

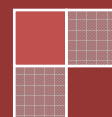
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Message from the Editor-in-Chief

Dear Colleagues,

We are very pleased to publish Special Issue for INTE-2017, ITICAM 2017 & IDEC 2017 conferences. This issue covers the papers presented at International Conference on New Horizons in Education, International Trends and Issues in Communication & Media Conference and International Distance Education Conference which were held in Freie Universität Berlin, Germany. These papers are about different research scopes and approaches of new developments and innovation in education, communication, media and technology.

Call for Papers

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 The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJET.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. TOJET is guided by its editors, guest editors and advisory boards. If you are interested in contributing to TOJET as an author, guest editor or reviewer, please send your CV to tojet.editor@gmail.com.

December, 2017

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Teacher Motivation Orientations and Leadership Styles

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ABSTRACT

The study examines the impact of teacher motivation orientations on leadership styles. The population comprises the academic staff of 60 randomly selected male (26) and female (34) educators from five departments of Suleyman Demirel University, Kazakhstan. The research explores teachers' professional and personality orientations; analyses the motivation scheme of university educators; identifies teachers with autocratic and democratic leadership styles; examines the relationship between teacher motivation orientations and their leadership styles. Mann-Whitney U-test and Spearman correlation analysis were employed for the present study as methods of data analysis. Based on the summary of the findings, the working hypothesis about statistical differences in the motivation structure of teachers with autocratic and democratic leadership styles was confirmed. The autocratic style positively correlates with self - orientation and negatively correlates with student interaction – orientation and approval motivation. Democratic style positively correlates with approval motivation and student interaction - orientation and negatively with self-orientation. In addition, autocratic leadership style is associated with a positive correlation with the orientation toward extrinsic negative motives, while the democratic style, on the contrary, has a negative correlation with this motivation. That is, the more the teacher demonstrates an autocratic style, superiority in knowledge and skills, the more it is essential for him a desire to avoid criticism from colleagues, possible troubles or punishments. Conversely, the more the educator seeks to remove the inhibition from his students, the more he encourages and supports them, the less he is afraid of criticism from colleagues and students. The results of the present study can be implemented in both professional development courses and teacher training seminars.

Keywords: teacher motivation, professional orientations, leadership styles, autocratic, democratic

INTRODUCTION

How are positive feelings about a course and instructor generated? Effective communication between the leader and subordinates plays a central role. Should teachers care whether or not students find this communication satisfying? They should because it matters how the instructor influences the whole class and individuals in such situations when students request information, ask about course content, exchange greetings, or ask a personal question. The teacher appears in the leader position in the educational process since he makes plans, organizes and monitors students' activity (Drobot L., Rosu M., 2012). Unfortunately, while instructors do not even see themselves leaders in the classroom, their students do (Wallace , 2007). The research findings show that students find effective those leaders who answer questions clearly and explain guidelines concisely, and highlight what is important in each lesson ; who reveal interest in students' opinion and who do not interrupt them (Daniel , 1983) . According to McDowel (1993) a great majority of the student participants 'rated friendliness, "communicator image," "impression leaving," attentiveness, and "animated" more positively' than other leadership style variables.

What motivates teachers to develop different leadership styles which students find more or less effective and satisfying? No doubt, there is a significant impact of teacher motivation orientations on leadership styles . If this is so , then it is worthwhile to understand how professional and personality orientations and teacher leadership styles are related and find out the ways to enhance teacher self-awareness and develop an optimal leadership style.

LITERATURE REVIEW

Teacher Orientations

Orientations is a broad category that includes beliefs, values, preferences, and tastes (Alan H. Schoenfeld , 2011). The term 'orientations' is given preference in the article because the term 'beliefs' is more general. Teachers develop perceptions about students and pedagogy , the nature of teaching and learning on the basis of their experience, and those orientations/beliefs tend to shape their leadership styles.

The issue of 'teacher orientations/beliefs' has always attracted academic scholars attention . Still , we decided to

illustrate three approaches that we found most helpful for our study.

One of the approaches describes *professional orientation*. The author of this theory, E. Rogov (1999), identified four indicators of professional orientation:

- Communication orientation
- Subject orientation
- Organization orientation
- Intelligence orientation

Among these types of teachers (communicator, subject, organizer and intellectual), each has its own ways, mechanisms and channels for the transmission of educational influences.

For example, the teacher "communicator" is distinguished by extraversion, low conflict, goodwill, ability for empathy, and love for learners. He realizes his educational impact on the basis of compatibility with the student, finding common ground in his personal life. Obviously, these effects will have the greatest impact on everyday behavior of the learner.

The "subject"- teacher is a rationalist who is firmly convinced of the need for knowledge and his significance in life; he is characterized by a desire to educate a student with the means of the subject studied, by changing his perception of the scientific picture of the world, drawing him to work in a circle.

The "organizer", who is often the leader not only for students, but also of the entire teaching staff, mainly broadcasts his personality traits during various extracurricular activities. Therefore, the result of his impact is likely to be found in the sphere of business cooperation, collective interest and discipline.

The "intellectual" or "enlightener" who is distinguished by adherence to principles, observance of moral norms, realizes himself through highly intelligent educational activities, bringing morality, spirituality, and a sense of freedom to the students.

Another approach designed by V.Smekal and M. Kucher (Cherny, B., Kollarik, T., 1988) describes three *personality orientations* for teachers:

- Personal (self) orientation
- Collectivist (interaction) orientation
- Business (task) orientation

It should be noted that all three orientations do not exist absolutely independently, but are combined with each other. Therefore, it will be more relevant to identify the dominant orientation of the teacher.

The Personal Orientation is associated with the predominance of the motives of one's own well-being, the desire for personal primacy, and prestige. Such teacher is most often occupied with himself, with his feelings and experiences and reacts little to the needs of learners around him. In the work he sees primarily the opportunity to satisfy his claims.

Collectivist orientation characterizes the situation when the actions of a teacher are determined by the need for communication, the desire to maintain good relations with students. He is likely to show interest in joint activities.

The business orientation reflects the predominance of the motives generated by the activity itself, the fascination with the process of activity and new skills mastery. Typically, such teacher seeks to cooperate with the team and achieves the greatest productivity of the group; therefore, tries to be useful for the performance of the task.

The third approach we were drawn to was proposed by K.Zamfir (1983) who illustrates the following *motivation orientation* indicators:

- Intrinsic motives
- Extrinsic positive motives
- Extrinsic negative motives

It is important to note that the internal (intrinsic) type of motivation characterizes an individual who is interested in activity itself. If the motivation for professional activity is the desire to satisfy other needs then it is the case to talk about external (extrinsic) motivation. The external motives themselves are divided into external positive (social prestige, wages, rewards, etc.) and external negative (fear, threats, pressure, etc.). External positive motives are undoubtedly more effective and more desirable from all points of view than negative ones.

Leadership Styles

Teachers bring leadership in classrooms, and the behaviors they demonstrate as leaders greatly affect a variety of student outcomes (Walumbwa, Wu, & Ojode, 2004; Pounder, 2008; Bolkan & Goodboy, 2010). Leadership style is the manner and approach of providing direction, implementing plans, and motivating people. (Newstrom, Davis, 1993). Leadership style relates to something that characterizes a specific person throughout different situations, and this is what many researchers in the 21st century emphasize (Jamal, 2014).

Individual style of leadership was originated in Lewin's works in 1939 who identified three different styles of leadership: autocratic, democratic, and laissez-faire. During their experiment Kurt Lewin and his colleagues discovered that the most effective style was democratic whose leader shared responsibility for decision making and outcomes with his subordinates. Autocratic leaders imposed and expected obedience, which caused dissatisfaction and led to revolution ; whilst laissez-faire leaders failed to encourage people to put in the energy that they did when being actively led. Modern research works on leadership styles in teaching learning process support Lewin's conclusions.

Autocratic leaders. Atchison and Hills (1978, 1987) describe an autocratic leader as 'the sole native agent' who 'considers his subordinates as passive receivers of the instructions'. The teaching style 'in this case is often characterized by nagging, distrust and suspension. This is normally due to lack of effective communication between the leader and subordinates'. Typical autocratic leaders are the people, who like to insist, give orders, have strong desires to be in the middle of interest and are generally over confident (Boella, 1988). This kind of leaders generally concentrate on work activities and their communication level with their followers is really low (Sisk & Williams, 1981). Katrina Franklin (2016) concluded that the autocratic leadership style played a significant role in the students' demotivation.

Democratic leaders. Fred (2001) concludes that with a democratic leader the students are certainly 'involved in any efforts aimed at finding solution to the problems and planning the classroom of the organization'. Vain (2000) emphasizes that a democratic leader is always mindful and sensitive to students' needs and always strives to motivate them. This sort of leaders and their followers have an effective social interaction, reciprocal confidence and friendly relationship which help them to go forward as a single social unit (Moideen, 2002). At all times, the democratic leader makes available his advice and suggestion to his class. They can provide a high level of personal motivation, manage to use followers' knowledge on the process of decision making, create commitment to organizational goals and eliminate potential disputes by using effective communication (Costley & Todd, 1994).

Laissez-faire leaders. Such leaders provide free working conditions which help the groups to internalize new changes and this situation can be seen as a motivating aspect, but a lack of coordination of the activities can also likely to happen as a consequence of this loose structure (Costley & Todd, 1994).

In the final theory analysis, there have been found different theories on teacher professional /personality and motivation orientations and leadership styles. However, there is still a gap in the scientific evidence about relationship between teacher motivation orientations and autocratic and democratic teaching styles.

THE STUDY

The problem of the current study is to investigate the links between teacher motivation orientations and leadership styles. Hence, the objectives of the research are as follows:

- 1.to study teachers' professional and personality orientations
- 2.to analyze the motivation scheme of university educators
- 3.to identify teachers with autocratic and democratic leadership styles
- 4.to examine the relationship between teacher motivation orientations and their leadership styles .

Research hypothesis: there are differences in the motivation structure of teachers with autocratic and democratic leadership styles

Methodology and Procedure

Participants: The sample was comprised of instructors from Suleyman Demirel University , Almaty , Kazakhstan. The age ranged from 25 to 65 years old (average age 34,5 years old). Participants gained a different work experience at both school and university from 4 to 43 years. The sample includes 60 teachers of Social Science and Humanities department, Economics, Engineering , and Philology faculties. Depending on the literature and previous studies, we used four research instruments - questionnaires which were selected in order to resolve the assigned research tasks and hypothesis. The findings indicated that all four questionnaires were found to have high reliability.

“Method of diagnosing the professional orientation” - The method was outlined by E. Rogov (1999) and enables you to determine the preferred direction of a teacher identity, potential to organize activities and focus on the subject, the need for communication and approval, and the importance of teacher’s behavioral intelligence. Overall, there are 4 professional orientations proposed by the author, which we have already discussed above: communication orientation, subject orientation, organization orientation, and intelligence orientation.

The questionnaire includes 50 statements of personal characteristics. To process the results of a survey it is necessary to compare the answers of the examinee with the key. Each answer is assessed on a two-point scale:

- the answer that coincides with the key is estimated at 1 point;
- the answer that does not match the key is set to 0.

Each personality parameter is estimated by summing up points for a group of questions. The total score for the factor does not exceed 10 points. The norm zone is within 3-7 points.

The processing of results is usually started from the approval motivation scale, since if the answer goes beyond the norm for this factor, it should be recognized that the subject sought to distort the results and they are not eligible to further interpretation.

Each of the directions of professional orientation is considered insufficiently developed if less than three scores are received on this scale, and clearly expressed if the score is more than seven. The severity of one factor indicates the mono-directionality of the teacher's personality, and the severity of several factors can be interpreted as a result of the poly-directivity.

“Teacher personality orientation” - The method was developed by Czech psychologists V. Smekal and M. Kucher . The technique is based on the verbal reactions of the subject in the alleged situations related to the work or participation of other people. The answers of the examinee depend on the kind of satisfaction and reward that he prefers.

The purpose is to determine the orientation of the person: personal / self-orientation; collectivist / interaction – orientation; business / task -orientation.

“Motivation of Professional activity” - The method was designed by K. Zamhir (in Rean’s modification) (1983) and can be used to diagnose the motivation of professional activity, including the pedagogical motivation. The basis is the concept of internal and external motivation. Overall, the author proposes to explore intrinsic motives , extrinsic positive motives , and extrinsic negative motives.

Based on the results obtained, the motivational complex of the individual is being determined. Motivational complex is a type of relationship between the three types of motivation:

IM (intrinsic motives), EPM (extrinsic positive motives) and ENM (extrinsic negative motives).

To the best motivational complexes the following two types of combinations should be attributed:

IM >EPM> ENM and IM = EPM > ENM.

The worst motivational complex is the type : ENM> EPM> IM.

According to Rean A., job satisfaction has a significant correlation with the optimality of the teacher's motivational complex (positive significant relationship, $r = +0.409$). In other words, the higher the satisfaction of the teacher with the chosen profession is, the more optimal is the motivational complex: the high weight of internal and external positive motivation and the low weight of the external negative. The more optimal the motivational complex is, and the more active the teacher is, the more likely he is motivated by the very content of pedagogical activity, he has the desire to achieve certain positive results with a lower level of emotional instability. And vice versa, the more teachers’ activity is conditioned by the motives of avoidance, censure, and desire to "not to get trapped" (which begin to prevail over motives related to the value of pedagogical activity itself, and also on external positive motivation), the higher is the level of his emotional instability.

“Style of Pedagogical Communication Self-evaluation” - The method was modified by E. Ilyin (1997) for pedagogical situation. There are 3 scales for each style: autocratic, democratic, and laissez-faire . The strength of each style is represented by 3 degrees:

0-3 points - low;

4-7 points - middle;

8-11 points - high.

The test is made up of 33 yes/no questions. All subjects were divided into two groups depending on the predominance of autocratic or democratic component in their leadership style.

FINDINGS AND DISCUSSION

Mathematical processing of data was carried out using the statistical package SPSS, version 16.0. We used descriptive statistics, r-Spearman's rank correlation coefficient, and Mann-Whitney U-criterion.

Statistical analysis

Research task 1 : to identify teachers' professional and personality orientations

Table 1. Professional and Personality Orientations Preferences of Teachers

N	Indicators of professional orientations	Mean N in %
1	Communication orientation	17%
2	Organization orientation	19%
3	Subject orientation	21%
4	Approval motivation	21%
5	Intelligence orientation	22%
N	Indicators of personality orientations	Mean N in %
1	Student interaction orientation	31%
2	Self-orientation	34%
3	Task –orientation	35%

Research task 2: to analyze the motivation complex of university educators

Table 2. Intrinsic and Extrinsic Motivation Preferences of Teachers

N	Motivation Structure Indicators	Mean N in %
1	Intrinsic motives	40%
2	Extrinsic positive motives	32%
3	Extrinsic negative motives	28%
	Motivational Complex	
	Intrinsic M > Extrinsic Pos M > Extrinsic Neg M	

Findings: 1. The triad of the motivational system is held towards highly intelligent educational activities, the development of professional competence, creative abilities of students and their approval.

2. Self, interaction and task orientations received an equal representation in the motivation structure of teachers (35%, 34% and 31% respectively)

3. The following motivational complex IM> EPM> ENM was obtained, which refers to the best, optimal motivational complexes.

Research task 3 : to identify teachers with autocratic and democratic leadership styles.

In accordance with the hypothesis of the study, all subjects were divided into two groups, depending on the predominance of an autocratic or democratic component in the style of pedagogical communication:

- 27 respondents with predominance of autocratic style (from 5 to 7 points, which corresponds to the average indicators);
- 33 respondents with a predominantly democratic style (low points for autocratic style 1-3).

Reliable differences analysis

Let us proceed to the next stage of the research. It is essential to recall that the second stage of the empirical study was to compare and identify motivational differences in the personality of teachers with an autocratic and democratic leadership styles. To do this, we chose a non-parametric Mann-Whitney U test.

Research hypothesis: there are differences in the motivation structure of teachers with autocratic and democratic leadership styles

Table 2. Reliable differences in the motivation structure of teachers with different leadership styles

Variables	Teaching Styles	Mean	U-test (Mann-Whitney)	Reliability
Communicator	autocratic	19.69	153.500	0.000
	democratic	39.35		
Approval motivation	autocratic	18,81	130,000	0.000
	democratic	40.06		
Self- orientation	autocratic	45,96	28,000	0.000
	democratic	17.85		
Interaction -orientation	autocratic	18.06	109.500	0.000
	democratic	40.68		
Extrinsic negative motives	autocratic	40,39	178,500	0.000
	democratic	22.41		

Statements having an error probability of $p \leq 0.05$ are called significant, statements with an error probability of $p \leq 0.01$ are very significant, and statements with a probability of error $p \leq 0.001$ are the most significant.

Table 2 shows that there are significant differences in the motivation structure of teachers, depending on the preferred leadership style. Overall, these differences were identified by 5 indicators:

1. Communicator
2. Approval motivation
3. Self-Oriented
4. Interaction - Orientation
5. Extrinsic negative motives

At the same time for teachers with an autocratic style results are more descriptive on such scales as:

1. Self-Oriented
2. Extrinsic negative motives.

While for teachers with a democratic style the scales are different :

1. Communicator
2. Approval Motivation
3. Interaction - Orientation

Based on the results received in the study teachers with an autocratic style of communication gain the following characteristics: intolerant to others; most often occupied by themselves, with their feelings and experiences; react little to the needs of people around them; during their work they see, first of all, the opportunity to satisfy their claims; they also try to avoid criticism from the leader or colleagues, as well as to avoid possible punishments or troubles.

Teachers with a democratic style of pedagogical dialogue in contrast are more communicative, and empathic, light and mobile in emotions; they implement their educational impact on the basis of compatibility with a student, finding common ground in his personal life; they seek to understand the student's inner world, even in the a lack of information takes place; they are characterized by a high need for communication, the desire to maintain good relations with colleagues, interested in joint activities.

