusof (2010), parents can play a role in reading motivation.

The study shows that the participants' choice of reading material is determined by content of the material. It can also be inferred from the interviews that age level is an effective factor in their preferences. Yusof (2010) mentions about reading experience at home as the effective factor in reading selections. Pehlivan, Serin and Serin (2010) consider gender and socio-economic level in reading interests of students.

CONCLUSION

In this study it was seen that all of the participants appreciate the value of having reading habit and the importance of starting to form reading habit at young ages by showing a great awareness towards it. Considering the significance of reading, they focus on benefits of it in terms of educational, individual and social aspects. They also claim that their reading time is influenced by several factors such as spending much time on the internet or mobile phones, heavy course load and the school tasks which they must fulfill. The participants prefer printed materials rather than internet. They believe that reading on the screen may be unhealthy for their eyes. They also suffer from a feeling of insecurity towards the knowledge on the internet. They believe they can be misleading for them. They attribute more importance to possessing the reading materials than borrowing them from libraries. They are motivated to read with their ideas of self-development, content of a reading material and advices of their instructors. On the other hand, their motivation to read decreases with unsuitable reading places, the noise around them and technological devices. The content of the reading material is the most influential factor in choosing what they will read.

In line with the finding of this study, it is possible to make several suggestions. For instance, people should be encouraged to gain reading habit at young ages. The use of electronic devices inside and outside the classrooms should be regulated. Students should be provided sufficient and more comfortable reading places. Reading may be included more in courses and school tasks. The instructors may guide their students to reliable sites on the internet to protect them from deceptive sources.

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It Competition From The Students' Perspective: Their Motivation And Attitudes Toward Success

Nikolina BUBICA
Mokosica Elementary School, Croatia
nikolina.bubica@du.t-com.hr

Ivica BOLJAT
Natural Science Faculty, Split, Croatia
boljat@pmfst.hr

ABSTRACT

In the Republic of Croatia primary and secondary schools students compete in IT categories such as solving problems in programming, knowing fundamental Computer Science concepts or individual software project development. This research aims to explore different student's motivation to participate in IT competition and to plan and organize self-preparation for it. Impact of some factors like competitor's gender, category of competition, preparing strategy, general feeling of satisfaction and so on achieving success in this IT competition was explored. Preliminary data, among other, suggests that students consider their mentors (teachers), the most important factor in preparing for competition. Also, students do not consider that this competition could bring them some prestige in school or society, but they have some intrinsic motivation to participate in competition and use all available resources, human or material, to achieve success.

INTRODUCTION

Computer science (Informatics) is one of the elective subjects in elementary schools in the Republic of Croatia, therefore it has a smaller number of students involved in the teaching process. In the curriculum of the elementary school elective subject Computer Science problem solving with programming is represented approximately with 10-15% of the total content, which is not enough to achieve the level of knowledge that is necessary for success in the IT competition, which is called Infokup in Croatia. Elementary and secondary school students can compete in IT categories such as:

- Solving problems with programming using programming languages like Python, Logo, C, C++, Pascal…(categories Algorithms, Logo)
- Knowing fundamental Computer Science concepts (category CS Fundamentals)
- Individual software project development (category Software development)

Programming competition is organized in three groups: Logo programming for students aged 11 to 14, Algorithms in Python/Pascal/C/C++/ for students aged 11 to 14 and Algorithms in Python/Pascal/C/C++/ for students aged 15 to 18. CS Fundamentals is a category dealing with knowledge of the fundamental computer science concepts such as computer hardware, data organization, storage, presentation and management, networks and so. Software development is a category for one student or group of students who design and develop their own software project. More information on this competition could be found on the competition's website (http://infokup.hr, http://hsin.hr).

The specific research questions were:

Is there a difference when preparing for competition between boys and girls?
Is there a difference between competition categories competitors?
How many students are satisfied with results of competition?
Do students intend to compete in same categories in which they have competed up to now?
Are there any relations between computer science competition categories and students' competition in other topics?
Is playing computer games on regular basis one of the important features of Infokup competitors?

RELATED WORK

Many research papers are dealing with the students' motivation for learning computer science courses in particular initial programming. The results of these studies have suggested different motivation of students but also that students are coming with different previous knowledge of programming in the initial courses in computer science. Generally, competition and other boots are often studied for their ability to motivate students (Vivek Khera, 1993; Widmer C., 1998). The biggest challenge for teachers of computer science lies precisely in teaching a broad, diverse group of students who come with a variety of knowledge. For teacher it is very difficult to find an appropriate level of difficulty of teaching content for all students. If the level of presentation is too low some of the best students will be bored and will be demotivated to work.

Roberts (Roberts, 2000) conducted a very interesting study on strategies for encouraging individual achievement. In his research he used different strategies to maintain the enthusiasm of excellent students as well as provide additional/rewarding points for special invested effort. Other strategies included organizing volunteer programming contest. Research has shown that students who benefited from the existence of achievement awards, such as extra points on the course, often were able to accomplish amazing things. The existence of the competition had a positive impact on many students. Occupancy and energy of the competition influenced the students to the extent that all progressed faster. Here, as in any pedagogical technique, design of the contests and the prize as boost must also take into consideration the environment in which they are implemented. Some strategies are implemented better in smaller communities and schools, and some are better in major communities, but in both cases the implemented strategies have led to an increase in students' motivation for learning selected educational content.

Steele (Steele, 2010) examined the ability of voluntary programming competition to motivate students in adopting generally demanding content programming. At the very beginning, students showed great interest in the competition but a small number of students actually signed up for the competition. It precisely indicated the incompatibility of the lack of prizes in any form with the high demands of competition for students. From the teachers' perspective, the existence of competition during the course has become an extremely useful tool, especially for advanced students who often adopted learning materials before the end of the course. Voluntary programming competition, for such students proved to be a positive experience and became a regular thing.

Bowring (Bowring, 2008) suggests a new paradigm for high school programming competition that has changing and competitive philosophy but also the concept of the implementation of the competition. The new philosophy places emphasis on the quality of the process rather than the time limit for implementation. The quality of students' work is estimated in its technical and artistic quality. The technical quality answers to the question of how well made solution satisfies the request, and the artistic quality refers to the subjective evaluation of the code itself, its readability and documentation, and the readability of other parts such as the output file. The new paradigm of competition highlights the entertainment aspect of the competition through the creation of an infrastructure that promotes team competition.

The historical roots of the current paradigm of competition can be found in close association of computer science with mathematics. The existence of accurate and often unique solutions is characteristic for mathematics which pushes the contestants in the race to seek the correct answer. In contrast, software solution of a problem often isn't unique. Diversity of mathematical and software solutions embodies the record in the software life cycle. The life cycle software provides software solutions and implies that software solutions are an ongoing process. Students are taught how to meet the requirements, how to design a solution, and finally how to apply, test and troubleshoot, and eventually develop and maintain solutions.