Thus, the main hypothesis about the existence of differences in the motivational structure of teachers with an autocratic and democratic style of pedagogical communication was confirmed.

Correlational analysis

In this stage we make use of r-Spearman's rank correlation coefficient .

Research task 4: to examine the relationship between teacher motivation orientations and their leadership styles .

Table 3 shows that leadership styles of pedagogical activity are related to the orientation of the teacher's personality with three correlations:

- The autocratic style is associated with the two negative correlations with the focus on motivation for approval and communication;
- The laissez- faire style is associated with a negative correlation with the communicative orientation;
- The democratic style is not related to direct correlations with the studied features of the profession

Table 3. Interrelation of leadership style and the professional orientation of the teacher's personality

	Communicator	Approval Motivation
Autocratic style	-0.434 **	-0.432 **
Laissez-faire style	-0.198 *	

The more the teacher resorts to the autocratic style of pedagogical communication, the less he opts to the communication sphere and the search for approval. Conversely, the less the teacher's style is autocratic, the more he is likely to communicate with students and look for their approval.

That is, the more the teacher seeks independence in decision-making and analysis of group problems, the more impulsive and emotionally unstable he is, the less he needs approval and support from outside, and the less he is sociable, empathetic, more introverted and conflicting.

The same features of behavior in the field of communication also characterize the laissez-faire style of behavior.

The more the teacher seeks conformity, dependence, and expresses the need for approval, the more conflicting, emotionally unstable, irritable and impatient in dealing with students he is.

Table 4 shows the relationship between the leadership style of pedagogical activity and the teacher's personality orientation, revealed by Smekal-Kucher's method.

From this table it follows that autocratic and democratic leadership styles are related by opposing correlation relationships with two types of personality orientation:

1. The autocratic style positively correlates with self - orientation and negatively correlates with interaction - orientation.
2. Democratic style positively correlates with interaction - orientation and negatively with self - orientation.

Table 4. Interrelation of pedagogical style and the teacher's personality orientation

	Autocratic style	Democratic style
Self-orientation	0,468 **	-0,228 *
Interaction - orientation	-0,454 **	0,257 **
Communicator	-0.434 **	
Approval motivation	-0.432 **	

Obviously, the more the teacher adheres to the autocratic style in his activity, the more he is motivated by the predominance of the motives of his own well-being, the desire for personal primacy and prestige. Such person is most often occupied with himself, with his feelings and experiences and reacts little to the needs of people around him. In the work he sees, first of all, the opportunity to satisfy his claims.

Conversely, the more the teacher follows a democratic style of teaching, the more his actions are determined by the need for communication, the desire to maintain good relations with fellow workers. He is likely to show interest in joint activities.

Thus, it is seen that the teacher's personality orientation is determined by a particular leadership style .

Table 5 presents the correlations between the leadership style and the motives of professional activity.

Table 5. Interrelation of leadership style of pedagogical activity and motives of professional activity

	Autocratic style	Democratic style
Extrinsic negative motives	0,347 **	-0,234 *

From the table presented, it follows that the autocratic style is associated with a positive correlation with the orientation toward extrinsic negative motives, while the democratic style, on the contrary, has a negative correlation with this motivation. That is, the more the teacher demonstrates an authoritative, arrogant or condescending behavior at the lesson, superiority in knowledge and skills, the more he tends to avoid criticism from colleagues, possible troubles or punishments. Conversely, the more the educator seeks to remove the inhibition, awkwardness from his students, the more he encourages and supports them, the less he is afraid of criticism from colleagues and various troubles.

CONCLUSION

Thus, the results presented above indicate the presence of differences in the motivational sphere of teachers, depending on their leadership style:

1. The teacher with an autocratic style of communication is characterized by the predominance of the motives of one's own well-being, the desire for prestige; he is likely to reject students' rights for individuality, to demand the uniformity that corresponds to the established values and tastes from the people around; he has a weak development of the channels of empathy;
2. The teacher with a democratic style of communication is characterized by a high need for communication, the desire to change this or that substructure of the student's personality, the ability to create an atmosphere of openness, trust, sincerity;
3. The main characteristics of the teacher with a laissez-faire style of communication are conflict, irritability and impatience in dealing with students; inaptitude to understand another; the desire to adjust the partner for themselves and regulate his actions ;
4. The working hypothesis about the existence of differences in the motivational structure of teachers with

an autocratic and democratic style of communication was confirmed :

Autocratic leadership style

- positively correlates with self - orientation
- negatively correlates with student interaction-orientation
- negatively correlates with approval motivation
- positively correlates with extrinsic negative motives

Democratic leadership style

- positively correlates with approval motivation
- positively correlates with student interaction - orientation
- negatively correlates with self-orientation

PEDAGOGIC IMPLICATION

The benefits of the research present invaluable knowledge to both college administrators and instructors in order to foster effective teaching and learning. First of all, having deep insights into their motives guided by their personality and professional orientations, university educators can make decisions to improve their leadership style to meet the needs of students and contribute better to the educational process. Furthermore, the results of the present study can be implemented in both professional development courses and teacher training seminars. A major challenge for professional development is to assist teachers in developing orientations, goals, and resources that enable them to function as highly accomplished teachers. Naturally , this is a slow process even though a teacher is aspired to teach in a particular manner, it takes some time to develop pedagogical content knowledge that support teaching in that way. There is high probability that changes in orientations will take place and last, if they are discussed overtly at a regular basis and are supported in everyday teaching practice (Alan H. Schoenfeld , 2011) . Finally, the information gained from this study contributes to the research literature through expanding on the differences in the motivation structure of teachers with autocratic and democratic leadership styles.

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Teachers are Determining the Factors Increasing the Satisfaction of the Fatih Project Sakarya Example

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ABSTRACT

The FATİH project is a Project designed to provide equal opportunity in education and training and to improve the information technology in our schools. It was created in 2007-2008 as an idea, started in November 2010 and completed in 5 years. The study group of the study is the teachers in Sakarya. In this study, it was aimed to determine the factors that will increase the satisfaction of the teachers to the FATİH Project. For this purpose, 12 questions were asked by researchers and 45 questions were asked in 7 categories according to Likertscale. The scale was developed and the factors were determined by analyzing the validity and reliability of the scale with answers. It is thought that the results of the research will contribute to the related literature by increasing the success in the FATİH project.

Keywords: FATİH project, information technology, technology

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; Lortoğlu, 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.

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. The FATİH project, which aims to provide an interactive wooden and internet network infrastructure for pre-school, primary and secondary schools, aims to provide equality of opportunities in education and education and to use more active tools of information technology in the learning-teaching process in order to improve the technology in the schools. FATİH Project in Education consists of five components: provision of hardware and software infrastructure, provision and management of educational e-content, effective use of ICT in curricula, in-service training of teachers, and provision of conscious, safe, manageable and measurable ICT. One of the elements that constitute the FATİH project in education is "In-service Training for Teachers". In order to enable the FATİH project to progress more efficiently with this component, in-service training activities are planned through face-to-face and distance learning. With these trainings, it is aimed to create a rich educational and teaching environment and to enable active use of teachers in classrooms (MEB, 2012). The perceptions of the teachers for the implementation of this project were worthy of studying in this issue with the implementation of the FATİH project and the importance of its advancement.

Purpose of the research:

The purpose of this study was to determine the factors that affect the positive and negative aspects of the project outlooks and perspectives of the Teachers in the Anatolian High School affiliated to the Sakarya MEM (National Education Directorate) to the perceptions of the project and to determine which factors affected teachers' satisfaction and project ownership.

The importance of research

It is important for the teachers, who are one of the important legs of the project, to determine the aspects of this project in order to achieve success of the Fatih project. Determining what the teachers' ownership of the project and their satisfaction depends on is a matter of fact. Therefore, the future of the system is important in terms of attitudes of teachers towards this project.

METHOD

In this section, information about the researcher's model, study group, data collection tool, data collection and analysis will be given.

Statistical Method of Research

In this study, validity and reliability analyzes of the scale, explanatory and confirmatory factor analyzes were made. SPSS program was used for explanatory factor analysis. AMOS program was used in confirmatory factor analysis.

Universe of your research

The universe of this research includes Teachers working in Sakarya Anatolian High Schools. In this study 418 teachers have been applied by using internet data collection method.

Research Questionnaire

In this questionnaire, the opinions of the teachers were asked about which factors will affect positively or negatively the teachers' satisfaction with the Fatih project and their ownership. The data collection tool used in the research was created by investigating the literature by the researchers and the factors affecting the satisfaction of the teachers were examined.

In the first part of the scale, 12 questions of demographic structure were asked. In the first factor of the scale, 5 questions about content, 5 questions about Infrastructure in the second factor, 6 questions about materials in the third factor, 7 questions about Smart Board in the fourth factor and 8 questions about the Teacher Perceptions in the fifth factor were applied to the opinions of the teachers. In addition, 8 questions about the teachers' satisfaction and 5 questions about the ownership were asked.

Research Data

The data used in this study; Sakarya has been obtained through questionnaires from teachers working on the internet. The research questionnaire was filled online by 418 teachers in the 2015-2016 school year. In this survey; The answers given to the questions asked in the dimensions of the factors together with the questions about the demographic structures of the teachers; I do not agree at all.

The validity and reliability tests of the data used in this study were carried out in (Çengel and Alkan; 2016).

In this study, it is to determine the factors that influence the satisfaction of the teachers more in the research and to make them more prominent in those factors. More studies are needed on the issues in the low factors.

Research Hypothesis

The hypothesis for the research is listed below. Hypotheses are shown in Figure 1.

Model Hypotheses

H1: Teachers' perceptions about Content are influential on ownership.

H2: Teachers' perceptions about Content are influential on their satisfaction.

H3: Teachers' perceptions about the infrastructure are influential on ownership.

H4: Teachers' perceptions about the infrastructure are influential on their satisfaction.

H5: Teachers' perceptions about material are influential on ownership

H6: Teachers' perceptions about material are influential on their satisfaction.

H7: Teachers' perceptions about salvation are influential on their satisfaction.

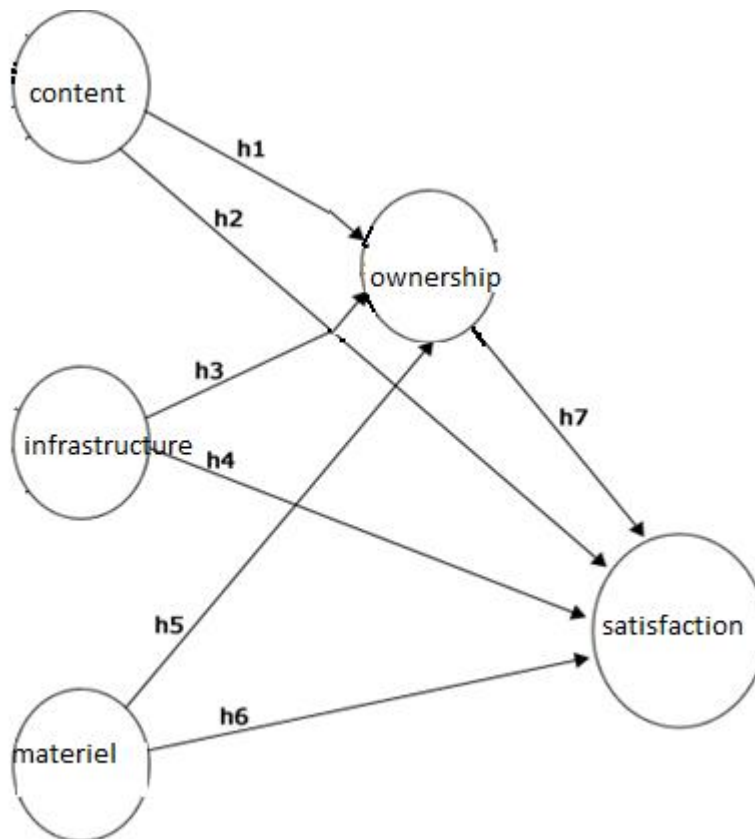


Figure 1. Research Hypothesis (Conceptual Model)

RESULTS

A structural equation model is used to control hypotheses.

Demographic Characteristics of Participants

The frequency analysis results of the demographic characteristics belonging to the students participating in the survey are shown in Table 1.

Table 1: Demographic Characteristics Frequency Analysis of Participants

Demographic Characteristics		Male [389 - %49]	
		Frequency	%
GENDER	Famale	201	48
	Male	217	52
	Total	418	100
Computer Education	I got	310	74
	I did not take	108	26
	Total	418	100
Fatih Project Training	I got	400	95
	I did not take	18	5
	Total	418	100

Main Hypothesis Analysis (Conceptual Framework)

The observation of the DFA and reliability analyzes applied to each factor and measurement model at the desired levels allows the model of the structural equation between the measurement models to be constructed considering the conceptual framework. Relations between the main model and variables created in this context are shown in Figure 2 below.

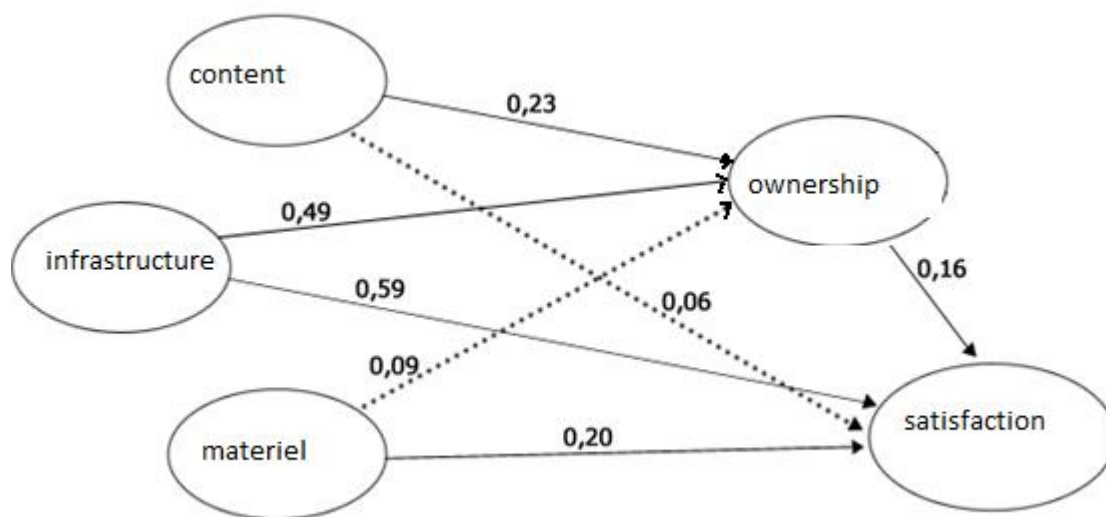


Figure 2. Main Hypothesis Analysis

Main Model Compliance Indexes

Table 2: Main Model Compliance Indexes

Main Model	Compliance Indexes					
	χ^2/df	GFI	AGFI	TLI	CFI	RMSEA
	11.7/ 2,1=5.1	,985	,889	,920	,978	,0490

When the fit indices are compared according to the values of the main model, it is seen that they fit well (Table 2). In view of the model in Figure 1, Appropriation (0.49), Content (0.23), Material (0.09) appear to be a positive effect of the factors on Appropriation. According to this, we can say that the impact factor is not within the desired limits although the Influence Factor is the weakest factor and the Material Factor has a small impact of <0.1. It is seen that Infrastructure (0.59), Satisfaction (0.20) and Content (0.06) have a positive effect on Satisfaction. Therefore, the most powerful factor in describing satisfaction is the infrastructure, the weakest factor is content and the effect of content factor is <0.1. We can say that the effect ratio is not within the desired limits. It has been seen that the ownership effect of ownership (0.16). In this context, the hypotheses h1, h2, h4, h6 and h7 in Figure 1 are confirmed within the scope of the research. The hypotheses h2 and h5 are also not confirmed.

CONCLUSIONS

In this research, a scale was applied to the teachers working in Anatolian High School in Sakarya to determine the views of the fatih project at the beginning and end of 2015-2016 academic year. Kayaduman (2011) It is important to examine the qualifications of teachers who are one of the important legs of the project and the current situation in the infrastructure so that the Fatih project can succeed. Although Adigüzel (2001) deals with the widespread use of the conqueror project, it shows that the studies that measure the attitudes of the teachers and the students show that the placement of the teachers in the intelligent classes in education is not used effectively in accordance with the purpose of this project.

In this study, a satisfaction model was developed for the environment in which the teachers gave education by making use of the perspective of the conception of the conception of the conceptual structure. In this model teachers' demographical information about the teachers in the first dimension of the scale was asked and the perception of the Fatih project was asked in the second dimension.

In the main model, it is seen that the Infrastructure dimension has the highest value (Satisfaction, 0.59, Achievement 0.49) in the description of the main model and the content dimension has the second highest value (Appropriation 0.23) in explaining the main model. Teachers seem to have the third highest rating (satisfaction, 0.20) in explaining the main model. According to this situation, the strongest dimension in the perceptions of the teachers is the infrastructure dimension, the content dimension is the material dimension in the last dimension. It is thought that the influence of the infrastructure dimension on Satisfaction and ownership is the perception that other subjects will have no prescription when the internet and computer infrastructures of schools are lacking.

RECOMMENDATIONS

- In order to increase the ownership and satisfaction of the project, the teachers who are the practitioners of the Fatih project should be given in-service trainings in appropriate time periods.
- Software used in smart board usage should be done quickly to solve the deficiencies.
- Psychological motivation studies should be carried out in order to ensure that teachers and students are found in the positive slice in terms of project perspective.
- An economic incentive system should be introduced in order to enable teachers to participate as content developers in the EBA platform providing contents to Fatih Project.
- These tools should be trained to enable teachers to use EBA material developer tools more effectively.