Results of previous pilot study (Bubica, Mladenovic, & Boljat, 2014) showed that students with excellent school success invested more time to prepare for competition. Students with higher school success appreciated more working with their mentors than students with lower school success. Looking at the success from the gender perspective, girls are willing to invest more effort in preparation regardless of whether it is a stand-alone work or work with a mentor. Boys are more likely to participate in category Algorithms Basic next year (since 2014 this category has been changed to Algorithms Basic/Python/Pascal/C/C++, and since 2016 to Algorithms – Python/Pascal/C/C++). The research showed no other significant difference between genders. That study also dealt with the question of students' satisfaction of achieved success. Younger aged students expressed great satisfaction with the achieved success while final grade students expressed dissatisfaction with their accomplishment. It could be questioned if it was because younger students cultivated more collaborative learning style and older students cultivated more competitive model, according to Grasha Riechmann model (Hruska-Reichmann, S. & Grasha, A. F., 1982). Result showed that students valued the success in this competition. Although it was expected that the prize for achieved success, expressed through the getting bonus points upon enrollment in secondary school, should be significant factor for retaining interest for competition, results didn't confirm statistical relevance. Although it has been shown that students lost interest in the older grades, they were very confident in the selection of the competition category. If they decided to compete the next year, they would choose the same category. The claim proved to be statistically significant for both categories CS fundamentals and Algorithms.

THE STUDY

The basic idea of this study was to explore whether there is a correlation between success in this IT competition and factors such as competitor's gender, category of competition, different ways of preparing, general feeling of satisfaction of achieved success, available human and material resources, playing games on regular basis and so on. The pilot study that was conducted earlier (Bubica, Mladenovic, & Boljat, 2014) on a sample of students who performed at the lowest (first) level of competition was a great help for planning this research.

RESEARCH METHOD

For the purpose of this research a two surveys were conducted among 85 elementary and 36 secondary school students (Figure 1, male=98, female=23) who participated in the regional or state IT competition during 2014. In order to gain their personal attitudes about the opinions, beliefs and behavior, students were given an online survey with the corresponding series of standardized questions. As a part of this study were collected data about attitudes and preparation modes of teachers who prepared students for the competition. These data were not subject of this investigation but will be the subject of future interest.

Research data were collected through online attitudes surveys which were created by one of the researchers, while data was collected by a student involved in this project. Each survey was composed of 21 questions and they differ in only two questions. Students filled questionnaire anonymously and voluntarily one month after the competition. This instrument was designed to investigate research questions. Chi-square test was used to compare groups of students. Chi-square test is non-parametric technique used for nominal data. All analyses were performed using PSPP 0.8.1.1.statistical software.

FINDINGS

Boys vs. girls

Previous studies of Computer Science Education (CSE), among other factors, often investigated the role of student's gender in achieving success at the end of computer-related courses and those studies haven't highlighted gender as a factor that is important for achieving it (Bubica & Boljat, 2014; Bubica N., 2014). However, the results of study indicated some differences between boys and girls who participated in this competition. The first difference is shown in the selection of competing categories, so boys are more likely than girls to compete in category Algorithms (programming with programming languages Python/C/C++/Pascal) then in category LOGO (Table 1, χ^2=7,128, df=1, p=.008).

Table 1: Distribution of students by gender and competing in category Algorithms – Python/Pascal/C/C++

			For the next competition (if I participate) I will …			total
			prepare the same way	not prepare at all	seek extra help / I will do more	
Preparations for the competition are held in school	No	Count	7	6	11	24
		Percentage	29,2%	25%	45,8%	
	Yes	Count	33	7	44	84
		Percentage	39,3%	8,3%	52,4%	

Also, boys are more likely to be involved in some other open competitions like Honi (http://www.hsin.hr) or some form of winter or summer IT preparation camps (χ^2=8,743, df=2, p=.013). Furthermore, it seems that boys were more ready than girls to individually explore additional web sites with demo examples and programming tasks (χ^2=8,049, df=2, p=.018). Very interesting aspect for us in this research was to explore whether playing games regularly (playing some game every week) had some influence on competitors or their attitudes and behaviors. Results showed that boys are more likely than girls to regularly play a game weekly (Table 6, χ^2=8,878, df=2, p=.012). More on playing games on regular basis will be discussed in later sections.

Preparing for competition

IT Infokup competition is very demanding and expects a lot of student's effort in order to achieve success. The knowledge material which is required for the competition CS Fundamentals mostly consists of regular learning material from the curriculum of elective subject in elementary schools (Informatics) and regular subjects in high schools (Informatics, CS). On the other hand, the competition categories which include programming are extremely demanding for students primarily because programming content accounts for only 10-15% of the school's curriculum so the level of knowledge and programming skills that are necessary for success in programming categories away exceed these curriculums. Study objective was to find out how students prepared for this competition, which teaching materials they used, also whether they worked alone or with the help of mentors, parents or friends, whether they worked mostly in school, or some IT club or at home, and generally to learn more about any strategy implemented in preparation for this competition.

Although many competitors highlighted that working with their teachers was the most helpful that claim couldn't be extracted as a general significant conclusion in this research like it was previous pilot study (Bubica, Mladenovic, & Boljat, 2014). However, the importance of preparing with teachers at school could be seen from the following result: those students who had experience of previous competitions will probably prepare with their teachers at school for the next competition. Students who are preparing at school, mainly with the help of their teachers, were very satisfied with the way they worked and for further competition would probably prepare in the same way or would even seek assistance or prepare more (Table 2, χ^2=37,063, df=3, p=.000). Also, if students organized preparation in their schools they would be likely less interested in seeking other learning materials elsewhere (χ^2=14,646, df=2, p=.001).

Table 2: Distribution of students by the place of preparation and by organizing next year competition preparation

			For the next competition (if I participate) I will …			total
			prepare the same way	not prepare at all	seek extra help / I will do more	
Preparations for the competition are held in school	No	Count	7	6	11	24
		Percentage	29,2%	25%	45,8%	
	Yes	Count	33	7	44	84
		Percentage	39,3%	8,3%	52,4%	

Success in competition

It was already mentioned that this IT competition - Infokup, is very demanding for students, so it was interesting to see what motivates students to apply for it. The results showed that students mainly applied because it was their independent decision, but there are also students who participated on their teachers', friends' or even parents' recommendations. Student's intrinsic motivation to compete confirmed to be very important. Precisely, for the students who had some intrinsic motivation to participate in this competition results showed that they were more ready to look for and use any additional learning materials and solved examples (χ2 = 14.646, df = 2, p = .001). They were also likely to invest extra time after school hours and even on weekends for preparation (χ2 = 67,792, df = 4, p = .000), mostly in schools (χ2 = 25,136, df = 2, p = .000).