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Teaching Abstract Mathematics in Vocational Schools: Teachers' Views

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ABSTRACT

Vocational school mathematic teachers usually feel unhappy when experienced the inability of the students to overcome the abstract math concepts that according to them these concepts are not difficult to learn in lectures. They explain the reason of this difficulty with the impossibility for the students to use geometrical intuition and the lack of practice in basic logic and set theory. Many mathematics education researchers believe that the situation could not be improved substantially with the teaching of Cartesian geometry and logic and set theory prior to abstract math concepts.

In Turkey, science-orientated mathematics curricula of the programs consist of calculus with many math concepts. The content of abstract mathematics is spread out after grades 9. When the vocational school teachers teach the content of abstract mathematics, they can help the students to build the basic symbols and languages of abstract mathematics.

Keywords: abstract mathematics, teacher's view, mathematical symbols, effective teaching

INTRODUCTION

University teachers of mathematics often feel annoyed and disarmed when faced with the inability of their students with abstract concepts to cope with them they consider to be very simple. Usually, they consider responsible on the impossibility for the students to use geometrical intuition or the lack of practice in basic logic and set theory (Dorier, Robert, Robinet, & Rogalski, 2000). According to Dorier, the situation could not be improved substantially with the teaching of Cartesian geometry or/and logic and set theory. In Turkey, science-orientated departments of the vocational schools consist of calculus with many other numeric lectures. To understand abstract functions and integral calculus efficiently or for other reasons, students have to learn a lot of concepts in abstract mathematics, such as ordered pairs, n -tuple numbers, coordinates, etc., from an early period.

For Turkish education system, we can say that the content of abstract mathematics is spread out from grades 9 to 12 in high schools. When the teachers teach the content of abstract mathematics, however, they do not concern much about the concepts of content. We believe that the teachers should help the students to build symbols and languages of abstract mathematics.

Kuhs and Ball (1986) formulated three views concerning teachers' beliefs about abstract mathematics teaching and learning. We summarized them the following way;

- The "learner-focused" view deals with on the learner's construction of mathematical knowledge by oneself through active involvement in mathematics lectures.

- The “content-focused with an emphasis on conceptual understanding” focuses on the logical relations among mathematical ideas and concepts.
- The “classroom-focused” means classroom activity that is structured, efficiently organized by teacher. According to the approach, teachers present concepts, theorems and material clearly and students practice them individually.

Teachers roles in the teaching are different in different teaching models. According to Ernest, there is three teaching models to reflect the roles a teacher might present in a classroom: instructor model, explainer model, and facilitator model (Ernest, 1989). He explained that in instructor model, the intended outcome is an instructor often focuses on student skill mastery and correct performance; in explainer model, the outcome is conceptual understanding with unified knowledge; in facilitator model, the outcome is student confidence in problem posing and solving for a facilitator teacher (Wilson & Ducloux 2007). It can be said that there are clear connections between the three characterizations of models about abstract mathematics teaching and learning the. We will use these approaches in the analysis of data from the study.

Many educational studies for understandings of teachers’ belief systems about abstract mathematics, abstract mathematics teaching and abstract mathematics learning has been conducted from all over the world. In some of these studies have been stressed teachers’ beliefs about effective teaching (Kaptan & Korkmaz, 2001; Marton, Tse, & dall’Alba, 1996; Stigler & Hiebert, 1999; Perry et al., 2006; Tatar, 2004; Perry, Vistro-Yu, Howard, Wong, & Fong, 2002). These authors expressed teachers’ views of memorization and understanding and suggested that memorization and rote learning are generally considered the same way.

In his case study, Biggs (1994), through extensive interviews with the teacher educators, formulated a new way of seeing the relationship between memorization and understanding. For the teacher educators, memorization does not necessarily lead to rote learning; instead, it can be used to deepen understanding.

All of these studies have indicated the value and feasibility of investigating teachers’ beliefs about abstract teaching mathematics from an international perspective. However, there is more need of such studies, particularly in terms of how teachers from all over the world belief and practice effective abstract mathematics teaching (Wilson & Ducloux 2007).

METHODS

In this study, we supposed that the quality of mathematics teacher of vocational schools can be determined by targeted outcomes in students’ learning and the processes that yield those learning outcomes. We are particularly interested in mathematics teachers’ views about the characteristics of effective teachers, characteristics of effective lessons, memorization and understanding, and the role of practice in students’ learning. The study adopts a descriptive approach in order to understand vocational school teachers’ belief systems without judge or evaluate these beliefs (Wilson & Ducloux 2007).

Effective teachers of mathematics were identified using local definitions of effectiveness (Wilson & Ducloux 2007). Each of the selected teachers was interviewed using semi-structured questions in order to understand each teacher’s views about mathematics, teaching mathematics, and learning mathematics in vocational schools. Through semi structured interviews, we can understand not only what teachers believe, but also why they hold these beliefs.

21 mathematics teachers from different vocational schools of a state university participated to this study. Most of them had earned Masters of Education degrees. The all teachers for this study were selected after a request was made to their school management. Semi-structured interviews were conducted and three sets of interview questions were used in this study.

In your view, what is abstract mathematics? Some people believe: a lot of things in mathematics must simply be accepted as true and remembered and there really aren’t any explanations for them. What do you think? Some people believe: Mathematics is abstract; therefore, we need to help students think abstractly. What do you think? (Wilson & Ducloux 2007).

Many people believe: Learning mathematics with understanding is essential. What do you think? What is “understanding” anyway? What do you think a teacher should do to help students learn abstract mathematics with understanding? Many people believe: In order to help students, learn mathematics with understanding, concrete experiences are necessary. What do you think? What concrete experiences do they refer to? What role does memorization play in students’ learning of abstract mathematics? What role does practice play in students’ learning of abstract mathematics? (Wilson & Ducloux 2007).

We all know some teachers are more effective than others in teaching. In your view, what characteristics does an effective teacher have? We also know some lessons are better than others. What is an ideal, excellent lesson? What characteristics should an ideal, excellent lesson have? (Wilson & Ducloux 2007).

Interviews were either registered. In data analysis, we adopted three phases to code and analyze transcribed data. Firstly, researchers began with open coding of all transcribed interview data. The purpose of this open coding phase was to find unanticipated salient examples of cultural beliefs from the teachers. Second, we re-examined all the data using a start list of codes that were developed to specifically address the research questions about teachers' beliefs on the nature of mathematics as well as the teaching and learning of mathematics (Wilson & Ducloux 2007). We looked for commonly expressed themes in teachers' responses. Finally, we compared the similarities and differences among teachers' beliefs. This process helps us develop a grounded theory.

FINDINGS

Teachers' Views about Abstract Mathematics

What is the nature of abstract mathematics? Of the three fundamental questions investigated in this study, this one received the most varied responses among the teachers. 12 teachers focused on the functional view of abstract mathematics in the explains, which first, stayed the understanding of the symbols of abstract mathematics then emphasized to its usage in the physical world. 9 teachers had a different view, meaning that they focus more on the internal structure of mathematical knowledge. An analyze of some of the major similarities and differences between teachers' views is as below.

Abstract Mathematics couldn't be always practical; all of the teachers interviewed said that some abstract concepts of mathematics could have utilitarian aspects, including being applicable to other sciences.

"abstract mathematics is one of those essential subjects that allow us to formulate many things in the world". (T5)

"abstract mathematics could provide a new perspective to generalize and systematize many things in math". (T8)

"abstract mathematics could provide a new perspective for looking at the world". (T12)

"abstract mathematics is not always practical in daily life but can help people understanding of real life problems in an efficient way. It is necessary tool for life". (T17)

"abstract mathematic give us a tool to solve the problems and to prove the theorems in the books". (T20)

"abstract mathematics is a tool that enables us to do things or to reach goals that they have. The substance of mathematics would be things like a set of rules or axioms, a set of methods that allow us to achieve goals or reach finals". (T21)

Abstract mathematics is a language; It was the second-most common idea relating to the nature of abstract mathematics for the teachers. it is a system of knowledge that provides the means of description and explanation of natural one. The abstract language of mathematics is a logical framework of rules and terms that can be used effectively to solve problems

It is possible that the description of mathematics as a language is held more strongly for teachers. because of the language's relation to the scientific view of mathematics. On the other hand, this view is held less by a few teachers because of their emphasis on the application of mathematics.

Mathematical knowledge is abstract.

Abstract characteristic way of mathematics resulted a distinction among the mathematic teachers. 13 teachers had considerably more to say about the abstract nature of mathematics than did teachers from the others. In other words, there was a decreasing emphasis on the abstract nature of mathematics. 11 teachers determined mathematics knowledge from real life problems in that mathematics is an abstract and collective knowledge system turned out from real life problems. The real-life problems provide the useful materials that can be abstracted as mathematics knowledge. The almost all of the interviewed teachers said that developing abstract thinking in students is one of main the objectives of teaching mathematics. Additionally, a few teachers did not give deep descriptions of what they thought abstraction is.

"The disregarding of the teachers to teach and encourage students to learn abstract principles is a reality". (T16)

Teachers' Views about the Teaching

We can say that understanding teachers' views about abstract mathematics provide us an important context. The other aim of this study is to understand the teachers' views about abstract mathematics teaching.

The question of what characterizes an effective teacher of mathematics has analyzed the differences in the beliefs of teachers. 16 teachers had much more to say about the teacher's enthusiasm and rapport with the students than the rest of teachers in the research group. Additionally, almost all of the teachers focused on how well the teacher prepares and presents a lesson and the ability to provide clear explanations of the points to be covered in the lesson. Nearly all the teachers make a strong point of backgrounds of effective teachers of mathematics. According to them, well-grounded knowledge and understanding of the subject is a vital element in being able to effectively teach mathematics. In addition, 9 teachers pointed a very strong emphasis on understanding of the curriculum and the texts being used in the lectures. According to teachers in our study group, it is clear that a mathematics teacher should explore and study textbooks carefully and should try to predict the possibly difficult concepts for their students so that they can present instructional strategies to overcome the difficulties of abstract mathematics.

According to 8 teachers in our study group, teachers agree that group activities of students in the classroom is necessary to keep the students interested. Therefore, concrete examples are often being clearer into the lesson:

"I usually start talking about why we're learning this subject, why we need this topic. And I have my students say, we need it for calculate our daily consumptions. Than we talk about why we're learning this topic. Then I try to teach what does it really mean conceptually. (T6)

"I think that exploration by students and allowing them to find theorems, allowing them to find the way things process is very effective compared to just always lecturing and giving formulas". (T12)

RESULTS

In this study, we see a connection between teachers' beliefs in mathematics, their image of an abstract mathematics lesson, and that of the effective teacher. For the teachers, mathematics knowledge and systems are stressed in the teachers' responses about effective mathematics teaching. It is important that practice plays a basic role in teaching and learning abstract mathematics. The teacher in our study group clearly expressed the importance of individual guidance to students. For these teachers, the main task of classroom teaching lies in the transmission of knowledge. The teacher must be well prepared and have the lesson well organized.

In this study, we have focused our investigations to teachers' perspectives on the effectiveness of abstract mathematics teaching. Many similarities and some differences have been discerned across the teachers in our study group. The qualitative methodology used in our research and the small numbers in a university samples could be seen as a limitation in our study. Further investigation is needed to see if these similarities and differences are more extensive.

There are many other studies that take different findings than our study, and they have found results that both contrast and comparison with the presented in this research (Clarke & Keitel, 2006; Leung et al., 2006; Shellard, & Moyer, 2002; Stigler & Hiebert, 1999). We need to strive for as full a picture as possible of effectiveness in mathematics teaching and learning so that future generations of students in all education systems can benefit. The current study is one approach that seems to have proved useful results.

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Teaching Expert Systems Development With Kafka

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ABSTRACT

This paper presents an educational project conducted at the Department of Computer Science, Systems and Communication of the Milano-Bicocca University in collaboration with secondary schools of Milan and its province. The project was devoted involving students potentially interested in Computer Science to understand how to develop knowledge based systems and how this technology could be useful for future jobs. The KAFKA framework was used as the didactic platform to learn how recognizing, correlating and using various kinds of knowledge involved in complex decision-making activities. Another aspect of the project was stimulating students to work cooperatively to the problem solution, reproducing in this way the typical team-oriented management of decision making processes within organizations.

INTRODUCTION

As pointed out in (Richardson et al. 2010), the modern software development process is by nature a distributed effort, where team members must deal with a highly articulated pattern of contacts and cooperative relations. Even more complex is the situation where the software artifact to be developed is expert system, usually implemented as a collection of facts and production rules. A generic rule-based expert system is basically made of an inference engine and a knowledge base containing rules and facts to be analyzed. The set of rules embodies the knowledge available about the scenario we want to model. The set of facts provides information to execute the reasoning and new pieces of knowledge when discovered. In this case an effective cooperation must be achieved between, at least, two distinct roles: a domain expert, who owns tacit problem-solving capabilities and a knowledge engineer, who is responsible for modeling the expert decision-making processes into proper conceptual and computational tools, usually implemented as rule-based systems. Domain expert and knowledge engineer are usually involved in synchronized activities, namely knowledge acquisition and representation, mandatory to define the main components of the rule-based system.

As widely demonstrated in the past, failures in acquiring knowledge are the main cause of unsatisfying development of every kind of knowledge-based systems; this point is known in literature as the Knowledge Acquisition Bottleneck (Wagner, 2004). Knowledge inaccuracy is the most difficult to detect and solve cause, being possibly due to both domain experts and knowledge engineers. In the first case, mistakes made by experts have the consequence to produce wrong knowledge bases; in the second case, misguided knowledge maintenance activities can turn previously correct knowledge bases into incorrect ones, or difficulties to model correctly the acquired knowledge can arise.

Thus, the Knowledge Acquisition Bottleneck continues to be a very important research trend, as reported in Gaines (2013), where two main points are highlighted:

- the need to consolidate and extend all that we know of knowledge acquisition processes and techniques;
- the need to continue to enhance the tools we provide knowledge engineers and domain experts with, to take advantages of developments in knowledge acquisition and representation techniques as well as computer

technologies improvements.

These problems and challenges have a strong impact on the academic education of students willing to become knowledge engineering specialists. The main issue is to teach how to distinguish among distinct kinds (or layers) of knowledge, and provide the most suitable tools to acquire and represent them, without being forced to work only at the level of the rules language.

In this paper, we present KAFKA, a Knowledge Acquisition Framework based on the Knowledge Artifact (KA) notion. KAFKA has been designed as a highly structured tool to deal with complex knowledge engineering problems (Sartori and Melen, 2015), and turned out to be an extremely powerful tool for teaching academical students how to design and implement expert systems.

From the conceptual point of view, KAFKA is oriented to define knowledge acquisition and representation tools for functional knowledge (Kitamura et al., 2004), procedural knowledge (Surif et al., 2012) and experiential knowledge (Niedderer and Reilly, 2010), namely ontologies, influence networks and task structures. These tools are then correlated to include them into a unique conceptual knowledge artifact (Salazar-Torres et al., 2008), acting as a guideline in the development of a complete expert systems. Finally, KAFKA offers the possibility to model the knowledge involved as a rule-based system written in the JESS language (Friedman-Hill, 2003), automatically created based on a specific, domain-dependent KA.

KAFKA allows domain experts and users to interact in the development of a rule-based system, as knowledge-artifact developer (KA-Developer) and knowledge-artifact user (KA-User) respectively. The KA-User is responsible for collecting data and information about the problem domain, possibly identifying additional information to include in the model. The KA-User interacts with the KA-Developer that modifies the knowledge domain according to KA-User notifications, adding new rules or facts and/or updating/deleting existing ones. Doing so, the design and implementation of an expert system about decision making process is conceived as a distributed task rather than a centralized activity: KA-User and KA-Developer are continuously synchronized. They can discover new pieces of knowledge by using the system on the application field and test almost in real time the benefits/drawbacks from their inclusion in the model.

As a case study, the framework has been submitted to three groups of students from secondary schools of Milan and its province, during three consecutive years: 22 students in 2014, 18 in 2015 and 24 in 2016, for a total of 64 individuals. The students have been invited to simulate the knowledge engineering process on a concrete problem, trying to reproduce the main aspects of the expert system cycle of life. They have been also asked to evaluate the experience from many points of view.

METHODOLOGY

In Computer Science, artifacts have been widely used in many fields; Distributed Cognition (Norman, 1991) described cognitive artifacts as artificial devices that maintain, display, or operate upon information, to serve a representational function and that affect human cognitive performance. Thus, artifacts are able not only to amplify human cognitive abilities, but also change the nature of the task they are involved into. In CSCW, coordinative artifacts (Schmidt and Simone, 2000) are exploited to specify the properties of the results of individual contributions, interdependencies of tasks or objects in a cooperative works setting or protocols of interaction in view of task interdependencies in a cooperative work setting', acting as templates, maps or scripts respectively. In the MAS paradigm (Omicini et al., 2008), artifacts represent passive components of the systems that are intentionally constructed, shared, manipulated and used by agents to support their activities.

According to the last definition, it is possible to highlight how artifacts are typically considered passive entities in literature: they can support or influence human and artificial agents reasoning, but they are not part of it, i.e. they don't specify how a product can be realized or a result can be achieved. In the Knowledge Management research field, Knowledge Artifacts are specializations of artifacts. According to Holsapple and Joshi (2001), a knowledge artifact is an object that conveys or holds usable representations of knowledge. Salazar-Torres et al. (2008) argued that KAs are artifacts which represent executable-encodings of knowledge, to be suitably

embodied as computer programs, written in programming languages such as C, Java, or declarative modeling languages such as XML, OWL or SQL. Thus, Knowledge Management provides artifacts with the capability to become active entities, through the possibility to describe entire decision-making processes, or parts of them. In this sense, Knowledge Artifacts can be considered as guides to the development of complete knowledge--based systems.