Results indicated some differences in the way students prepared with respect to selected categories of competitions, especially category Algorithms – Python/Pascal/C/C++ and Algorithms Logo. Contestants of both categories were probably ready to invest considerable effort in preparation, namely to work extra with their teachers at school, after school hours or even on weekends. Contestants of Algorithms – Python/Pascal/C/C category would probably explore additional learning materials independently (χ2 = 7,404, df = 2, p = .025) or use examples of solved programming tasks from competition web sites (Infokup, Honi) (χ2 = 9,957, df = 2, p = .007). Also, they would probably take part in other open programming competitions (eg. COCI) or some winter/summer programming preparation camps. At the same time Algorithms – Logo contestants were very satisfied with their preparations and achieved success and they were likely not to change anything for the following competition (χ2 = 8,189, df = 3, p = .042).

Since the students are willing to invest extra effort to prepare for competition, it is interesting to explore what the success in this competition means to them and how it could motivate them, if so. About 51,4 % of students believe that success in this competition may represent additional features for enrollment in secondary school (eg. extra points), while others (33,3 %) find it has some or no (15,3 %) importance. 50% of the students believe that success in this competition could build some reputation in the school and among their peers. Almost equally students believe that success in this competition has no importance (27,8 %), some importance (33,3 %) or great importance (38,9%) as a boost to think more about IT careers. Although, a more detailed analysis regarding competition categories reveals that Algorithms – Python/Pascal/C/C++ contestants are likely to perceive this competition as a boost to reflect on his career in IT sector.

Competition categories
Research of this specific competition is particularly interesting as it includes different areas of computer science, so almost every student could find an area interesting for him. Students who do not show interest in programming usually choose to perform in the category CS Fundamentals. CS Fundamentals is a category which includes knowledge about all basic CS concepts like networks, computer hardware and applicative software, data storage, manipulation, edition and presentation and so. This category is relatively new as it is been held since 2011, while other categories have been held continuously for more than twenty years. In any case, CS Fundamentals category is more popular among students what could be seen through the number of registered participants. This school year (2016), in the first (lowest) level of competition, participated 2880 students of primary and secondary schools in the category CS Fundamentals, in the category Algorithms – Python/Pascal/C/C++ (elementary schools) participated 612 students, in category the Algorithms – Python/Pascal/C/C++ (secondary schools) participated 629 while 1,122 students participated in the category Logo (Infokup, 2016).
It seems that the students take very seriously the differences between programming categories and category CS Fundamentals as it is very likely that CS Fundamentals competitor did not before, nor will in the future, participate in other competition categories ($\chi 2$ = 32,658, df = 4, p = .000). This is consistent with pilot research (Bubica, Mladenovic, & Boljat, 2014) which determined that contestants are very true to their primary category. Competitors of CS Fundamentals are very satisfied with the way in which they prepare for the state competition and generally very pleased with the success achieved. For them success in this competition doesn't represent some respect in school or among peers (Table 3) or could encourage them towards CS profession (Table 4) but only represents a slight possibility of getting extra points for enrollment in secondary school.

Table 3: Distribution of CS Fundamentals competitors by their feeling of success could bring them respect in school or among peers

		Success in this competition represents respect in school and among peers (3-level Likert scale)						
		Mean	N	Std. Dev.	Min.	Max.	Range	Median
CS fundamentals competitor	No	1,64	44	,750	1	3	2	1,00
	Yes	1,71	28	,763	1	3	2	2,00

Table 4: Distribution of CS Fundamentals competitors by their feeling of success could encourage them towards CS professions

		Success in this competition could encourage towards CS professions (3-level Likert scale)						
		Mean	N	Std. Dev.	Min.	Max.	Range	Median
CS fundamentals competitor	No	2,14	44	,795	1	3	2	2,00
	Yes	2,07	28	,858	1	3	2	2,00

Although a larger number of participants noted teachers as the greatest help in the preparations for the competition this claim showed statistical significance only for CS Fundamentals competitors (χ2 = 8,223, df = 3, p = .042).

Competitors of Algorithms – Python/Pascal/C/C++ category very likely did not before participated in other competition categories. They consider success in this competition primarily as a way to achieve extra points for secondary school enrollment but also as a very important factor which could interest them in IT professions (Table 5). As expressed earlier competitors in this category are extremely motivated to make additional effort in preparing for competition.

Competitors in Logo category are, like other competitors, very consistent in their competition category selection, so they very likely didn't participated in other competition categories before. They don't consider success in this competition as a way to achieve extra points for secondary school enrollment or as a way to achieve some prestige in school and especially not as a way to interest them towards IT professions. Maybe more than others, Logo competitors express satisfaction with their preparations and achieved success in this competition.

Table 5: Distribution of Algorithms – Python/Pascal/C/C++ competitors by experiencing competition a boost to IT professions

		Success on this competition could encourage towards CS profession (3-level Likert scale)						
		Mean	N	Std. Dev.	Min.	Max.	Range	Median
Algorithms – Python/Pascal/C/C++ competitor	No	1,86	43	,774	1	3	2	2,00
	Yes	2,48	29	,738	1	3	2	3,00

Some specificity regarding student's geographical area with selection of certain categories and other subject competitions have been also noticed. Students from Central/Eastern Croatia and North Adriatic are more likely to participate in math (χ2 = 9,829, df = 2, p = .007) or physics (χ2 = 8,186, df = 2, p = .017) competition as well as IT competition than students from Central and Southern Adriatic. In Central and Southern Adriatic there are more first time competitors than in other regions what could be explained by higher withdrawal from the competition in this region compared to other regions in Croatia. Experience in the competing also proved to be significant in this study. It showed that students who participated for the first time were more inclined to work only within regular school hours while those who had some competing experience realized that this competition was very demanding and they were likely to regularly attend school preparation workshops and work hard after school hours or even on weekends.

Playing computer games regularly

Probably it is natural to expect that every child with computer access spends at least some time in playing computer games. In this study, it was investigated whether there was connection between regular playing computer games and factors like specific competition categories, gender and so.

In order to explore which are the games that attract most competitors informal discussion with students aged 11 to 14 during school hours singled out several categories of games which were used to explore whether there was a link between the competitors of Infokup competition and specific game category . Students where offered to choose between Strategy games (eg. Age of Empires, Stronghold, Chess) First Person Shooter games (eg, Call of Duty, Battlefield), Sports games (eg. FIFA, PES) and Racing games (eg Need for Speed) or something else. From the collected data (Figure 2) it could be concluded that there was a number of competitors who played other games which weren't offered here as 44 of them pleaded that they had played something else and only 18 of all students said that they did not play computer games regularly at all.

From the remaining results it looks like that Infokup competitors were likely not to play Racing games. Somehow it was expected that Strategy games like Age of Empires, Stronghold, Chess and so, may prevail in students' choice but Sports games were the most interesting from all offered games categories. Distribution of (week) hours of playing computer games regularly by competitors is shown in Figure 3. Considering that competitors of this competition are expected not only to have multitude of computer skills and knowledge but also more specific computer fluidity in working with computers the age in which contestants started playing selected games was investigated. Average beginning age was 10,6 years but further exploration of differences among computing categories showed that Algorithms – Python/Pascal/C/C++ competitors would probably start regularly playing computer games at the age of 10 while CS Fundamentals category competitors will likely start little later at the age of 12.