KAFKA, acronym of *Knowledge Acquisition Framework based on Knowledge Artifacts*, is a computer aided knowledge engineering tool. It allows developing complete rule-based systems to solve problems through different steps of involved knowledge acquisition and representation, and without any pre-requirements (like knowing specific programming languages).

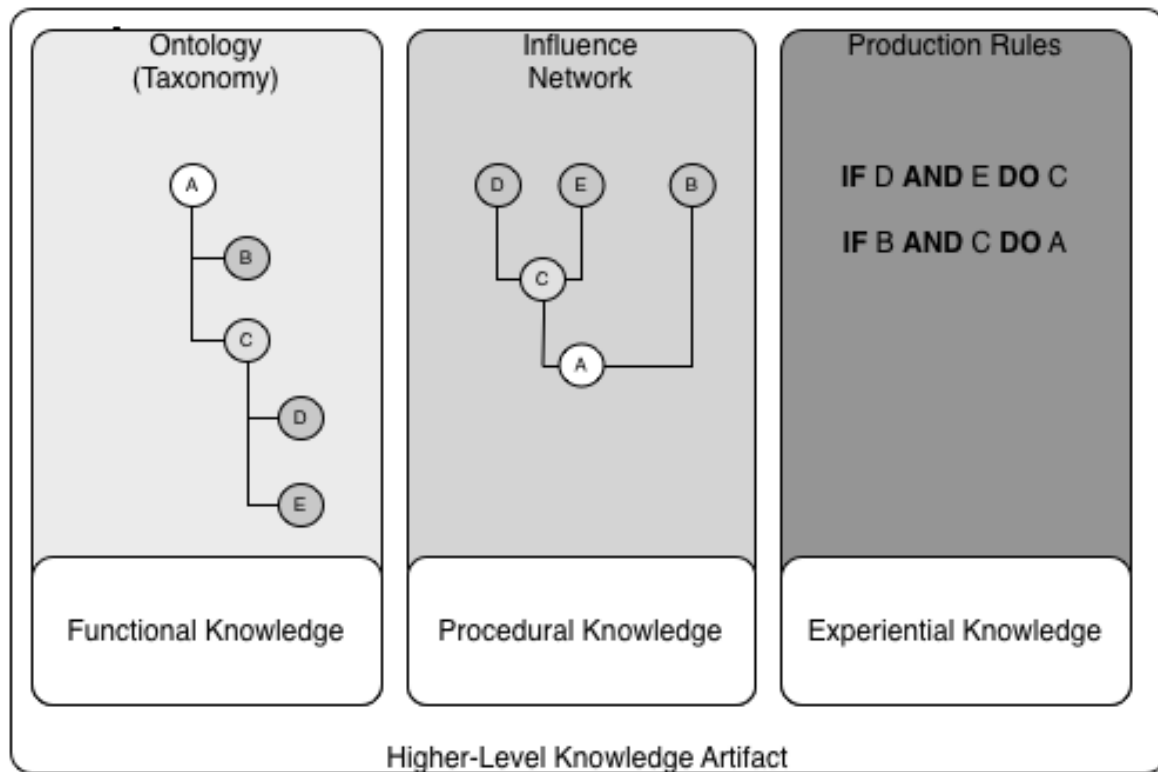


Figure 1: the conceptual model of KAFKA.

KAKFA integrates and correlates tools for the formalization of diverse kinds of knowledge, focusing on:

- functional knowledge, oriented to the representation of components of products and or services to configure, as well as their functional grouping;
- procedural knowledge, concerning the representation of (typically) causal processes through which the product/service components are related the one to each other;
- experiential knowledge, which reproduce the way a domain expert puts in practice those processes.

In our approach, the Knowledge Artifact is described as a 3-tuple $\langle O, IN, TS \rangle$, where O is an ontology of the investigated domain, IN is an influence network to represent the causal dependencies among the ontology elements and TS are task structures to represent how one or more outputs can be produced by the system according to a rule-based system strategy.

In our KA model, the underlying ontology is a taxonomy defined by the 4-tuple $\langle I, P, O, R \rangle$ where:

- I is the set of input nodes, i.e. the information needed to the expert system to work properly; the root of the taxonomy is a particular input node whose scope is the description of the problem to be solved;

- P is the set of partial output nodes, i.e. the collection of new pieces of knowledge and information elaborated by the system to reach the desired output;
- O is the set of output nodes, i.e. the effective answers of the system to the described problem; outputs are values that can be returned to the user;
- R is the set of relationships to link the nodes of the taxonomy; in our model, R contains at least two relationships, i.e. is-a and part-of.

Inner nodes of the taxonomy are system outputs or partial outputs and the leaves of the hierarchy are inputs: in this sense, inputs are atomic entities that cannot be further decomposed because of relationships in R.

The influence network model is a structured process that allows analyzing complex problems of cause-effect type to determine an optimal strategy for the execution of certain actions, to obtain an optimal result. The influence network is a graphical model that describes the events and their causal relationships. Using information based on facts and experience of the expert, it is possible to analyze the uncertainties created by the environment where we operate. This analysis helps the developer to identify the events and relationships that can improve or worsen the desired result.

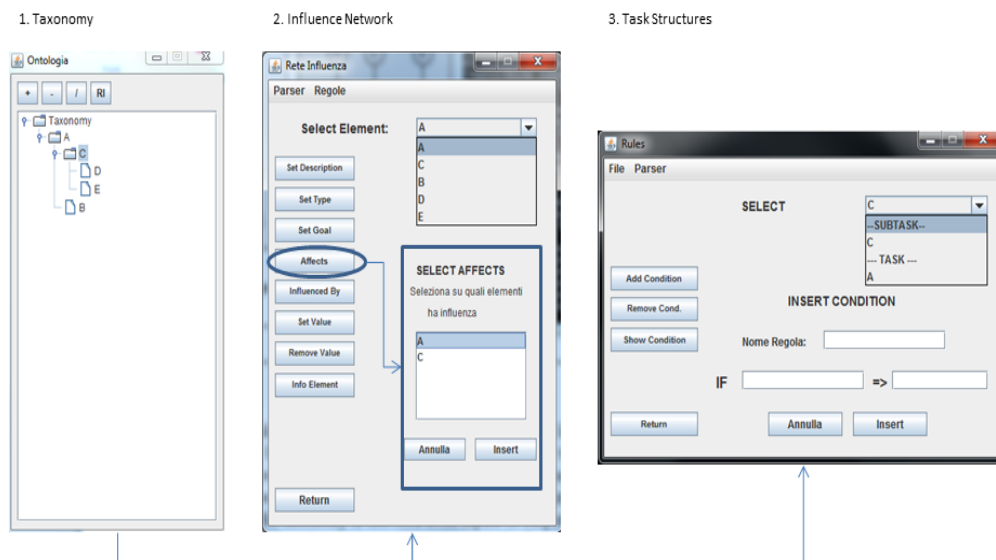


Figure 2: the computational model of KAFKA.

The influence network can be defined as a 4-tuple $\langle I, P, O, A \rangle$, where:

- I is the set of input nodes, i.e. the information needed to the network to start the procedural knowledge elaboration;
- P is the set of partial output nodes, i.e. the collection of new pieces of knowledge and information elaborated by the network to reach the final output(s); doing so, the influence network is able to identify causal dependencies among different parts of the final system as well as parts of the reasoning process that can be possibly executed at the same time;
- O is the set of output nodes, i.e. the effective answers of the system to the described problem; outputs are values that can be returned to the user;
- A is the set of arcs among the nodes: an arc between two nodes specifies that a causal relationship exists between them; an arc can go from an input to a partial output or an output, as well as from partial output to another one or an output. Moreover, an arc can go from an output to another output. Every other kind of arcs is not permitted.

Finally, Task Structures allow describing in a rule-based system way how the causal process defined by a given IN can be modeled. A task structure is composed of a signature, specifying the name of the activity it

reproduces, the needed inputs and the results to return to the user (in case of outputs) or the system itself (in case of partial outputs), and a body, specifying a sketch of the reasoning process to obtain desired results from inputs.

A Task Structure is the 4-tuple $\langle I, R, B \rangle$ where:

- I is the set of inputs, i.e. the information needed to the task structure to work properly; each task signature defines only the inputs necessary to the correct functioning of the related body;
- R is the set of results to be returned by the task, i.e. the effective answers of the system to the described problem; the elements of R can be both partial outputs and outputs, thus R is a subset of the union of I and P, where I and P are the input node and partial output node sets of the influence network portion explained by the task structure;
- B, the body of the task structure, is the set of IF \langle pre-condition \rangle THEN \langle post-condition \rangle rules; the pre-condition of a rule is a subset of R and the post-condition is a subset of the union of P and O where P and O are the partial output node and the output node sets of the influence network portion explained by the task structure.

Each task is devoted to defining computationally a portion of an influence network: in particular, sub-tasks are procedures to specify how a partial output is obtained, while tasks are used to explain how an output can be derived from one or more influencing partial outputs and inputs. A task cannot be completed until all the sub-tasks influencing it have been finished. In this way, the TS modeling allows identifying clearly all the computational levels of the system. The last step of our model is the translation of all the task and sub-task bodies into production rules of a specific language (JESS in our case).

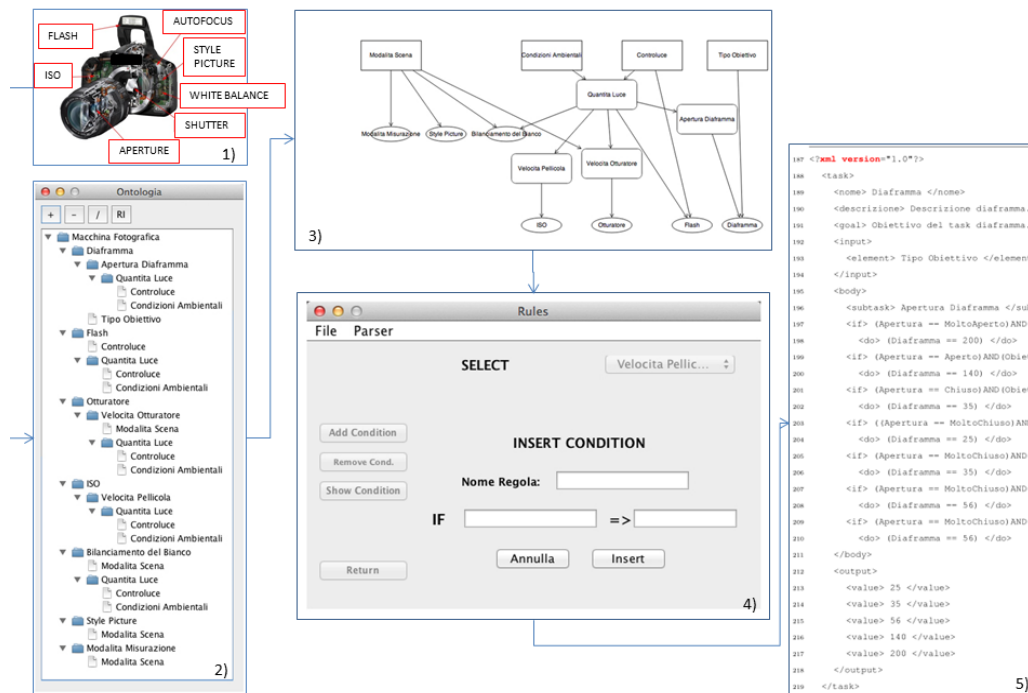


Figure 3: configuring a reflex camera with KAFKA.

Figure 1 shows the conceptual model of current version of KAFKA. Functional knowledge is modeled by means of taxonomies, linking the different elements of the problem to be solved by means of *is-a* and *part-of* relations. The taxonomy allows to identify the inputs (nodes B, D and E in the figure) and outputs (node A in the figure) of the problem to be solved and the values they can assume, as well as possible partial outputs (node C in the figure) necessary to move from inputs to outputs. Conceptually, inputs are observations on the field, they are valued by the KA-User at hand or by means of sensors; partial outputs are the result of a reasoning process, but

they shouldn't be presented to the user, except for explanations (i.e. to make evident the different steps of a knowledge-based activity); outputs are the results of a complete decision-making process, obtained from a given set of inputs and partial outputs. The taxonomy in the figure says us that node A is the process output, depending on the values of input B and partial elaboration C, whose value is determined starting from inputs D and E.

The procedural knowledge is modeled by influence networks. The procedural knowledge goal is to link inputs, partial outputs and outputs by means of causal relationships, in order to identify the problem-solving strategy. Influence networks allow creating such causal relationships by means of *affects* and *is affected by* relationships, which permit to browse the causal dependencies from inputs to outputs and backward from outputs to inputs. To design the network, the taxonomy is browsed from inputs to outputs, grouping the nodes according to their level (i.e. inputs, partial elaborations or outputs), as shown in the figure.

Finally, the experiential knowledge is captured by task structures. Each sequence of links from inputs to outputs in the influence network is associated to one or more tasks, while each sequence of links from inputs to partial outputs is as associated to one or more sub-tasks. In this way, different computational levels of the system are clearly identified: for example, in the subtask C must be necessarily executed before the task A, since its result influences (together with the input B) the decision-making process of A.

The three artifacts are correlated: in the figure, the nodes A, B, C, D and E are the same concrete concepts,

managed with different semantics on the basis of the tool they are used by. The collection of different knowledge artifacts, properly correlated by an opportune equivalence relationship is said *higher-level knowledge artifact* (Sartori and Melen, 2015a) (Sartori and Melen, 2016).

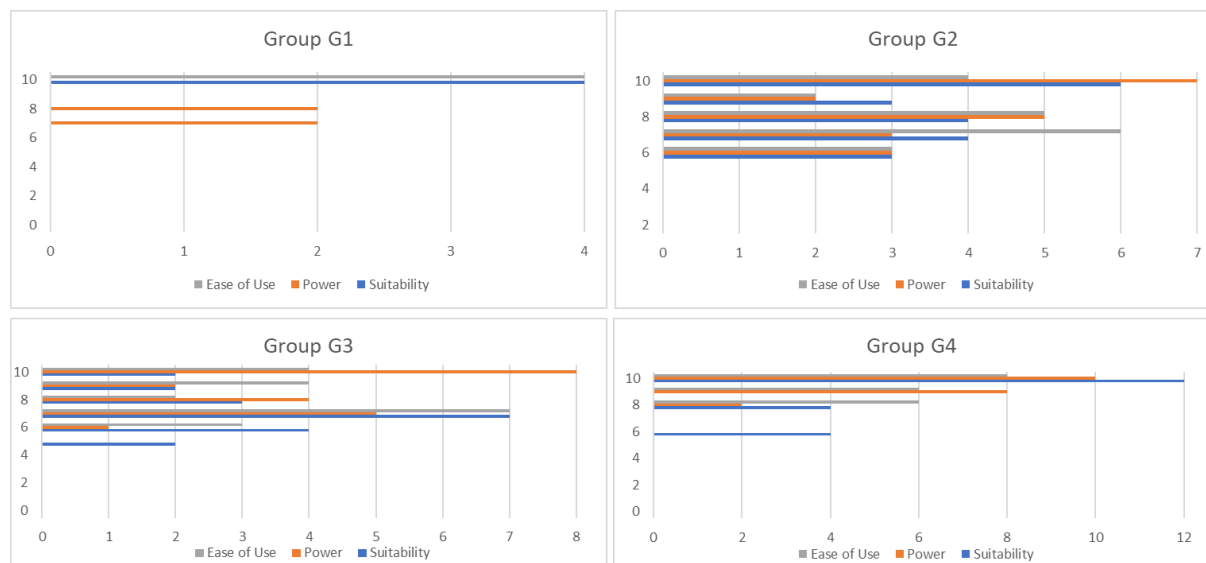


Figure 4: Evaluation of KAFKA through questionnaires in the case study.

CASE STUDY

Figure 2 shows the computational model of KAFKA, according to the conceptual one described above. In Part 1, the taxonomy computational model is presented. The graphical user interface allows the user adding or deleting nodes at/from distinct levels of the taxonomy, by means of the + and – buttons respectively. The / button allows resetting the taxonomy starting from the root. Based on the insertion point, the node will be interpreted as an input (B, D and E in the figure), output (A in the figure) or partial output (C in the figure).

When the definition of the problem taxonomy ends, the user can move to the influence network description, pressing the *RI* button; the related GUI is shown in Part 2 of the figure. For each node of the taxonomy, the user

may specify causal relationships with others by means of the *Affects button*. Then it is possible selecting which output or partial output will be the target node of the connection. The framework automatically verifies that inputs are not considered as possible targets of a causal link. When procedural knowledge modeling has been terminated, the user can proceed to the last step of knowledge acquisition and representation, i.e. the definition of task structures for experiential knowledge modeling, as depicted in Part 3 of the figure. The proposed GUI allows the user selecting all the partial outputs and outputs defined by the influence network and, for each of them, describing the related sub-tasks and tasks as collections of IF <pre-condition> THEN <post-condition> rules. The final output of the KAFKA computational model is a set of XML files, each one called as the concerning task or sub-task. These files will be then translated into an opportune programming language by means of the *Parser function*, generating an executable rule-based system. Currently, KAFKA produces rule-based systems based on the JESS language syntax.

As an example of KAFKA application, we present here a Work Experience Scheme Project conducted at the Department of Computer Science, Systems and Communication of the University of Milan Bicocca in collaboration with many secondary schools of Milan and its province. The project, called *Becoming Knowledge Engineers*, aimed at enabling students to know the knowledge engineer professional, understanding the peculiarities of this kind of job that is almost unknown in Italy, despite its importance outside it. The students involved were 64 in three years of project delivery, from 2014 till 2016. The students were invited to reflect on and solve a concrete problem, quite easily understandable by them given their age and skills: how to set up a reflex camera (see Figure 3). Given that the final goal of the problem-solving strategy was to obtain optimal pictures according to camera configuration, students have analyzed several aspects concerning the whole problem or parts of it. Some of them (4 of 64) chose to set up all the components of the camera, as shown in Figure 3. We'll refer to them as *Group 1* (G1) in the following. Another group (20 students of 64) preferred to focus on specific components of the reflex camera taxonomy (like e.g. aperture). We'll call those students *Group 2* (G2). A second group of twenty students, namely *Group 3* (G3), faced with the problem to configure the camera to obtain optimal results with respect to a specific kind of picture to take (e.g. human portrait, panorama, and so on). Finally, the last group of 20 students, referred to as *Group 4* (G4), interpreted the problem from the photographer skill level point of view (e.g. expert, amateur, beginner and so on).

Evaluating the performance of rule-based systems is not simple, given that it strictly depends on the kinds of problem to be solved. Anyway, given that our approach is based on KAFKA adoption, we can evaluate the rule-based systems development cycle from a methodological point of view. To this aim, we will use metrics existing in the literature. The most similar framework found in the literature was developed by Ruiz-Mezcua et al. (2011), who designed and implemented a web server with the tools for knowledgebase construction and browsing, and two distinct interfaces for domain experts and users. The main difference between KAFKA and that approach is the target user addressed: while that work was devoted to support domain experts in developing their own, complete, expert systems, the KAFKA scope is to support any kind of user in developing knowledge based systems from scratch. For this reason, the main effort in KAFKA development was the characterization of the higher-level knowledge artifact model to guide the user in the identification of knowledge kinds involved in his/her problem and (possibly) to extend them in case of need.

Every group was divided into couples with a KA-User and a KA-Developer. Both couples in G1, seven couples in G2, eight in G3 and eight in G4 were able to complete their tasks successfully. On the other hand, three couples in G2, two in G3 and two in G4 were unable. Summarizing, 78% of couples involved in the experiment could complete the task of building an executable expert system: among them, only the couples from G1 and four couples from G4 had some knowledge on JESS and its usage (they studied this language at school), while the rest of them used it for the first time. In this sense, it is important to notice that none of them needed to learn the JESS syntax, but they spent most of the time in acquiring knowledge about the proposed problem domain. Of course, the obtained expert systems were heterogeneous in terms of quality and number of solutions found.

The couples were also asked to evaluate the KAFKA usability, exploiting the same indicators used by Ruiz-Mezcua et al. (2011), that are the perceived *power* of the framework in developing expert systems, the *ease of use* of the tool and the *adaptation* of the system to user's needs (i.e. *suitability* dimension); the results are shown in Figure 4.

As expected, the best overall evaluations were given by couples in groups G1 and G4, since they mostly were composed of people with higher technical competencies than the other two groups (they studied Computer Science, and some of them JESS, at school). Anyway, it is important to highlight how also members of G2 and G3 recognized the capability of KAFKA in designing and implementing solutions to problems, independently by the application domain (power and suitability dimensions received very good votes). Summarizing, the KAFKA framework received an average evaluation of 8.2, 8.7 and 8.4 for ease of use, power and suitability, respectively. The total average evaluation of the framework usability was 8.4: these results are comparable with the previous work by Ruiz-Mezcua et al. (2011), although in that case the users were selected among domain experts, therefore had a much smaller competence gap to fill.

A second type of analysis was conducted with respect to the final aim of the project, that was enabling students to understand the knowledge engineer profile at work. The students were asked to answer a set of question before and after their experience with KAFKA.

Table 1: students' answers to the project evaluation questionnaire.

Question	Year 2014		Year 2015		Year 2016		Total	
	Y	N	Y	N	Y	N	Y	N
1) Did you the Knowledge Engineering professional?	0	22	3	15	2	22	5	59
2) Did you know what a Knowledge Engineer do?	0	22	2	16	2	22	4	60
3) Now, do you know what a Knowledge Engineer do?	19	3	18	0	21	3	58	6
4) Does being a Knowledge Engineer appeal you?	17	5	18	0	23	1	58	6
5) Would you repeat this experience in the future?	17	5	18	0	24	0	59	5
6) In your opinion, is KAFKA useful?	19	3	18	0	20	4	57	7
7) Do you think this experience useful for your future?	16	6	14	4	21	3	51	13

Table 1 summarizes the results, grouped by year of project development. As it emerges from the records, the project goals have been reached. Students have understood the peculiarities of knowledge engineer role and his/her main tasks. Moreover, they have substantially recognized the importance of tools like KAFKA. They appreciated the possibility to automatically generate an executable rule-based system focusing on knowledge modeling rather than learning a specific programming language to code it.

CONCLUSIONS

A Knowledge Artifact is any artifact purposely built to support knowledge-related processes. The Knowledge Artifact notion introduced in this paper allows the design and implementation of knowledge based applications minimizing the knowledge engineering effort. As shown in the case study, the most interesting feature of this scenario is the possibility for an operator to access quite real-time to new knowledge models, as well as for the domain expert to check continuously the critical situations and elaborating the necessary solutions.

The KA model implemented in KAFKA results useful in the development of rule-based systems by people not expert in knowledge engineering, with no evident competencies in the use of necessary languages and tools. The KAKFA framework has been adopted in an educational project with students from secondary schools of Milan and its province. The study involved 64 of them for three years. Each group of students was divided into couples, to simulate the roles of domain expert (KA-Developer in the KAKFA terminology) and system users (KA-User). Each pair of students designed and implemented a rule-based system using KAFKA: 78% of couples involved in the experiment could complete the task of building an executable expert system. These

results are encouraging: the KAFKA framework turned out to be very effective in teaching the use of knowledge abstractions and obtaining a prominent level of effectiveness and speed of development even for users with little experience in knowledge engineering. Thus, we plan to employ it as a foundation of our teaching methodology in the future.

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Teaching Human Resources in Sport Management by Emphasizing the Strategic Focus

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ABSTRACT

The aim of this paper is to provide a conceptual basis for addressing the needs of teaching the subject of Strategic Human Resources Management in sport management study programmes. The paper offers an overview of the various approaches regarding determination of HR managers' competences in general and in sport management in particular. On the basis of this, the paper suggests how to embed, using appropriate teaching and learning methods, the strategic focus in teaching Human Resources in sport management studies. A case study from the Czech Republic is presented based on the qualitative analysis of the students' assignments using coding techniques and Atlas.ti software.

INTRODUCTION

The importance of the competence of being able to manage Human Resources in Sport is highlighted by the work of current scholars in Sport Management, by educational standards in sport management and by the results from projects that are trying to define the competences expected from the sport practice. Taylor et al. (2017) described a model of SHRM in sport emphasizing the strategic focus of HRM in sport. They also underlined the necessity of understanding the theories of strategy as far as influencing the efficiency of internal processes such as SHRM within sport organizations. Nová et al. (2017) used the McKinsey 7-S model for sport organizations in order to explain the importance of its soft elements, namely the staff and skills for the successful implementation of the chosen strategy. Chelladurai (1994) stated that a sports manager is 'a person who coordinates limited human and material resources, relevant technologies, and situational contingencies for the efficient production and exchange of sport services' and Hoyer et al. (2012) described HRM in sport as a process composed of planning recruitment, selection, retention and replacement, orientation, training and development, and appraisal and rewards. Doherty (1998) demonstrated the link between various HRM strategies and behavioural outcome and organizational effectiveness. Taylor, & McGraw (2006) stated that HRM is the most critical and problematic phenomenon for a sport organization's operation. In this paper we report on a study on the adoption of HRM practices by state sports organisations in New South Wales, Australia. Our results indicate that despite pressures to become more strategic in their people management, only a minority of these sports organisations have formal HRM systems. We also found differences between the HRM practices used with paid employees and volunteers, particularly in organisations with formal HR policies. Ivašković (2015) found that the perceived quality of HRM directly affects the degree of athletes' trust in the head coach but does not have a direct impact on trust among athletes, nor on team cohesion. Simkus et al. (2014) developed a volunteer management model that is relevant for non-governmental organizations operating in the sport industry. Weerakoon (2016) conducted a critical review of the meaning and importance of Human Resource Management in Sports.

When it comes to the academic standards that are shaping HR education in sport management studies there are two respected standards in the world. The first is produced by the Commission on Sport Management Accreditation (COSMA) in the USA as the Accreditation Principles Manual & Guidelines for Self-Study Preparation (2016). The second is the Subject Benchmark Statement for Events, Hospitality, Leisure, Sport and Tourism (November 2016), which defines what can be expected of a graduate in these subjects, in terms of what they might know, do and understand at the end of their studies. The COSMA defines as a part of Principle 3 the key content areas of the sport management curriculum - Common Professional Component (CPC). Among the CPC topic areas there are no direct HRM areas mentioned except diversity issues in sport management. The UK Subject Benchmark Statement emphasizes the fact that sport is such a substantial academic area so that considerable differences in the emphasis in content and approach to learning have arisen across the sector. Programmes may focus on specific aspects of the subject area or may take a multidisciplinary or interdisciplinary approach, covering conceptual and

contextual frameworks and, according to the benchmark statement, an honours graduate in sport-related programmes is able, among other learning outcomes, to understand and apply the theories, concepts and principles of practice from the generic management areas of operations, finance, human resources, economics and marketing to sports facilities and events in the voluntary, public and private sector. The most significant project in that suggested Sport Management Curriculum for Bachelor and Master degree was the project AEHESIS. The results of the project stratified curriculum content depending on the sport management professions as classified by the project - Sport Management in Private Clubs, in Federations, in Municipalities and in Fitness (AEHESIS, Report of the Third year, 2006). The two approaches for managerial activities and tasks differed. The sport manager should be able not only to analyse and understand the micro, meso and macro situation of the organization and define policies and projects, but also to find and use efficiently the different resources such as organizational, financial, material and human resources. In the list of General Activities & Tasks of 4 Main Occupations in sport management there are plenty of those who are related to HRM. In the Management Curriculum for a Bachelor degree in Sport Management the inclusion of the subject Human Resources in Sport Organizations is recommended. In spite of the effort to standardize the development of the curricula and create some models, a diversity of sport management study programmes to educate sport managers is still offered by universities in Europe, America and Australia. The same is valid for teaching the subject of HRM within these programmes. When it comes to a discussion on what should be included in the subject of HRM in a single sport management programme in order to emphasize the strategic focus and which kind of teaching and learning strategies can enhance the innovative approaches in order to link the strategy of the sport organization and its HRM generally, there is a lack of literature relevant for sport management studies. Therefore this paper is trying to cover this gap.

THE STUDY

Our study was realized in the three subsequent steps. Firstly we conducted a review of relevant literature from general management in order to understand the latest trends in HRM education and HRM field. Secondly an analysis of the selected standards for HRM professionals was performed. Both content analysis can influence and will be reflected in our understanding of how to design the HR education/ course content within sport management studies. Finally a qualitative analysis of the students' assignments from the subject of HRM in sport using coding techniques and Atlas.ti software was performed in order to reveal the extent to which the current approach in teaching and learning HRM in sport reflects the desired learning outcomes, i.e. understanding of the strategic focus of HRM in sports organizations.

FINDINGS

Table 1: The review of the relevant literature from general management – the latest trends in HRM education.

Author/s	Findings
Clint Chadwick (2005)	In order to produce effective SHRM practitioners, strategy must become a central component of SHRM courses on an equal footing with HRM.
Cheryl L. Adkins (2005)	Presents a comprehensive experiential exercise for use in the staffing course as an illustrative example
John W. Budd (2005)	Learning theory needs to be put into practice in the professional classroom, instructors must understand students and their diverse learning styles, teaching practices should be benchmarked against best practices, and instructors need to develop teaching toolkits for creating effective courses.
James C. Hayton & Glenn M. McEvoy (2005)	Introduction of four scholarly papers from the Innovative Teaching in Human Resources and Industrial Relations (HR/IR) Conference, hosted by Utah State University in Park City, Utah in April 2005 where discussions of appropriate content for HR/IR programs of study, the routes to enhancing the classroom experience for diverse types of learners, the leveraging of technology including video and multimedia, ways to address the challenge of teaching large classes, and examples of experiential or applied exercises and simulations were held.
James C. Hayton, Debra Cohen, Frances Hume, Bruce Kaufman & Johnny Taylor (2005)	Summarize the results from discussion with expert practitioners to present their perspective on what the market demands from HRM graduates at the undergraduate and graduate level. Their insights suggest new areas for innovation in HR/IR education. In the second conversation, representatives of three major professional institutions (Society for Human Resource Management, Labor and Employment Relations Association, and the Academy of Management) discuss the need for, and possibility of, innovation in teaching in HR/IR and the role that these institutions can play in institutionalizing the process of innovation.
Kate Rowlands & Alex Avramenko (2013)	Suggest an innovative course design incorporating both communities of practice and reflective practice as a learning strategy for part-time learners in higher education.

Table 2: The review of the relevant literature from general management - the latest trends in HRM field.

Author/s	Findings
Dave Ulrich & James H. Dulebohn (2015)	Propose that future HR will need to adopt an outside/inside approach where the external environment and stakeholders influence what HR does inside the organization. From this, they also discuss other specific actions HR will need, in order to add value, with respect to targets for HR work (individual, organizational, and leadership) and areas for HR investments (HR function, HR practices, HR people, and HR analytics).
Debra J. Cohen (2015)	Discuss where the profession has come from and where it is today, and focus primarily on the opportunities and choices available to those individuals who deeply care about the profession and those who may take more notice of the profession in the future. Among the opportunities are HR standards, HR competencies, consistent HR curriculum, HR professional development and HR research.
Mick Marchington (2015)	HRM has always been located at the interface of potentially conflicting forces within organisations. However, in its quest for legitimacy, HRM has tended primarily to look up the hierarchy and focus on narrow performance goals, so neglecting other long-standing values and stakeholders.
Dianna L. Stone & Diana L. Deadrick (2015)	Examine some of the challenges and opportunities that should influence the future of HR such as shifts in the economy, globalization, domestic diversity, and technology have created new demands for organizations, but also create numerous opportunities for HR and organizations as a whole.
Ann Marie Ryan & Jennifer L. Wessel (2015)	Describe several specific global workplace trends, namely, increases in workplace diversity and globalization, technology mediated relationships, individualized psychological contracts, and service-related jobs that require the change of HRM practice and HR research on fairness in the workplace.
Dianna L. Stone, Diana L. Deadrick, Kimberly M. Lukaszewski & Richard Johnson (2015)	Review the current effects of technology on HR processes, consider the existing literature on the topic, and discuss the advantages and potential limitations of using these systems.

Table 3. Educational Standards and Standards for HRM professionals.

Standard	Required HRM Content Areas
SHRM Human Resource Curriculum Society for Human Resource Management (SHRM), 2016	Employee and Labor Relations (Employment Law; Ethics; HR's Role in Organizations; Job Analysis and Job Design; Managing a Diverse Workforce; Outcomes: Metrics and Measurement of HR; Performance Management; Staffing; Recruitment and Selection (including organization entry and socialization). Strategic HR (Total Rewards (compensation, benefits); Training and Development; Workforce Planning and Talent Management). Graduate Students Only (Change Management; Globalization; Internal Consulting; Organizational Development). Secondary Content Areas (Downsizing/Right-sizing; HR Career Planning; Human Resource Information Systems (HRIS); Mergers and Acquisitions; Outsourcing; Sustainability/Corporate Social Responsibility; Workplace Health, Safety and Security).
Society for Industrial and Organizational Psychology (SIOP), SHRM competency model ,2014	The SHRM HR Competency Model identifies nine key competencies (HR technical expertise and practice; Relationship management; Consultation; Leadership and navigation; Communication; Global and cultural effectiveness; Critical evaluation; Ethical practice; Business acumen) along with a detailed set of sub competencies and proficiency statements.
International Organization for Standardization (ISO),2016	A set of standards covering global HR practices In September 2016 the ISO TC 260 HRM Committee published four inaugural Standards: ISO 30400 HRM Vocabulary ISO 30405 HRM Guidelines on Recruitment ISO 30408 HRM Guidelines on Human Governance ISO 30409 HRM Workforce Planning
The HR Management Standards (Standards) developed by the HR Council for the Voluntary & Non-profit Sector (HR Council), 2009	The Standards are grouped into six broad clusters: • HR Management Policy Framework & Employment Legislation • Getting the Right People • Managing People and their Work • Workplaces that Work • Training, Learning & Development • HR Planning
HKIHRM HR Professional Standards Model, Hong Kong Institute of Human Resource Management, 2010	Knowledge (HR Professional Areas) major areas including: Reward Management; Sourcing and Staffing; Employment Law; Employee Engagement; Learning and Development; Business Knowledge for HR. Capability (HR Competencies): Professional Knowledge; Business Partnership; Ethics; Communication / Influence; Customer / User Focus. Experience (HR Roles and Responsibilities): Business Partner; Strategy Implementer; Organisation Development Designer; Expert Practitioner; Culture and Change Agent.

As a result of the previous analysis the model describing the context of strategic HRM in sport is described see [Figure 1].