Results showed that boys are more likely than girls to regularly play a game weekly (Table 6, χ^2=8,878, df=2, p=.012).

Table 6: Distribution of students by gender and playing computer games regularly

		Playing computer games regularly (regularly = playing some game every week)		Total
		Yes	No	
Girls	Count	10	12	22
	Percentage	45,5%	54,5%	
Boys	Count	70	21	91
	Percentage	76,9%	23,1%	

It could also be interesting to explore whether there is a connection between the success on this competition and specific games categories as well as the number of (week) hours spent in regular playing computer games. Unfortunately, number of valid answers wasn't sufficient to carry out some conclusion about it.

CONCLUSIONS

Although the research showed some differences between boys and girls some overly significant claims about it couldn't derive, perhaps because girls participated in the competition in smaller number. While many competitors pointed out that their work with teachers was the most helpful during their preparations research has not shown strong evidence to confirm significance of this statement. Compared to pilot research great intrinsic student's motivation to participate and prepare hard for the competition especially in some programming categories was confirmed. Very interesting results were found regarding playing computer games which could be a good start for further research.

The results of this study should help teachers to be better prepared for work with talented students but also to better motivate students for this type of competition. One of the major recommendations from this work is that students appreciate competition preparatory work with their teachers very much. They are ready to take part in preparatory workshops held in some extracurricular time in schools even on weekends because they consider such work high-quality and useful. Due to the strong intrinsic motivation shown by competitors especially of some programming category, as well as their desire to independently investigate other teaching materials, teachers might use training strategy which includes working and helping students but also finding specific ways to make additional learning materials more accessible to all of them. An example of such strategy could be the use of safe communication networks (eg. Edmodo) for quick and easy communication and exchange of teaching materials between teachers and students but also between students themselves, encourage cooperative learning and discussion about interesting tasks and problems related to the competition through such tools. Although, some differences in achieving success between girls and boys shouldn't be expected, it is could be concluded from this research that something could be done to better motivate girls to become involved in such competitions as well to engage them to participate in extracurricular activities and workshops related to the competition.

Given the everyday raising need for IT professionals and general intention of IT sectors to raise interest among students towards these professions it is important to point out that the results in this research showed that success in some programming categories could point students towards IT professions.

In the future, attitudes and opinions of teachers who prepare students for this competition would be explored in order to get more insights on this issue.

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Just Ask! What Prompts Elemantary School Students To Engage In Critical Thinking In Reading And Mathematics Classes In The United States?

Robert G. CRONINGER
University of Maryland, United States
croninge@umd.edu

Rachel M. V. CRONINGER
Pennsylvania State University, United States
rmc301@psu.edu

ABSTRACT

One of the challenges to ambitious school reform is prompting teachers and students to engage subject matter deeply and critically. One strategy for doing so involves teacher talk – challenging students to provide more complex responses to the interpretation of text or mathematical problems. In this study we use observation data about lessons to examine student and teacher talk during reading and mathematics instruction in fourth and fifth grade classes in the United States. Using multilevel modeling, we find that students are rarely challenged to provide additional commentary or justification for answers that they give during lessons. However, when they are challenged to do so, students are more likely to provide answers characterized by alternative justifications, extended responses, and critical reasoning. During reading lessons, teacher requests for greater engagement in content were more likely to be successful when teachers actively managed instruction; during mathematics lessons, teacher requests for greater engagement in content were more likely to be successful when teachers used small group and mixed forms of instruction. In general, traditionally disadvantaged students responded as positively to teacher requests for greater engagement as traditionally advantaged students, if they were in a classroom where teachers asked them to do so.

INTRODUCTION

One of the challenges to ambitious school reform is prompting students to engage subject matter more deeply and critically (Cohen, 2011). One strategy for doing so involves teacher talk – teachers challenging students to provide more complex responses to the interpretation of text or how to solve mathematical problems (Gall, 1970; Hiebert & Wearne, 1993; Morrow, Wamsley, Duhammel, & Fittipaldi, 2002). Doing so not only enhances student general knowledge it also helps students develop cognitive skills and problem-solving strategies that may be transferrable to other tasks (Knapp & Means, 1992). However, challenging students to think more deeply about text and problems is not common in most elementary and secondary classrooms (Applebee, Langer, Nystrand, & Gamoran, 2003; Boyd, 2015; Nystrand & Gamoran, 1991). First, many teachers are uncomfortable with or simply do not know how to elicit deeper engagement in topics from students; nor do many teachers know how to establish norms of discussion or talk that prompt expectations for more critical and thoughtful responses from students to their inquiries (Soter, Wilkinson, Murphy, Rudge, Reninger, & Edwards, 2008; Jadallah et al., 2011). Second, students themselves resist engaging topics more critically as part of classroom discourse (Palincsar & Brown, 1986; Mercer, Wegrif, & Dawes, 1999). Doing so involves departing from the script associated with traditional classroom discourse – simple factual requests and responses – and risks revealing misunderstanding or confusion to others. Nonetheless, engaging in challenging talk also provides one of the greatest opportunities for students to develop sharper cognitive skills and a critical understanding of subjects.

In this study we draw on data from classroom observations of fourth and fifth grade teachers to examine teacher and student talk during reading and mathematics lessons. We use multilevel modeling to examine student responses to teacher queries across 846 lessons, in roughly 66 classrooms in 18 elementary schools in the United States. We categorize teacher and student talk by what has been referred to as "cognitive load" or "cognitive demand" (Graeber, Jones, & Chambliss, 2012). When teachers ask for simple "yes-no" or factual responses, we categorize their requests as involving lower cognitive demand; when teachers ask students to elaborate, consider alterative possibilities, or justify their responses, we categorize their requests as involving higher cognitive demand. We use the same coding scheme to categorize student talk – that is, we code simple responses as involving lower cognitive demand and more complex responses (i.e., when students elaborate on a response, consider an alternative explanation to their response, or provide a justification for their response) as involving higher cognitive demand. According to our conceptualization of teacher talk, talk that requests higher levels of cognitive demand from students is more likely to result in students engaging in critical thinking, while talk that requests lower levels of cognitive demand from students is less likely to do so.

We use this conceptualization and various characteristics of students, teacher practices, classes, and schools to answer the following research questions:

1. What is the likelihood that students engage in critical thinking, as measured by the occurrence of cognitively demanding responses to teacher questions? Does the occurrence of students' cognitively demanding responses vary across lessons, classes, and schools?
2. Are students more likely to engage in critical thinking, as measured by cognitively demanding responses to their teachers' requests, when teachers ask them to reflect more critically on texts and problems?
3. What characteristics of teachers, classes and schools are associated with a greater occurrence of critical thinking, as measured by students' cognitively demanding responses to teachers' questions?
4. What characteristics of classes and schools are associated with a greater effectiveness of teachers' request for students to think critically about texts and problems, as measured by the relationship between teacher requests for critical thinking and student responses?