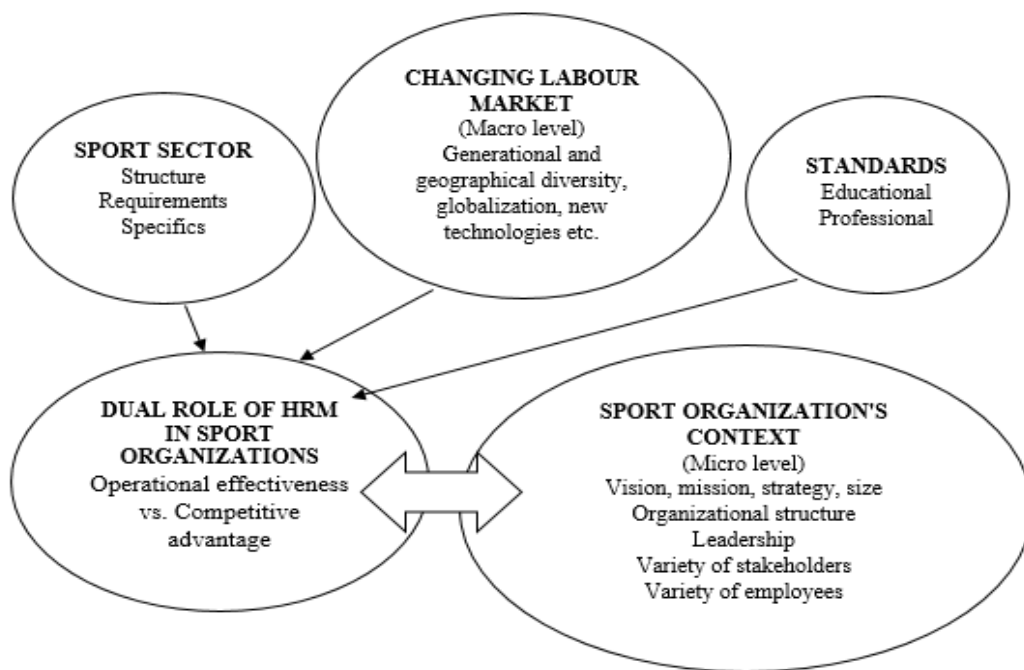


Figure 1 HRM Context in Sport

The Study programme Sport Management at Faculty of Sport Studies Masaryk University (FSPS MU) is delivered in cooperation with the Faculty of Public Administration (teaching the basics of management, marketing, economics and HRM). However, it failed to customize the subject of HRM to the sport sector. Now the Faculty of Sport Studies is delivering this course and our endeavour is to incorporate the strategic focus into the single subject Human Resources in Sport - link the HRM to Sport organization strategy (challenging task within one semester but not impossible within the whole curricula using prerequisites) see [Table 4].

Table 4: Delivery Logic of the HRM body of knowledge in Sport Management at FSPS MU

Subject /course taught in Sport Management Studies	Content related to the HRM and organizational strategy
Basics of Management	Definition and basic characteristics of the organizations' strategy
Management in Sport	Organizational strategy within a sport context
Human Resources Management in Sport	Interrelation between the organizational strategy of sport organization and HRM strategies and policies in sport organizations
Case Studies in Sport Management	Reflection and application of strategy based HRM theory in practice
Case Studies in HRM in Sport	Reflection and application of strategy-based HRM theory in practice based on specific case studies

Students' assignments analysis

We examined the assignments of 39 undergraduate students who passed the subjects Basics of Management, Sport Management and HRM in Sport. A condition for completing the subject of HRM in sport was the writing of the assignment respecting the following instructions:

- 1) Select a sports organization, briefly describe its mission, vision, and strategy.
- 2) Find its organizational structure or part of the contacts from which you can decide on what job functions there are in the organization.

- 3) Choose two jobs that you are interested in, or which are attracted to you based on your professional interest. You can also create new positions that you think you need to create to fulfil the strategy or the intentions of the sports organization you have chosen. Do not forget to indicate why the position is important from the point of view of the organization's strategy or its development.
- 4) Try to find organizational rules where job descriptions are described for the positions you have chosen. Then use the job descriptions and requirements for the person to perform the job of national qualification standards (see page where occupational standards - in search engines pages to enter the word Sport- are <http://nos.ukces.org.uk>; <http://katalog.nsp.cz/uvod.aspx>) and compare the descriptions of the positions listed in the organizational rules with the standards of similar positions from the National Qualification Standards. According to the comparison results, fill in or redefine job specifications and person specification.
- 5) If there is no organizational order, go to the National Qualification Standards and the positions you have selected, describe the job specification and person specification.
- 6) Design and justify for your chosen jobs:
 - a) The method of selecting the employee
 - b) Plan of orientation (justify the chosen strategy)
 - c) Training plan (at the workplace, outside the workplace)
 - d) Performance criteria (use 360 ° feedback)

We examined the assignments of 39 undergraduate students who passed the subjects Basics of Management, Sport Management and HRM in Sport. The qualitative analysis based on the thematic and in vivo coding (Strauss and Corbin, 1998) was performed in Atlas .ti software and was guided by the following questions:

To what extent are the students able:

- to apply critical thinking with regard to the concept of HRM in the chosen sport organization? (i.e. appropriateness of the organizational structure, missing positions, and
- to identify the link of HRM policies and strategy of the chosen sport organization? (i.e. suggesting a new job position and their description in tune with the strategy, new HR policies (namely selection, orientation, education, performance criteria.

To answer the above-mentioned questions in the process of the content analysis, 120 codes have been used that have been grouped into 7 code groups as it can be seen in [Table 5].

Table 5: The Code groups – content analysis.

Name of Code Group	Code grouping logic made on the quotation statements with regard to the	Number of Codes in Group
Strategy notions	Existence of the strategy in sport organization	6
Organizational structure notions	Appropriateness of the organizational structure	13
Job link to strategy	Linkage of the job purpose/ description to the strategy	15
Job positions	Chosen job positions due to their significance for implementation of the strategy	60
HR strategy notions	Usage of the HR concepts describing the approach towards HRM in sport organizations	6
Strategy link to HR policies	Existence of the links between the strategy of sport organizations and their HR policies	6
Performance criteria vs strategy	Ability to define the performance criteria for a particular job in tune with the strategy of the sport organization	14

More detailed description of the codes and code groups is presented in the code reports in Tables 6- 12.

Table 6: Strategy notions.

Strategy notions code report	Grounded
goals and sport strategy	2
mission and vision of the sport organization	29
strategic plan of the sport organization	1
Strategy and vision	15
strategy of the club - sport, economic and social goals	1
strategy of the sport club	1

As can be seen in Table 6 there are only a few sport organizations that possess a formal strategic document – strategic plan or strategy and there was even one sport organization with a strategy that encompasses sport, economic and social goals. The majority of the sport organizations have just fulfilled the legal requirements of defining their mission and vision. Thus the non-existence of a formalized strategic plan in the sport organization causes problems in terms of HRM such as those in establishing organizational structures, job structures and job descriptions in tune with the organizational strategy, as well as problematic translation of the strategic goals into performance criteria.

Table 7: Organizational structure notions.

Organizational structure notions	Grounded
analysing job positions as a result of their bad reputation	2
analysis of the position in the sport association	1
importance of the job positions for the strategy of the sport organization	4
job position and identification with strategy	1
link between the organizational structure and strategy	1
missing positions	13
new position as a source of competitive advantage	1
organizational structure	31
redesign of the job position for increasing the working effectivity	6
redesign of the position of club secretary for strategic purposes	1
strategy and skills gap identification	2
technology vs strategy and positions gaps	1
the importance of the suggested positions for the sport organization	4

As Table 7 shows, 31 out of 39 sport organizations have some kind of organizational structure. Further analysis of the students' assignments revealed that they were able to critically assess the appropriateness of the organizational structure especially in terms of missing positions, describing the importance of job positions for strategy, suggesting new positions or redesign of current job positions in order to link their purpose either to the sport organization strategy or to improvement in performance.

Table 8: Link between the strategy and job positions.

Job link to strategy	Grounded
link between the strategy and job positions	29
identification of a particular job description with strategy (general manager of the sport association; head coach; HR specialist; lawyer; marketing- media- PR managers and specialist; scout)	11

As can be seen from Table 8 students achieved quite satisfactory results when assessing whether a description of a given position is related to a strategy. They were not only able to assess this but also able to propose amendments in the current job descriptions especially for jobs related to marketing or jobs related directly to the sport goals of the sport organization such as coach and scout.

Table 9: HR strategy notions.

HR strategy notions	Grounded
hard and soft HRM in the club	1
missing HR strategy in the sport club	1
soft HRM approach - national Olympic committee	1
sport success and complacency in terms of HRM	1
strategic focus of HRM in sport organizations	1
SWOT analysis of the club as a starting point of the HRM strategy	1

In the students' assignments there were just 6 HR strategy notions and this merely confirmed that strategic HR management in the sport context is missing. The explanation of this is (as indicated in Table 9) that sport success is, in some instances, accompanied by complacency in terms of HRM.

Table 10: Strategy link to HR policies.

Strategy link to HR policies	Grounded
link between orientation and strategy and values of the club	5
link between education and strategy	7
link between orientation and strategy	6
link between selection and organizational culture	3
link between selection criteria and strategy	8
link between strategy and recruitment	1

Although it was difficult for students to find general HR strategies that would be clearly defined and linked to the sport organization strategy, they were able to identify and suggest how HR policies (recruitment, selection, orientation and education) might be linked to the strategy and organizational culture that is considered to be one of the essentials of strategy implementation.

Table 11: Performance criteria vs strategy.

Performance criteria vs strategy	Grounded
performance criteria and strategy	11
performance criteria and competitive advantage /new product)	1
performance criteria and creativity	2
Definition of a performance criterion for a particular job (marketing specialist and manager; new media specialist; coach, head coach, sport manager; head of logistic; president of a sport union; general sport manager of a youth in sport association)	13

The definition of the performance criteria for a given job position is crucial in terms of assuring how the position contributes to the implementation of the strategy and strategic goals. Thus sport management students should be able to critically assess and design appropriate performance criteria for any job position within a sports organization.

Table 12: Job positions in the assignments.

Job positions (60 codes) in the group
organizational worker; assistant coach in a club; assistant to the general manager in a sport association; chief accountant; head of the judges' committee; head trainer in a club - new position; coach assistant representational team; coach of A team as a creator of the sport strategy; coach of the A team in a club; coach of the sport school and class; coach of the women; team in a football club volunteer; coordinator for sport development at schools; coordinator of the international junior ice hockey; database administrator in a club - new position ; director of marketing in a sport association; facility manager in a club - new position ; financial manager in a sport association; general sport manager of a youth - sports association; sport manager position vs sport strategy of sport association; head coach in a club; head coach in a sports club; head coach of the representational team; head coach of youth; head coach of youth in a club; head of marketing; head of the arbitrary committee - sport association; head of the club; head of logistics; HR specialist; IT engineer; lawyer of a sport union; manager of a sport association; marketing employee in a sport club - new position ; marketing manager; marketing specialist; marketing specialist in a sport club - new position ; masseur in a club - new position ; merchandising specialist; methodist - educational manager of a sport association -new position ; methodist for youth; organizational and technical manager of a club – new position ; photo reporter; player on the A team; PR employee in a sport club volunteer; PR manager; PR specialist in a sports union; president of a sports union; process consultant – new position ; representation coach – men; scout position; secretary general - sport association; secretary of a sports club; social media specialist - new position ; specialist for new media and e-communication – new position ; sport manager; sport manager for youth; sport marketing manager of a sports club; team leader; volunteers coordinator; youth coach.

The analysis of the current job positions that were identified as crucial for strategy implementation or suggested as a new position for the same purpose is in Table 12. The majority of the jobs are related to sport goals and marketing, but students were also able to follow the strategic focus of HRM suggesting brand-new positions such as database administrator in a club, process consultant, specialist for new media and e-communications.

CONCLUSIONS

In order to produce effective sport managers who would be also able to perform their role as HRM practitioners, the strategic nature of HRM in sport organizations must be paramount for HRM courses taught as a part of Sport Management studies. The structure of the Study Programme is favourable for achieving the desired core learning outcome from the subject of HRM i.e. strategic focus of HRM in relation to the sport organization's strategy. The assignments reflected the reality within sport and showed the weaknesses in terms of the availability of formalized strategic documents of sports organizations and moreover missing operationalization of the organizational strategy (Nová et.al. 2016). Thus students' critical thinking and ability to link the strategy of a sports organization and HRM policies was limited. With consideration towards also the results from the analysis of suggested trends in HRM education, educational standards and professional standards, some innovative aspects are needed to be implemented within the subject itself especially with respect to the students' population features, maturity and experience.

Bearing in mind the conceptual model that describes the context of strategic HRM in sport (Figure 1) when it comes to the teaching and learning methods, still the focus will be on case studies accompanied with class case discussion (open-ended problems, supporting data and documents); students' oral presentation; written case studies – analysis; creation of a new case study; role play; web search; live (newspaper article – events occurring at the current time), etc. To underline the global context of HRM in sport the e-multimedia book was elaborated Case studies in Human Resources Management (HRM) in Sport (Nová et al., 2017) that offers case studies from different international sport contexts that are related to various aspects of HRM. Thus the book not only covers the gap in the teaching materials for sport management students related to HRM issues but it also highlights the importance of case studies as an educational tool that could impact the development of skills and knowledge development. Case studies focus on the substance of HRM processes taking into consideration the specificities of these processes in sports organizations and in organizing sports events and cover the following issues: Job design for HR in sport ;Volunteer recruitment and orientation ;Motivation; Knowledge management and education of HR; HR management of volunteers; Impact of Social media on culture and HR skills; Organizational and

occupational professionalization of sports organizations; Gender diversity; HR and cultural differences ;Personal values and their importance in HRM in sport ; Labor disputes and remuneration ;Performance management of human resources; Influence of innovation on HR requirements. This multimedia book is intended to be a valuable resource consisting of international case studies in human resources management in sport are delivered by sport experts and the readers and students will benefit from the book as follows:

- ✓ The opportunity to analyse and learn HRM process in sport
- ✓ The examination of key issues in international HRM in sport enabled by clear and well-structured case studies
- ✓ Better understanding of practical implication of theory as a result of a balance of academic and practical elements of case studies

Although research in HRM and HRM education is rich there are no studies available that shed light on how sport management students understand or are taught this challenging topic. This qualitative case study offers an initial exploration of how the subject of HRM is learned and taught in sport management studies. Teaching and Learning Strategies which can be most successful in this sense are described, in order to successfully achieve the intended learning outcomes. After careful analysis of the transcripts from the undergraduate students' seminar work, their perception of the importance of strategy for HRM policies and vice versa in a real sport context was examined. This will allow the designing of a new, more strategic approach to the teaching of HRM in sport management studies.

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Teaching Lead Time Reduction in Material Inventory Planning in the Construction Education

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ABSTRACT

The ineffective and effective management of construction materials affects construction stakeholders, the construction industry and its environment. Time is a crucial concept, which the construction student must learn to exploit in order to efficiently plan, procure and utilize materials on construction projects. Inadequate inventory should not catch construction students unawares especially when they become construction professionals. The study aimed to examine the teaching of lead time reduction in material inventory planning in the construction education. The study utilized an in-depth literature review and the conceptualization of frameworks on lead time reduction in material inventory planning in the construction education. The study revealed that lead time reduction in inventory planning of construction materials takes into account factors such as ICT, Supplier, Project details, Construction professional, Environment and Construction company factors in helping the construction student effectively understanding construction material management. In conclusion, the study would help to enrich the construction education curriculum by building the knowledge base of construction students in order to be systematic in planning, procuring and control of construction materials leading to a better construction industry and environment.

Keywords: Construction Education, Construction Materials, Lead time, Planning, Procurement

INTRODUCTION

The bible ably recorded in Luke 14 verse 28 and 29 (King James Version), where Jesus noted that “for which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it? Lest haply, after he hath laid the foundation, and is not able to finish it, all that behold it begin to mock him”. These verses broadly defined the importance of planning in setting up any form of building. Whether it be cost, materials, time, manpower etc. there is the utmost importance to plan. There is no reason insufficient construction materials should catch construction professionals on site if they actually engage in effective and efficient material inventory planning. The failure to effectively plan is evident in the Nigerian construction industry with diverse impediments which have stalled it in achieving successful project outcome at various levels. Pourrostan and Ismail (2011), Mohammed and Isah (2012), Oshodi and Iyagba (2012) stated that problems associated with planning and timing of project has been a major bane causing several challenges on projects in the construction industry. Planning resources essentially in the construction industry ranges from planning for construction resources such as materials, machine, men, money, time, etc. The influence of materials in the building and construction industry is paramount and cannot be over emphasized.

Studies from Formoso and Revelo (1999) and Dey (2001) indicated that in developing countries, material costs can make up as much as 60–65% of the total working capital of any industrial organization or construction project.

According to Che Wan Putra, Ahmad, Abd Majid and Kasim (1999); Dey (2000); Chan (2002); Kasim, Anumba and Dainty (2005), the critical nature of construction materials during handling and management is crucial in that it can influence the total project cost, time and the quality. Therefore, contractors or construction companies that aim to profit or succeed in the construction business need to foster a good understanding of material inventory planning. The Nigerian building and construction industry is becoming highly competitive. Many clients desire that their construction projects are finished as fast as possible in order to reap their investments (Kaelbe 2001; Kasim *et al.*, 2005). Also, contractors and clients are avoiding any extra cost which may mean huge losses and higher expenses respectively (Aina and Wahab, 2011). In order to meet these goals, contractors are focusing on materials by lowering total costs in supply chain, shorten throughput times, drastically reducing inventories, expanding product choice, providing more reliable delivery dates and better customer service, improving quality, and efficiently coordinating global demand, supply, and production (Shankarnarayanan, 2003). This means that efforts must be put to offer more advanced and quality products, fulfillment of consumer needs and faster delivery times through efficient controls and planning; an aspect of material management, ensuring that productivity is maintained, stocks are minimized and resources are optimized.

Obtaining the right quantity and quality of construction materials means that good sourcing decisions must be made. Although, the factors affecting the sourcing decisions may vary from project to project. The basis is the introduction of a lead time that could either be longer or reduced depending on the prevalent conditions. Using lead time is not a new concept but it is hardly taught in the four walls of the classroom. Also, lead time mostly been utilized in the manufacturing sector rather than on construction projects where it actually should be consciously used. In today's business world, the competitive nature requires that students are enriched with the requisite knowledge to make them the competitive edge that companies require. Understanding the management and use of a reduced lead time on construction projects gives that edge. The study intends to examine factors that would engender lead time reduction in the inventory planning of construction materials in order to teach construction students for an effective management of construction projects.

MATERIAL INVENTORY PLANNING

Bell and Stukhart (1986) in Kasim *et al.* (2005) defined materials management functions which include planning and material take off, vendor evaluation and selection, purchasing, expenditure, shipping, material receiving, warehousing and inventory, and material distribution. In three major functions, materials management is related to planning, procuring and storing in such a way that provides the appropriate material of right quality, right quantity at right place in right time. No organization should shove aside issues of material management due to its importance. Ogbadu (2009); Keitany, Wanyoike and Richu (2014) opined that materials management is a tool that should be used effectively by organizations to promote profit maximization and optimize customer service requirements by making the best use of available resources. Materials are vital in the activities of any industry since unavailability of materials can impede production. Unavailability of materials is not the only phase that can cause problems. Excessive quantities of materials could also make serious problems to managers. Unnecessary storage of materials can raise the costs of production and the overall cost of any project. Equere and Tang (2010) stated that stockpiling time of materials cause extended tied down capital that would otherwise have been better invested, requiring extensive storage facilities and space. An important aspect of material management that takes place on building construction sites is material inventory planning. Planning is said to be the formalization of what is intended to happen at some time in the future. Although, a plan does not guarantee that an event will actually happen, therefore the need for controls to help cope with the changes that may occur. Materials inventory planning in a construction process involves the process of quantifying, ordering and scheduling of materials. Payne *et al.* (1996) added that material inventory planning process is incomplete until a proper record is setup and maintained while determining target inventory levels and delivery frequency. Fundamentally, a critical purpose of materials inventory planning is to procure the materials for the dates when they are needed. Islam *et al.* (2013); Mehr and Omran (2013) stated that two crucial things lacking in material inventory planning on construction sites are that construction professionals hardly keep proper records and most construction sites experience material delay. Essentially, contractors and construction professionals depend on material schedules in order to know what materials are needed and when they should be on site. In addition to acting as a guide for ordering materials, the schedule also serves as a checklist of materials needed for the project. But, most of these schedules used either paper based or computer based hardly incorporate lead time management. They are most focused on the start and finish dates of the activities. The question is, what happens before the start date?

LEAD TIME MANAGEMENT

Laufer and Tucker (1987) argued that uncertainty and complexity cannot be eliminated from construction projects and that there is an increasing demand of speed. These uncertainties and complexities results in the need to introduce lead time in the acquisition of construction materials. Silver et al. (1998) defined lead time as the time spent that elapses between the placement of an order and the receipt of the order into inventory. According to Afzal and Vivek (2014), lead time is composed of setup time, processing time, move time and waiting time and there are different tools reducing the lead time of the different component as shown in Figure 2. Elfving (1999) explained that lead time is sometimes confused with cycle time whereas cycle time is the time it actually takes for a job to go from the start to the end of the process. Afzal and Vivek (2014) opined that lead time reduction does not mean working harder, faster or with reduced quality, but it means working smarter. Overall, lead time can be introduced at each stage of the construction project life cycle. By this, it is possible to separately allocate significant lead time to each of the “functional” lead times. For example, design lead time is the time that is reserved for defining and specifying product characteristics. Procurement lead time is the time that is reserved for product acquisition. Whereas, the inventory planning lead time consist of placing a purchase order, order entry and processing, supplier manufacturing/warehouse work lead time, transportation length, order received and different waiting periods between processes. Figure 1 showed the breakdown of a typical inventory lead time. The figure revealed that before the start of the activity, the inventory lead time had taken into account certain activities to ensure the prompt delivery and availability of the construction material. Therefore, it is possible to attach lead times to every inventory to be used in carrying out an activity. In construction projects, long lead times of product delivery often dictate the pace of the construction project. This necessitates that lead times are adequately reduced.

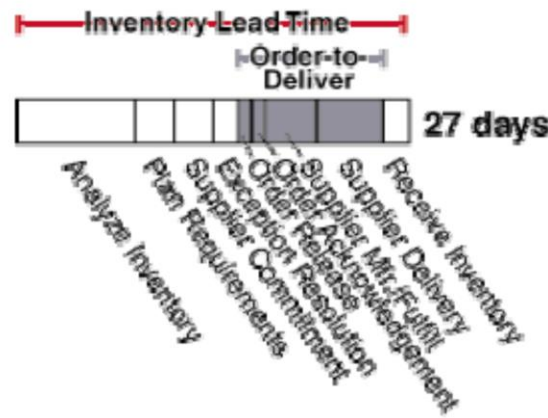


Figure 1. Breakdown of a typical inventory lead time

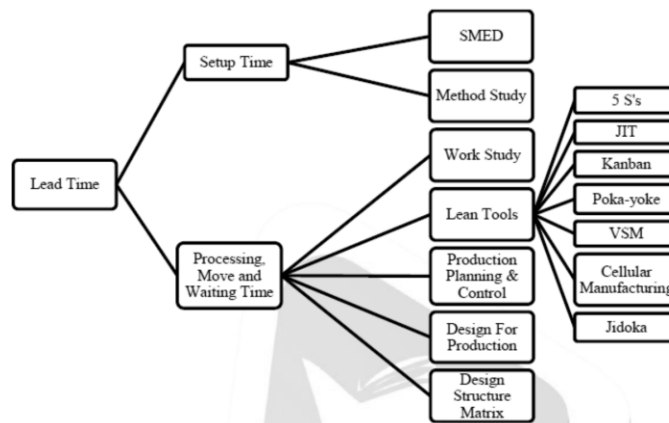


Figure 2. Summary of tools and techniques for Lead Time reduction

Source: Afzal and Vivek (2014)

The benefits of using lead time and making sure that it reduced are numerous. Afzal and Vivek (2014) identified benefits such as reduce work in progress, reduce safety stock, reduce costs, improved product quality, faster

response to customer need, increased flexibility, reduce time to market and increase profitability. In addition, Treville et al. (2014) noted that short lead times can be a source of competitiveness.

METHODOLOGY

The focus of this study is to examine the teaching of lead time reduction in material inventory planning in the construction education. The study is theoretical in nature. The study gave a theoretical background to material inventory planning and lead time management and their benefits. In the discussion, reducing lead time for material inventory planning require that construction students and construction professionals take note of possible factors that could be considered when deciding the lead time for material inventory planning on construction projects. The study considered all construction materials has a basis of the inventory. As these factors affects inventory of construction materials in one way or the other.

DISCUSSION

In order to ensure that adequate construction materials are available before a construction activity is carried out, construction professionals may decide to stockpile the construction materials on site. Maintaining stock of building materials on site can be attributed to availability of funds, market condition, site location, climatic condition and project cost (Arunprakash and Nandhini, 2013). This has the disadvantage of tying down valuable capital that could have been used for other activities on the construction project. Mehr and Omran (2013) stated that there are problems that are related to materials management during construction. These problems can be resolved largely by introducing lead times to construction activities and materials needed to carry them out. The lead time can be put in days, weeks or years. In spite of the project management or lean tools for reducing lead time on material inventory planning, there is need for the consideration of certain factors affecting the availability of the construction materials when it is needed, in the right quantity and quality. Figure 3 showed the framework of factors that could reduce lead time in material inventory planning.

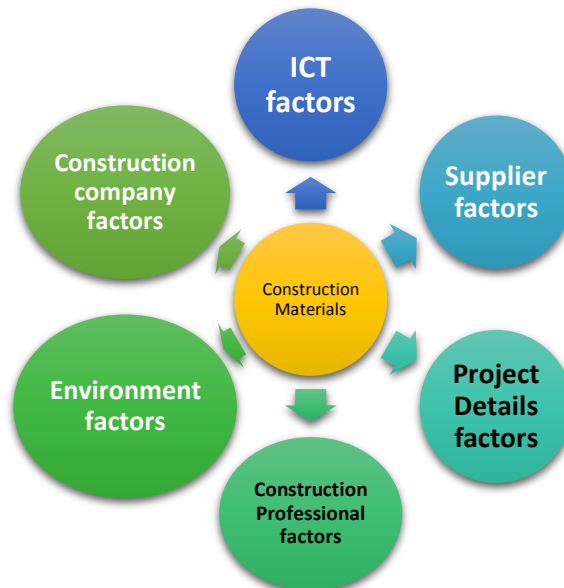


Figure 3. Factors affecting reduced lead time in material inventory planning

These factors are grouped into six (6) main factors which are the ICT factors: level of ICT usage, availability of ICT tools for material inventory planning and control; Supplier factors: relationship with supplier, supply and delivery of materials, price of building materials; Project details factors: site location, availability of storage space, availability of building materials, accuracy of project documents, variations, duration of project, sequence of activities; Construction professional factors: training of construction planner, experience, computer literacy, cooperation of team members, estimating skills of construction planner; Environment factors: market conditions, climatic condition; Construction company factors: availability of funds, communication between site and head office, policies of the construction firm. By identifying and understanding these factors it is possible to reduce or extend the

lead time of the availability of the construction materials required. When these factors are favourable to the construction project it will result in lead time reduction on the material inventory planning.

In teaching of lead time reduction in material inventory planning in the construction education, Figure 4 described the framework for teaching lead time reduction in material inventory planning in the construction education. Much consideration has been given to teaching construction students about start and finish date, evidently this study revealed that before the start date, a comprehensive lead time must be out in place. Apart from the project management and lean tools to reduce the lead time, factors affecting material inventory planning must be considered in order to have an effective and efficient reduced lead time. Construction students' knowledge of construction activities should be aligned with the use of reduced lead time for proper inventory planning of materials and other construction activities.

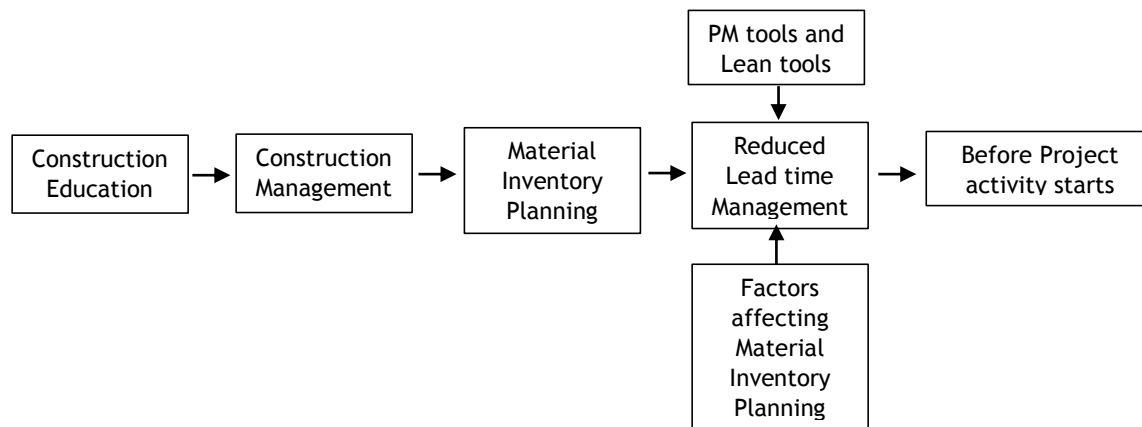


Figure 4. Framework for teaching lead time reduction in material inventory planning

Some of the material inventory planning variables are discussed below;

Availability of Storage Space

Material storage on site requires close attention in order to avoid waste, loss and any damage of materials which would affect the operation of the construction project. Previous studies have identified that construction materials often require a large storage capacity which is rarely available on site (Agapiou *et al.*, 1998). Lack of space is an inherent difficulty acknowledged throughout the industry, when constructing a development in an urban environment (Tindiwensi, 2000; Singer, 2002; Navon and Berkovich, 2006). However, Stukhart (1995) suggested that there are a few considerations to take in the planning of the storage space such as timing of the initial buy, and historical information and experience. Hisham and Khaled (2011) stated that storage on construction sites need to be properly planned and executed to avoid the negative impacts of material shortage or excessive material inventory on-site. Material inventory planning is essential to overcome this issue and management of the critical space.

Training and Experience of Project Manager

According to Stukhart (2007), studies from the Construction Industry Cost Effectiveness Project (CICEP) concluded that senior management have not recognized the contribution of material management to cost issues in projects, that personnel involved in material management activities do not receive an adequate training, and that the computer systems used by companies are not good sources of information for materials control. Lack of material may be due to an unskilled project manager who gives insufficient precedence to material procurement and has insufficient knowledge of materials, including appropriate substitutes (Mehr and Omran, 2013). Mehr and Omran (2013) reported that most people in the construction industry cannot use computer in case of materials management so they prefer to use manual materials management techniques. Navon and Berkovich (2006) noted that the use of manual process is labor concentrated, risky and inaccurate which may lead to extra and unwanted materials, delay, output decrease, shortage of new and up to date data.

Construction company policies

According to Umble *et al.* (2003), an organization or company must create a clear, compelling vision of how the company should operate in order to satisfy customers, empower employees, and facilitate suppliers. These types of decisions are the policy decisions of the management. Sometimes, the head office is in charge of material evaluation, its availability, alternative materials selection, procurement and inventory control or the make and buy decisions, thereby making sure that the inventory planning and control of materials are hinged on the major decisions of the construction firm to provide the necessary resources needed. Mehr and Omran (2013) reported that shortage of building materials on construction sites and activity delays have been hinged on poor communication between sites and head office purchasing, planning and co-ordination. According to Nwakor *et al.* (2012), most construction professionals (89%) have to bypass the establishment of material/store department in the head offices in order to save operational costs on their construction sites. However, this practice introduces flaws such as connivance with suppliers to inflate prices.

Availability of materials

This is one of the main factors affecting material inventory planning on Nigerian construction sites. Most Nigerian construction sites have been found to suffer from unavailability of needed construction materials which adversely delays the project, reduces productivity of workers and consequently lead to increase in final construction cost (Adeyemi, 2000; Liberda, Ruwanpura and Jergeas, 2003; Fagbenle, Ogunde and Owolabi, 2011). Mishra (2009) stated that it is important to make sure the quantity of materials which is required are available and that there is no shortage. Adeagbo (2014) noted that the availability of building materials should also be adequate in quality as this is crucial for the activities in the building and construction sector. According to Mehr and Omran (2013), timely availability of materials are essential to successful construction. However, the situation is such that the materials are often not available in the required quantity and quality. This adversely affects cost of construction and quality of projects executed. Material inventory planning cannot be effective when materials are not available.

Available ICT tools

Mehr and Omran (2013) explained that nowadays, successful management of construction materials has to be based on thorough and updated information, and procedure of using well designed construction materials management software. This idea has driven the vast use of ICT to ensure that up-to-date information is made available when needed. Mishra (2009) posited that computerize and network information offer fast, accurate and maintenance of information. The availability of ICT tools would affect the type planning and controlling technique adopted by the professionals involved and also the type of information available to them. Oladokun and Olaitan (2012) opined that lack of affordable, efficient, and user friendly inventory management tools, for adequate planning has been identified as a major cause of the high inventory cost in many Nigerian manufacturing firms. Navon and Berkovich (2006) added that lack of capable personnel in using computer-based materials management systems are considered the main difficulty in using computer in construction materials management.

Accuracy of Project documents

According to Mishra (2009), the success of material management is highly dependent on accurate and correct generation and convey of information. During the procurement phase it is necessary to decide how much material is required and when materials should be delivered to site. Mehr and Omran (2013) stated that accurate value and amount of materials must be accessible when needed. The accuracy of the information needed for inventory planning of materials would depend on the accuracy of the project documents that have been supplied by the consultants for project execution. According to Williamson (1996) resource allocation for a project becomes impossible when information provided in the design systems are uncertain and the complexity of the design do not align. Iyagba (2005) opined that design is the pre-planning process requiring knowledge, ability and selection of materials and determining performance. A faulty design document is a faulty foundation to building planning and control systems. Aina and Wahab (2011) have traced a lot of buildability problems to the issues of defective and faulty working drawings by inexperienced designers. The use of defective and faulty working drawings have often led to rework, high construction cost, huge claims, delay and ultimately building collapse (Iyagba, 2005).

Supply and Delivery of materials

Inventory planning of materials would greatly be affected by the frequency of supply and delivery of building materials. The logistics of supply and delivery of building materials during the building process is very crucial. Bertelsen and Nielsen (1997) noted that most contractors operate the “Oops! Principle”, that is, ordering and deliveries of building materials take place when the production comes to a halt due to lack of the materials required. This means, not only frequent delays and loss of time but also additional costs caused by express deliveries. Mehr

and Omran (2013) stated that many companies rely greatly on outside suppliers for the materials needed for production. Therefore, good relations and association with material suppliers might be decisive for a construction company to be in business. When a construction company has bad relation with their material suppliers it might be feasible that it experiences late deliveries or wrong materials delivered. This will have an impact on the total cost of the product, probably increasing the total costs, and delaying the end of the final product (Mehr and Omran, 2013).

Price of Building Materials

It is clear that materials should be obtained at the lowest cost possible to provide savings to the construction company (Damodara, 1999). Project delays and increase in project cost have been linked to increase in material prices and fluctuation in building material prices (Frimpong *et al.*, 2003). These changes in building material prices can be attributed to unavailability and shortage of materials in the country (Mehr and Omran, 2013). Eshofonie (2008) stated that price of material is highly dependent on supply and demand and are affected by many other things such as quality, quantity, time and place, currency exchange, material specification, inflation and availability of new materials. Changes in building material price can stall material planning and controlling systems of construction project leading to time overrun.

Cooperation of Team Members

According to Mehr and Omran (2013), material management is an appropriate use of services, goods and equipment before, during and at the completion of construction projects. So for successful material management, there is a need for participation of all persons and parties involve in the project. In such situation material management needs collaboration between architects and engineers to identify the accurate material to be supplied during pre-construction to prevent over stocking. Construction management team must buy accurate quantity of material at the right time to prevent future issues such as deterioration and storage problems. Umble *et al.* (2003) noted that the implementation team is important because it is responsible for creating the initial, detailed project plan or overall schedule for the entire project, assigning responsibilities for various activities and determining due dates. The team also makes sure that all necessary resources will be available as needed.