METHODS

The High-Quality Teaching (HQT) Study, a multi-year, federally funded, interdisciplinary examination of teaching in fourth and fifth grade classes in the United States, was designed to provide a multifaceted examination of what constitutes quality teaching. The purpose of the study was to investigate what teachers do to help fourth and fifth grade students succeed in reading and mathematics, and to investigate how various educational policies and organizational factors influence the ability of teachers to scale up and sustain good or quality teaching over time. Using multiple methods, investigators followed teachers over time to compare teaching in reading and mathematics in classes comprised of different types of students, in elementary schools with different organizational structures, and in years with different policy pressures. Between 2001 and 2005, approximately 170 teachers and 4,300 students in 25 elementary schools participated in the study (see Croninger, Valli, & Chambliss, 2012 for more background on the study). The data for this study come from the classroom observations completed during the 2003-2004 school year.

Observation Protocols

The study used a time-sampling observation protocol for observing reading and mathematics instruction in the fourth and fifth grades. The protocol was based on the district's formal curriculum, instructional standards promoted by professional organizations (e.g., the National Council of Teachers of Mathematics, the International Reading Association, and National Council of Teachers of English), the research literature on teaching in each subject area, and lessons learned from teachers during the piloting of the instrument. Researchers observed fourth and fifth grade teachers deliver reading and mathematics lessons to their students during the year. During the observation, researchers responded to a set of questions presented to them by a software program running on a laptop computer. Every three minutes the program asked observers to select from a set of options about what the teacher was doing, what students were doing, current content and context for the lesson, classroom organization, type of technology used, types of materials used, and the extent of student attentiveness. All observers participated in pre-observation training to ensure inter-rater reliability; observers were also periodically paired with a second observer during the year to monitor potential drift in reliability.

Study Site

The schools in the HQT study come from one of the 20 largest school systems in the United States. The school district employs more than 19,000 individuals and enrolls nearly 140,000 students (K-12). Like many large, metropolitan school districts, the district faces a wide range of educational challenges associated with dramatic changes in the demographics of its student population and heightened expectations for student achievement. During the 2003-2004 school year 18 elementary schools participated in the study. Nearly two-thirds of the schools in the study had low-income enrollments of over 40%, and slightly over half of the students (58%) were either African American or Hispanic. A total of 66 teachers participated in the study that year. Of these teachers, 62 participated in a total of 412 reading observations and 66 participated in a total of 434 mathematics observations. We observed, on average, seven 60-minute lessons per teacher.

Analytic Strategy

Because of the nested nature of the data (observations of lessons nested in teachers' classrooms nested in schools), we developed a three-level multilevel model to examine the nature of student and teacher talk during lessons (Raudenbush & Bryk, 2002). For both the reading and mathematics lessons, we coded teacher requests and student responses as involving higher cognitive demand or lower cognitive demand (our indicators of requests and responses that involved critical thinking). We then calculated the proportion of the lesson associated with each (e.g., the proportion of three-minute episodes in which the observer recorded that the teacher solicited more thoughtful responses from students and the proportion of three-minute episodes in which a student provided a thoughtful response to a question or statement). In these analyses we use the quality of student talk as the dependent variable and the quality of teacher talk as the primary independent variable. We standardized each variable to have a mean of zero and a standard deviation of one.

At level 1 we model the proportion of a lesson in which students provide cognitively demanding responses as the function of the quality of teacher talk and an array of lesson characteristics – that is, we model the proportion of time in individual lesson i taught by teacher j in school k that students respond more thoughtfully as a function of the average proportion of time across all lessons that students did so in teacher j's classroom in school k; the proportion of time that teacher j in school k prompted students to engage a topic more thoughtfully; an array of lesson characteristics L (e.g., proportion of time teacher was actively engaged in instruction, the proportion of time that teachers organized students into small or mixed groups, or the proportion of time teachers covered topics that might require different levels of critical thinking); and unexplained variance in the outcome not accounted for by the model. We allow both the average student responses across lessons for a teacher (π_{0jk}) and the average effect of teacher prompts (π_{1jk}) to vary between teachers within schools at level 2. All variables are group-mean centered and fixed (i.e., we do not estimate the other variables' random effects).

Level 1

$$y_{ijk} = \pi_{0jk} + \pi_{1jk}a_{jk} + \pi_{pjk} L_{pjk} + e_{ijk}$$

At level 2 we model the average proportion of time that students responded more thoughtfully (β_{00k}) and the effect of teachers prompting students to do so (β_{01k}) by the averages across lessons for teacher j in school k; an array of teacher and classroom characteristics C (e.g., grade, proportion of time that teachers use small or mixed group instructional designs, and the proportion of students that are low-income, special education and English language learners); and unexplained variance at level 2. Again we allow the intercept and the slope for teachers' requests to vary at the next level of the model, level 3. All other variables are group-mean centered and fixed.

Level 2

$$\pi_{0jk} = \beta_{00k} + \beta_{pqk} C_{pqk} + r_{0jk}$$

$$\pi_{1jk} = \beta_{01k} + \beta_{pqk} C_{pqk} + r_{1jk}$$

At level 3 the model examines differences between schools in the average proportion of time that students provided more critical responses and the average effect of teacher prompts as a function of school characteristics S. In these models, we consider possible contextual effects that might result from being in schools where teachers prompt more often for thoughtful responses, more complex content in reading and mathematics is taught more often, or where there are higher enrollments of students typically thought to be at risk of underachievement. All variables at level 3 are grand-mean centered.

Level 3

$\beta_{00k} = \gamma_{000} + \gamma_{pqs} S_{pqs+} u_{0qk}$

$\beta_{01k} = \gamma_{100} + \gamma_{pqs} S_{pqs+} u_{1qk}$

RESULTS

Critical thinking, or, as we have measured it here as cognitively demanding student talk, does not happen very often in fourth and fifth grade classrooms in the United States. While students engage in more demanding talk more often during reading lessons than during mathematics lessons, students are far more likely to provide simple yes-no or factual responses during both types of lessons. Across the observed lessons in the study, students provided more thoughtful responses only 11 percent of the time during reading lessons and six percent of the time during mathematics lessons. The proportion of time that students offered simple or uncritical responses was two to three times more often (22 percent and 18 percent, respectively) than the proportion of time that students offered more complex or challenging responses. Teachers also seldom prompted students to reconsider or provide thoughtful responses, which may explain why students infrequently did so. Teachers posed critically demanding questions 10 percent of the time in reading and 11 percent of the time in mathematics. Regardless of the subject, the majority of requests from teachers were for simple answers.

We provide the results of our multilevel models in two tables. Table 1 provides the results for the models that examine differences between lessons, teachers, and schools for the intercept – that is, the average proportion of lessons within teachers' classes and across teachers' classes within schools that students provided more challenging or demanding responses to student queries. The results of this table provide insights into the occurrence of critically demanding responses by students to questions or statements. Table 2 provides the results for the models that examine differences between teachers' classes and schools in the average effects of teacher talk on student talk. The results of this table provide insights into how effective teachers' requests for critical reflection are in different contexts – namely, when teachers rely on different practices and there are different student compositions in classes and schools. The top panel for both tables provides the coefficients for reading (column two) and mathematics (column three) lessons. The bottom panel provides conditional variance components at each level of the model. Although we present the results separately, both tables come from the same multilevel analysis of the data.

As displayed in Table 1, students are more likely to provide more cognitively demanding responses during reading lessons in schools where teachers focused on more demanding content, such as reading comprehension, explicit reading strategies, and writing. The difference between schools that emphasized these forms of content and schools that emphasized grammar or conventions was .13 of a standard deviation (SD). There was no effect associated with schools that had higher proportions of students thought to be at risk of failure (i.e., low-income students, special education students, and English language learners) for reading lessons, but there was an effect associated with mathematics lessons. In schools with higher proportions of these students, the proportion of lesson time in which students provided more complex responses was .19 SD lower than average.

At the class level, students in reading and mathematics provided more challenging or demanding responses when teachers prompted them to do so more often in their lessons. In classes where teachers engaged in more challenging or demanding talk, the proportion of lessons in which students did so increased by .18 SD in reading and .13 SD in mathematics. Nonetheless, during reading lessons this quality of student response was less likely to occur in classrooms with higher than average proportions of English language learners; and during mathematics lessons it was less likely to occur in classrooms with higher than average proportions of at-risk students. As the variance components indicate (the lower, random effects panel of the table), the model accounts for roughly one quarter to one third of the variance between lessons, between one quarter and two fifths of the variance at the class level, and less than one fifth of the variance at the school level.

Table 1 Intercept models for demanding student talk in reading and mathematics lessons

Fixed Effects	*Reading*	*Mathematics*
Lesson intercept demanding student talk, π_{0ij}		
Class intercept demanding student talk, β_{00j}		
SCHOOL INTERCEPT, γ_{000}	-0.04	-0.02
MEAN HIGHER CONTENT, γ_{001}	$0.14^{\sim}$	---
MEAN RISK, γ_{002}	-0.12	-0.19^{*}
Class intercept demanding student talk, β_{01j}		
SCHOOL INTERCEPT, γ_{010}	0.18^{**}	0.13^{*}
Class intercept procedural content, β_{02j}		
SCHOOL INTERCEPT, γ_{020}	---	-0.21^{*}
Class intercept English-language learner, β_{02j}		
SCHOOL INTERCEPT, γ_{020}	-0.24^{*}	---
Class intercept at risk, β_{03j}		
SCHOOL INTERCEPT, γ_{030}	-0.01	$-0.12^{\sim}$
Random Effects	*Reading*	*Mathematics*
Level-1 Variance		
Conditional variation between lessons in demanding student talk, e_{ijk}	0.60	0.57
Percent reduction in variance	28%	31%
Level-2 Variance		
Conditional variation between classes in demanding student talk, r_{0j}	0.04^{**}	0.98^{**}
Percent reduction in variance	43%	27%
Level-3 Variance		
Conditional variation between schools in demanding student talk, u_{00j}	0.08^{***}	0.05^{***}
Percent reduction in variance	13%	17%

$^{***} p < .000$; $^{**} p < .01$; $^{*} p < .05$; $^{\sim} p < .10$ All variables are standardized (M = 0, SD = 1). All class-level and lesson-level variables are group-mean centered.

As Table 2 demonstrates, the strongest predictor of the quality of a student's talk during a lesson is the quality of their teacher's talk. During lessons that teachers requested more complex responses from students, the proportion of the lesson characterized by higher-level student responses increased by .48 SD in reading and by .46 SD in mathematics. Moreover, the effectiveness of teachers' prompts or the relationship between student talk and teacher talk varied among teachers – that is, some teachers were more effective at getting students to engage in demanding talk than others, even when both teachers engaged in the same level of challenging talk or prompts during lessons. Estimate of the potential range in the effectiveness of teacher requests was as low as no effect (0) to nearly one standard deviation (.95 SD). Clearly, context may play a role in how successful teachers are at soliciting critical thinking from students, at least as measured by students verbal responses to questions or statements during reading and mathematics lessons.

Effectiveness increased during reading lessons the more teachers focused on managing instruction rather than behavior or administrative tasks (i.e., organizing instruction v dealing with student behavior or spending time on recording attendance or grades); effectiveness increased during mathematics lessons the more teachers organized students into small or mixed groups. Importantly, the proportion of at-risk students had *no influence* on the effectiveness of teachers' requests at either the class or school levels. As indicated in the lower panel of Table 2, the model explained between one fifth and two thirds of the variance in the effectiveness of teacher requests at the class level, but virtually no variance at the school level.

Table 2 Slope models for average demanding teacher talk in reading and mathematics lessons

Fixed Effects	*Reading*	*Mathematics*
Lesson intercept demanding teacher talk, π_{1ij}		
Class intercept demanding teacher talk, β_{10j}		
SCHOOL INTERCEPT, γ_{100}	0.48^{***}	0.46^{***}
SCHOOL MEAN RISK, γ_{101}	0.01	-0.02
Class intercept instructional management, β_{11j}		
SCHOOL INTERCEPT, γ_{110}	$0.13^{\sim}$	---
Class intercept small or mixed groups, β_{12j}		
SCHOOL INTERCEPT, γ_{120}	---	$0.13^{\sim}$
Class intercept at-risk student, β_{13j}		
SCHOOL INTERCEPT, γ_{130}	0.10	-0.02
Random Effects	*Reading*	*Mathematics*
Level-2 Variance		
Conditional variation between classes in effect demanding teacher talk, r_{1j}	0.05^{**}	0.04^{***}
Percent reduction in variance	17%	33%
Level-3 Variance		
Conditional variation between schools in effect demanding teacher talk, u_{10j}	0.03^{*}	$0.01^{\sim}$
Percent reduction in variance	---	---

$^{***}p < .000$; $^{**}p < .01$; $^{*}p < .05$; $^{\sim}p < .10$ All variables are standardized (M = 0, SD = 1). All class-level and lesson-level variables are group-mean centered.

DISCUSSION

Although school reform efforts throughout the United States urge teachers to engage students more deeply in subject matter, it often does not occur in classrooms (Cohen, 2011). Although teachers challenging students' understanding by prompting further justification or alternative hypotheses is associated with higher levels of achievement (Croninger, Buese, & Larson, 2012; Graeber et al., 2012), as well as the development of more critical thinking skills (Knapp & Means, 1992; Palincsar & Brown, 1986), this form of teacher talk is rare, especially in classrooms and schools serving high proportions of disadvantaged students (Applebee et al., 2003; Boyd 2015; Knapp & Means, 1992; Nystrand & Gamoran, 1991). In this study, teachers requested more critical reflection on text or problems no more than 11 percent of the time.

Not surprisingly, the quality of student talk in the lessons that we observed was also low. We witnessed demanding student talk no more than 11 percent of the time during reading lessons and only six percent of the time during mathematics lessons. Moreover, the quality of student talk during mathematics lessons was about one fifth of a standard deviation lower in schools with higher proportions of at-risk students and one quarter of a standard deviation lower in classrooms with higher proportions of English language learners. If we measure the occurrence of critical thinking by the occurrence of quality student talk, it does not happen very often in fourth and fifth grade classes in the United States, especially in classes and schools that enroll larger proportions of disadvantaged or at-risk students (i.e., low-income students, minority students, and English language learners.

More reassuringly, the strongest predictor of the quality of a student's talk was the quality of the teacher's talk during a lesson. The more challenging the teacher's request, the more challenging the student's response. Whether the lesson was about reading or mathematics, the associated effect of challenging students to provide more complex answers was nearly one half of a standard deviation. However, teachers varied in the effectiveness of their prompts, even when using prompts of comparable quality and frequency. In some classrooms, students responded more positively to teachers' requests for expanded answers or greater justifications for their answers; in other classrooms, students responded less favorably. There are clearly contextual factors that play a role in how well teachers' prompts elicit more cognitively demanding response from students.

Although we are not able to fully explain why some teachers are more effective than others at soliciting more thoughtful responses from students, our study does provide some insights. For example, during reading lessons, teacher prompts were more effective when teachers focused more time on managing instructional activities rather than dealing with student behaviors or administrative tasks. Promoting students' critical thinking requires more effort on the part teachers to keep students focused on instructional goals and to stay on topic; teachers that were more successful at doing so, were more effective in stimulating thoughtful student talk. During mathematics lessons, the organization of the classroom proved important. Teacher prompts were more effective when teachers organized students into small group or mixed group designs for larger proportions of a lesson. The use of these instructional designs may signal to students that discussion is expected, perhaps more so than what occurs in a typical mathematics lecture.

The most important finding from this study, however, is that while teachers varied in their effectiveness in prompting cognitively demanding responses from students there was no indication that effectiveness varied by the characteristics of students in the class. Teachers delivering lessons in classes with higher proportions of at-risk students were as effective in soliciting demanding talk as teachers delivering lessons in classes with lower proportions of at-risk students. Although lessons were less likely to be characterized as involving cognitively demanding talk by students in schools and classrooms with higher proportions of at-risk students and English language learners, this may be because teachers did not provide students with opportunities to engage in such interactions with them or other students – a finding consistent with the literature (Applebee et al., 2003; Nystrand & Gamoran, 1991). Nonetheless, if teachers challenge students to engage in this form of talk, there is no evidence that students are unable to do so, regardless of the proportion of disadvantaged students assigned to a teacher. On the contrary, the evidence provided by this study suggests that teachers who wish to stimulate critical thinking and deeper engagement in subjects should model demanding teacher talk, provide opportunities for students to engage in demanding talk, and have the courage to "just ask" students to reflect more deeply on their lessons.

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Language Development Of Children Aged 18 To 36 Months According To Butzkamm

Mihriban CAF
Institute of Education Science
Vienna University, Austria
mihribancaf@gmx.at

ABSTRACT

Since language has a great relevance to every human being and serving other people to contact, and to express his own thoughts, it is necessary to understand how the process of the development of language in children runs. What should be considered in the phases of language learning, so that the language in later life can be used adequately in appropriate situations?

The aim of this work is to show how the language development occurs in children aged 18 months to 36 months, and to give recommendations how parents should behave in this phase her child over.

Throughout this paper it was demonstrated that the process of language development is not irrelevant for the subsequent language use, but crucial for future life and should not be neglected. Parents should observe how their child's language develops in order for him/her to be able to apply and use it adequately in respective situations, both with parents and the environment.

It needs to be emphasised that "the" correct language acquisition does not exist, because it always evolves differently. Parents can at the best try to monitor the child's language development, express themselves adequately and, in certain cases, put a pedagogue as support at the side of their child.

INTRODUCTION

As Wilhelm von Humboldt said „Language is the building organ of the thought.“ Language plays an important role in the life of every human being, as it serves as means of communication and information. It enables us to communicate with each other and to express our thoughts and feelings.

Butzkamm describes language as the most significant achievement in the life of a human child (Butzkamm, 1999, p.1). It is our most important organ for capturing the world. It is used to regulate coexistence (Butzkamm, 1999, p.1). "It forms the bridge of interpersonal relations. It is the most important medium for coming in contact with other people, expressing thoughts and feelings, uttering wishes, processing experiences, planning actions, conceiving contexts and exchanging experiences" (Butzkamm, 1999, p.66). Language serves as means of communication and is a concrete activity of human beings. Speaking is always a certain way of acting, as speaking is preparation, support and proceeding of action with other means (Richter, Brügge, Mohs, 2001, p.11). Therefore, Richter considers language itself an action, in contrast to Butzkamm, who considers it only a means of planning actions.

Language takes up an important position in our life. It is the key to communication for exchanging with other human beings. Therefore, it is necessary to understand how language acquisition evolves with children and what role parents can take up in order to influence it in a positive way, so language can be used adequately in the future. The aim of this work is to show how the language development occurs in children aged 18 months to 36 months, and to give recommendations how parents should behave in this phase her child over.

THE STUDY

Language serves as means of communication and information. It enables human beings to communicate with each other. Therefore, it is an important component of our life and it plays a crucial role for every human being. In order for language to be applied in a useful and comprehensible way proper language development is required. Therefore, it is necessary to gain understanding of how exactly children's language develops. As far as the learning process is concerned, various theories can be found. Moreover, the stages of language development differ for every child. In this respect, some behavioural patterns of the immediate environment as well as of parents play a crucial role. What needs to be considered during the various stages of language acquisition in order for language to be applied adequately in respective situations of later life?

Therefore, my research question for this paper is as follows: "According to Butzkamm, how does language of children aged 18 to 36 months develop?"

The aim of this paper is to describe the process of language development of children aged 18 to 36 months and to provide recommendations on how parents should behave towards their child during its various stages.

The paper is structured as follows: In the beginning the term language will be explained in more detail. Subsequently, the process of language development of children will be described: how it evolves, when and how children speak their first words, and why the period between 18 and 36 months is important and what happens during this period. Furthermore, it will be shown what role parents' behaviour plays during this period and what they need to take into consideration for their children to undergo a proper language development.

FINDINGS

The course of language development

Every child acquires language in a different way. Therefore, it is impossible make generalised statements on how exactly children learn how to speak. In the course of language acquisition every child experiences different stages, which cannot be influenced by the environment but need to be accepted. During these stages certain conditions for language acquisition need to be given. These include for example the ability to hear, physical prerequisites, motor skills and perception (Richter, Brügge, Mohs, 2001, p.12). So, when does "real" language emerge and what do infants begin with once the parameters listed above are given? Infants start by producing single sounds, followed by words and, eventually, sentences (Szagun, 2007, p.29).

There is a certain theory on how infants learn initial sounds, which was advocated for a long time – the theory of imitation. Learning by imitation, also called model learning, is a theory by Albert Bandura, who seeked to explore whether or not it is possible to learn things which one has not experienced oneself but observed with other people. Following extensive research, he concluded that learning by imitation (model learning) is an important form of learning for human beings (Wagner, Hinz, Rausch, Becker, 2009, p.33).

Imitation is most effective when the following conditions are given: imitation is considered something positive; the observer (the infant) notices similarities between himself/herself and the person imitated; the observer is encouraged to pay attention to the person imitated; the observer's competences suffice to imitate behaviour (Wagner, Hinz, Rausch, Becker, 2009, p.34).

Researchers advocating this theory assumed that infants acquire first sounds through imitation and adjust their own sound production to the language they hear around them. Thus, language is acquired through imitation. A child tries to copy his/her parents, with who he/she spends most of the time, and imitates their language. A child builds his/her vocabulary from the words of adults and other children. The entire vocabulary used by a child is acquired this way. Also, ways of composing and combining single words correctly are learned through imitation. A child can imitate a sentence heard before and produce it in respective situations. Thus, the theory of imitation is an adequate explanation for the language acquisition of children (Wilkinson, 1975, p.57). Throughout the past 20 years, however, new methods of perception research were tested on infants. It was observed that infants are capable of differentiating between numerous single sounds already a long time before they produce them themselves. This implies that imitation is no longer considered the only way of language acquisition (Szagun, 2007, p.29). According to Butzkamm, one can differentiate between two stages of sound formation at the beginning of a child's language development: the pre-syllable age of so-called cooing (0-5 months) and the syllable age of babbling of syllables (6-12 months) (Butzkamm, 1999, p.56). First occurrences of regular syllables, however, varies between 5 and 11 months. This irregularity is related to a different cerebral maturation which in return effects language development (Butzkamm, 1999, p.56).

The period determining language development are the first three years of a child's life, meaning the time between the 9th and the 36th month. It is called the "sensitive phase for language development" (Richter, Brügge, Mohs, 2001, p.19). This period is of great significance regarding further language development, as important information is perceived and stored, which is used in adequate situations of later life (Richter, Brügge, Mohs, 2001, p.21).

"According to a study by Morris, 3% of the infants spoke their first words at the age of 9 months. 90% of all infants started speaking at the age of 18 months" (Morris 1991 quoted by Butzkamm, 1999, p.74). However, language development differs from child to child. There are children with "normal" language development, who utter their first word when they are one year old or younger, others do so only at the end of the second year of their life (Butzkamm, 1999, p.74).

The first word spoken is frequently that of a person from the child's immediate environment, such as mummy or daddy. This is followed by more words referring to things, persons and the environment. Small children name things which they experiences themselves.

Behind words there is our perception of the world. This also applies to children, as their world view is that of their immediate environment (Szagun, 2007, p.45).

During the first months during which children start speaking, their vocabulary grows only steadily. For months it contains only a few words, occasionally taking up a new one. There are often breaks of several months during which no new words are added and children only use one word. Eventually, a new word is added to the first one and thus, further one-word sentences are uttered. The phase of one-word sentences lasts for half a year on average. However, its length varies from child to child between four months and one year. Some one and a half years old children already possess a vocabulary of about 50 words which they use actively. However, they can already understand 200 to 300 words. Children who have not yet reached the "magical 50 words limit" at the age of two are referred to as stragglers regarding language development. This is sometimes referred to as a disorder in the development of language skills (Butzkamm 1999, p.75).

Therefore, language develops differently with every child. There are various stages which every child goes through during their development, but they vary in length and starting point. A child's environment, such as parents, are a crucial factor in their development, as parents influence their child, because the child tries, for example, to copy them through imitation and, in this way, acquires language. This will be discussed in more detail in the next chapter.

PARENTS‘ ROLE IN A CHILD'S LANGUAGE ACQUISITION

The behaviour of a child's environment plays a crucial role in language acquisition. Most important is the parents' behaviour, as they are the persons to whom a child relates most closely and therefore, they function as linguistic role models. It is his/her parents' language a child hears first and most frequently during the "sensitive phase". In other words, language development is influenced by the parent-child relationship as well as linguistic role models (Richter, Erwin, Brügge, 2001, p.19).

As language development is also a process of learning by imitation, a child finds his/her way into a speech community through stimuli and his/her own trial. Also parents should give their child the chance make his/her own experiences which in succession lead to new words and an extension of the vocabulary. In the beginning playing is initiated by the mother or father. They obtain the role of the game master and keep the game running. Only after some time the child is able to control the game himself/herself. However, a child takes up this role only when he/she begins to acquire, use and understand grammatical rules at the age three (Butzkamm, 1999, p.73).

In her book "How children learn to speak properly" Steiniger provides some recommendations on how parents should act during the various stages of language development. These recommendations cannot be applied to every child and in every situation. However, they can be useful for parents. Parents should never reproach their child for his/her mistakes, no matter, if on a pronunciational, terminological or grammatical level. Otherwise the child would be exposed to unnecessary pressure. Parents should repeat what was said without mistakes. This is called "corrective feedback" (Steiniger, 2004, p.42). This way the parents can try to give their child the feeling that they take it seriously and, especially, that they focus on the content rather than the form. If the child has difficulties finding words it takes some time for them to finish a sentence. Nonetheless, parents should let their child finish speaking. If they are in the middle of doing something they should pause in order to listen to what their child wants to say (Steiniger, 2004, p.43).

Therefore, the parents' behaviour influences the various stages of their children's language development. They should pay attention to how their child develops and what behaviour encourages this process and has a positive impact on it. As every child expriences the process of language development in a different way it is often difficult for parents to adjust to it and support the development in a positive way. In such cases pedagogues can help the child by practicing and correcting certain things, expressions and utterances.

CONCLUSIONS

As language is of great relevance to every human being and serves to contact each other as well as to express one's thoughts, it is necessary to understand the process of children's language development. This process is different with every child. However, every child is always in certain developmental stages at which syllables and words are acquired. According to studies, most children learn to speak at the age of one year. The time span crucial for language development is the "sensitive phase", i.e. the time at the age of 9 to 36 months. It is decisive for further language development. Parents also contribute to the process of language development by acting in a certain way, paying attention to their child and correcting potential mistakes, but also accepting them.

Throughout this paper it was demonstrated that the process of language development is not irrelevant for the subsequent language use, but crucial for future life and should not be neglected. Parents should observe how their child's language develops in order for him/her to be able to apply and use it adequately in respective situations, both with parents and the environment.

It needs to be emphasised that “the” correct language acquisition does not exist, because it always evolves differently. It is possible that delays and deficits occur, which cannot be avoided, even with parental support. Parents can at the best try to monitor the child’s language development, express themselves adequately and, in certain cases, put a pedagogue as support at the side of their child.

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