CONCLUSION AND RECOMMENDATION

Before the start of construction project activities, there is need for construction materials in order for the activity to take-off. Most times on construction projects, the lead time management to prepare for the acquisition of materials are usually done haphazardly by construction professionals. The study sought to integrate the teaching of lead time reduction in material inventory planning in the construction curriculum in order to aid construction students in effectively and efficiently planning for construction projects. The study revealed the breakdown of activities in inventory lead time management and considered six (6) main factors that can lead to a reduced lead time in material inventory planning. The study posits that construction students should painstakingly address these factors in order to reduce the lead time in material inventory planning. The identified factors include as ICT, Supplier, Project details, Construction professional, Environment and Construction company factors. A framework was developed which showed that reduced lead time management should be integrated in the construction management education.

The study recommended that by enriching the construction education, construction students are empowered with knowledge that helps in adequate material inventory planning. Effective and efficient lead time management can lead to reduced material delay, availability of construction materials when needed and improve construction project delivery parameters of time, cost and quality. There is conscious need to constantly review the curriculum to adapt to the current needs of the industry.

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Teaching Methods at Elementary Schools

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ABSTRACT

This article deals with a problem which is currently solved in education are in entire Europe. Specifically it is the decreasing interest of students at all levels of elementary education in science education. Because of this research, we prepared three lectures leaded differently; we used different teaching methods, the frontal and inquiry -based education. We worked with six different classes and monitored them for 16 lectures. Our research showed that the best results related to classical frontal method. We were surprised that the frontal method had the best results in tests. But the most preferred teaching method was the inquiry- based.

INTRODUCTION

The current ever-changing economic situation, general standards of education and demographic developments in relation to globalization show a great potential in the form of promising students having almost unlimited capabilities (Maryska & Wagner, 2015). The process on education on elementary school is changing all the time (Kuncova & Mulac, 2015), but biggest changes have happened lately. Nowadays a students are fighting with a large number of information. Parents, high school teachers and future employers demand that students have various skills and understand a wide range of issues, starting with general knowledge all the way to computer and language skills. The large number of information should help to develop students' key competencies and gain general overview about all mentioned areas. In view of the big competition on the labor market, it is also important to develop students competencies in the area of problem-solving, communication, social development and many other competences which cannot be supported by books etc. but those can be supported by specific teaching method only.

The important outcomes from lectures which were leaded Inquiry – based method is that students need to develop different skills and competences than in ordinary frontal lectures. They need to think much more about the problem on their own or they need to cooperate with each other. This fact is very important because of the growing demands (Chinnammai, 2005; Doucek, Maryska & Novotny, 2013). In secondary and tertiary education as well as on the labor market (Doucek, Maryska & Novotny, 2014; Maryska & Doucek, 2011; Maryska, Novotny & Doucek, 2010). Using different teaching method is not guarantee the better results or success in the test. Big problem of current education at all levels is student's lack of interest and motivation in science and technical education (Rocard et al., 2007). Popularity of science and technical subjects is currently low (MSMT, 2011).

We worked with students from elementary school Sunny Canadian International School, we expanded the “regular” frontal teaching method for several other, mostly activating, methods of teaching, which also include the inquiry-based teaching of science (Svatkova, 2015). The goal of our research was to show if students can work better with information which they found out on their own or if they remember better that information which is given by the teacher. And which information is easier to remember. After each lecture, we give the control test to all students after the lecture. The important aspect is the student 's motivation and personal attitude toward teaching. Therefore, our research also included information about the students' age. Our research was conducted at the elementary school among students from the 6th to 9th grade. We could see differences between students of different age in motivation and attitude mostly, so we decided to map how the results change with students' age.

PROBLEM FORMULATION

During our survey processed at the Sunny Canadian International School (SCIS) we focused on a relatively specific area – a comparison of knowledge acquired by the students through two completely different learning methods. Our analysis provides information for a key decision, whether to change the current learning method at the SCIS, including inquiry-based learning in the learning, or whether to prefer frontal learning.

For the purposes of this article we formulated the following Research Questions:

- RQ1: Do the students prefer frontal teaching in comparison with inquiry-based learning?
- RQ2: Is any difference in preference of type of teaching in different classes?
- RQ3: Does preferred type of teaching provide better results in control test?
- RQ4: Does preferred type of teaching provide better results in control test in different classes?

MATERIAL AND METHODS (DATA COLLECTION)

The survey was conducted at the private Sunny Canadian International School (SCIS). There is more than 500 students study at SCIS (SCIS, 2016). Since its establishment SCIS has upheld the principle of bilingual learning where all the subjects are taught in Czech and in English by native speakers. SCIS is the first institution in the Czech Republic that integrates in its curriculum preparation of students for the IGCSE examination (International General Certificate of Secondary Education) and its graduation after the second year of secondary school. IGCSE is an academically rigorous, internationally used, and specialized English language curriculum which is offered to students to prepare them for International Baccalaureate (IGSE, 2016).

The project using inquiry-based learning in lessons at the SCIS elementary school was implemented in the period 1.4.2013 - 31.12.2014 (SCIS, 2016). For the project SCIS bought special study aids that could be used in the incorporation of inquiry-based learning into the SCIS curricula. Specifically, SCIS purchased Pasco (Pasco, 2016) probes for measuring various biological processes, such as working with CO₂ and taking blood pressure, and microscopes enabling the students to understand in more depth other natural phenomena. After the completion of the project in the period 01.2015-12.2015 we assessed the success of the implementation of inquiry-based learning in study. The research took the form of a full survey 6-9 SCIS classes.

METHODOLOGY

Methodology how to teach with support of sensor Pasco was defined by author of this paper. Similar methodology (process) how to work with sensor Pasco was prepared for students as well. We prepared similar methodology for work with microscopes too. Defined methodology is described in detail in (Svatkova, 2015). Respondents were grouped into groups based on their class. Each of those groups was introduced to the survey course and the methods that would be employed during it. At the beginning of the research all students included into survey were informed about each learning approach. The survey contains three parts. The first one was frontal learning, the second one was inquiry-based learning using microscopes, and the third one was inquiry-based learning using Pasco probes.

At the beginning of the entire project, students were informed about each of the individual teaching methods and their basic characteristics and differences. Individual lessons took place in the following order:

- Inquiry-based teaching supported with microscopes;
- Inquiry-based teaching supported with Pasco tools;
- Frontal teaching.

The learning was assessed in two ways:

- Enjoy, doesn't enjoy, not interested, where the students only mark whether they enjoy the learning regardless of the comprehensibility of the supplied information and its easiness to remember,
- With a mark 1, 2 and 3, where the students assess whether the transmitted knowledge is understandable and easy to remember.

At the end of each learning methods was verified acquired level of knowledge. This was processed by way of standard test. Each test have 4 question and student can gain between 0 and 4 points.

The research was realized among all students of sixth, seventh, eighth and ninth grade at Sunny Canadian International School. The Czech Republic passed Act No. 101/2000, on the protection of personal data. Therefore, we made all processed data anonymous at multiple levels. We made all information anonymous that could lead to the identification of a specific student.

GENERAL DATA CHARACTERISTICS

The data file with research answers currently includes 207 answers from 85 students of the second level of SCIS that we have been collecting in 2015. The second level represents 6-9 classes. Three monitored lessons were given in each class. The first two lessons were based on inquiry-based learning, which is preferred today in teaching of science and technical subjects. The first lesson was based on working with microscopes and the

second one was based on working with tool Pasco. The last lesson was based on traditional frontal learning. After the lessons students completed an evaluation questionnaire and a control test on defined topic.

Other part of our research was student's evaluation of lectures leaded different styles and with different technics (sensors Pasco and microscopes). Important information in term of data collection was gender and grade. Other important information was answer if the students is satisfied with teaching method and comparison with other teaching methods.

RESULTS AND DISCUSSION

GENERAL OVERVIEW

We received 207 answers from 85 students during our survey among classes from six-graders through nine-graders of SCIS. Classification of students included into survey by grade and gender is provided in the [Table 1]. The highest number of students is in the 8th and 9th grade where SCIS has just one class.

Table 1: Number of Students at SCIS (source: authors)

Grade	6A	6B	7A	7B	8A	9A	Sum
Boys	7	10	0	7	7	10	41
Girls	5	5	9	6	10	9	44
Total Number of Students	12	15	9	13	17	19	85

The number of answers is displayed in the [Table 2]. The 7A class does not contain any answered from boys because there are actually no boys in this class. Three surveys were conducted in 4 classes. Only classes 7A and 7B were conducted only two surveys (microscope-supported teaching and frontal teaching). The average return rate was 81.18%.

Table 2: Number of Answers form Students at SCIS (source: authors)

Grade	6A	6B	7A	7B	8A	9A	Sum
Answers - Boys	21	29	0	13	21	25	109
Answers - Girls	15	15	14	10	29	15	98
Total Number of Answers	36	44	14	23	50	40	207
Rate of return of questionnaires	100%	100%	52%	59%	100%	70%	81.18%

DATA ANALYSIS

The first part of our analysis focuses on analysis of preferred teaching method. Table 2 identifies the popularity of individual teaching methods among students included into survey. Student were informed about individual teaching styles (frontal teaching and inquiry-based teaching). The preferences of students were always evaluated after a specific lesson. Lessons took place in the following order:

- Inquiry-based teaching supported with microscopes;
- Inquiry-based teaching supported with Pasco tools;
- Frontal teaching.

The first column in table three – Thmikro (teaching hour with support of microscopes) provides information about preferences of each of teaching styles among students. Based on the information at the beginning of the project, the most preferred style was inquiry-based teaching supported with microscopes.

Table 3: Preference of the methods used in lessons in % (source: authors)

n=192	Boys + Girls (all classes)		
	THmikro	THpasco	THfront
Mikro	77.08%	79.55%	71.43%
Pasco	10.42%	13.64%	4.76%
Front	12.50%	6.82%	23.81%
Total	100.00%	100.00%	100.00%

Legend: **Front** – frontal teaching, **Mikro** – microscope, **Pasco** – Pasco sensors, **THmikro** – Teaching hour with support of microscopes, **THpasco** – Teaching hour with support of pasco, **THfront** – Teaching hour based on frontal teaching

[Table 3] shows that students preferred inquiry-based teaching supported with microscopes. This was expected result. We found really interesting that frontal teaching was on the second place. The second lesson was taught using inquiry-based teaching supported with Pasco sensors. After the lesson we founded out that students prefer inquiry-based teaching supported with microscopes and then inquiry-based teaching supported with Pasco tools and the last one was traditional frontal teaching. The most interesting results are mentioned in the third column - THfront. The popularity of inquiry-based teaching supported with microscopes dropped for 8% and popularity of Pasco dropped for 9%. As we see, after all lessons the importance of traditional frontal teaching increased and almost 24% of students prefer this type of teaching.

[Table 3] rejects RQ1. We see, that student prefer Inquiry based teaching with support of microscopes. A detailed analysis by grades is provided in the following [Table 4].

Table 4: Preference of the methods used in lessons in % by Class (source: authors)

6A	THmikro	THpasco	THfront	6B	THmikro	THpasco	THfront
Mikro	83.33%	91.67%	71.43%	Mikro	71.43%	80.00%	71.43%
Pasco	16.67%	0.00%	7.14%	Pasco	0.00%	6.67%	7.14%
Front	0.00%	8.33%	21.43%	Front	28.57%	13.33%	21.43%
7A	THmikro	THpasco	THfront	7B	THmikro	THpasco	THfront
Mikro	77.78%	0.00%	85.71%	Mikro	70.00%	0.00%	90.91%
Pasco	0.00%	0.00%	0.00%	Pasco	0.00%	0.00%	0.00%
Front	22.22%	0.00%	14.29%	Front	30.00%	0.00%	9.09%
8A	THmikro	THpasco	THfront	9A	THmikro	THpasco	THfront
Mikro	70.00%	50.00%	52.94%	Mikro	83.33%	63.64%	66.67%
Pasco	10.00%	14.29%	5.88%	Pasco	16.67%	36.36%	13.33%
Front	20.00%	35.71%	41.18%	Front	0.00%	0.00%	20.00%

Results showed in [Table 4] are really interesting. Students in 6th classes prefer teaching with support of microscopes nevertheless in case of 6A there is a preference of Pasco sensors before Teaching hour with support of microscopes and in case of 6B is preference set to Frontal teaching. Interesting is situation in 7th classes. This is just one place where preferences of Frontal teaching are degreasing.

RQ2 is confirmed by [Table 4].

Next [Table 5], shows results achieved by students in control tests. Those tests were taken after each lesson. The values 1, 2, 3 and 4 shows amount of points obtained by students obtained in these tests. If student obtains 4 points from the test, he has grade 1 (equivalent to A in the English education system).

Table 5: Amount of points from Control Tests (source: authors)

	Boys+Girls		
X	Nr of Tests	Average	Median
Mikro	73	2.48	2,5
Pasco	65	3.09	3.0
Front	78	3.71	4.0
Total	216		

Note: total number of test 216 is caused by the fact, that numbers of students is changing from hour to hour (sickness rate, absence etc.) and above mentioned questionnaire were based on voluntary basis, however control tests were obligatory.

[Table 5] clearly shows that the best results were achieved by students in the tests followed frontal teaching. The average value of points from test was 3.71 and median value 4.0 (the highest possible value). The worst result was in case of inquiry-based teaching with support of microscopes. In this case the average value of points from the control test was 2.48 and median 2.5. This result is very interesting for us because all the time students evaluated this type of lecture as entertaining. So, we were expecting better results of control tests. We were wondering about the reason, one of the possibilities is that student didn't really contend this education style as a proper part of education during lectures.

The [Table 5] rejects RQ3. We see that results are better in case of traditional frontal teaching although preferred is inquiry-based teaching with support of microscopes.

Detailed results by class are mentioned in the following [Table 6].

Table 6: Grades of individual tests by Classes (source: authors)

6A	Nr Tests	AVG	MED	6B	Nr Tests	AVG	MED
Mikro	12	2.75	3.00	Mikro	15	2.47	3.00
Pasco	11	2.84	3.00	Pasco	15	3.46	4.00
Front	13	3.85	4.00	Front	15	3.87	4.00
7A	Nr Tests	AVG	MED	7B	Nr Tests	AVG	MED
Mikro	7	2.57	2.50	Mikro	12	2.50	2.50
Pasco	N/A	N/A	N/A	Pasco	N/A	N/A	N/A
Front	7	3.71	4.00	Front	11	3.82	4.00
8A	Nr Tests	AVG	MED	9A	Nr Tests	AVG	MED
Mikro	15	2.63	2.50	Mikro	12	1.96	1.75
Pasco	26	2.31	3.00	Pasco	13	2.85	3.00
Front	17	3.41	3.00	Front	15	3.67	4.00

[Table 6] shows the results of individual tests according to the classes. The results are surprising because most students, in all classes, had excellent results in the tests taken after frontal teaching although preferred way of teaching was inquiry-based teaching with support of microscopes. The best results are achieved in case of frontal teaching in all classes. In general, the worst results were achieved in case of inquiry-based teaching with support of microscopes. Based on this fact, we can reject RQ4.

CONCLUSION

Based on our research, RQ1 and RQ3 are rejected and RQ2 and RQ4 are accepted/confirmed.

We found out that students prefer lessons where they can play with some equipment nevertheless they don't remember all important fact which are tested by followed control tests. Students preferred working with microscopes and often asked about their further application, yet did not use their knowledge in the test better than in the test taken after working with Pasco sensors.

We think that it is because of most students is taking care for tools and playing with them but they don't try to remember fact found-out by this tools.

Although our tests show, that students achieved the best results in frontal teaching, we recommend to continue using of inquiry-based teaching as a part of lessons. Although control test showed that results are not the best one in case of inquiry-based teaching it should be full-fledged part of teaching, because this type of teaching improve cooperation among students, it improves their manual abilities, communication abilities etc. We understand that it is difficult for students to work with information obtained in a way that is very different from what they are used to. This is why we would like to include inquiry-based teaching in our lessons to such an

extent so that students could practice the application of knowledge acquired in a way that is different from what they have been used to so far.

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Teaching Science in The Laboratory: A Study on Portuguese School Science Teachers' Perspectives

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ABSTRACT

Laboratory activities may serve diverse educational purposes and be used in different ways. The educational advantages taken from laboratory activities depend strongly on the ways they are performed. Teachers' conceptions on the best ways to carry out laboratory activities may influence the potential taken from them. This paper aims at finding out how teachers' representations of practices regarding laboratory activities compare to their perspectives on a possible ideal form of implementing them. Data were collected through an online questionnaire from 159 teachers belonging to schools all over the country. Almost all participants stated that they were used to include laboratory activities in their classes. Besides, most teachers stated that the way they would implement laboratory activities would not change if there was no constraints to putting laboratory activities into practice. Thus, most teachers do not feel the need to change their practices regarding laboratory activities. In addition, teachers that would do things differently did not express theoretically grounded reasons to do so. Hence, research results suggest that pre-service and in-service teacher education must deal with the pros and cons of the diverse ways of using laboratory activities as well as with an analysis of possible strategies to overcome the main constraints faced by teachers in Portuguese schools.

CONTEXT OF THE RESEARCH

Laboratory activities are a teaching resource that has concentrated educationalists' attention for a long time (Abrahams, 2011) even though for reasons that depend on the interest of the moment or on the prevailing conceptions about what teaching science is. In fact, in the late nineteenth century, laboratory activities were used to argue for the inclusion of science in the curriculum. By the turn to the twentieth century, Armstrong saw them as a way to give students' the opportunity to acquire first-hand knowledge. By mid-twentieth century, they were conceptualized as a way to promote the development of science process skills. By the last decades of the twentieth century, they laboratory activities were seen as a tool to help students to reconstruct their previous ideas. More recently, it has been argued that they should be used to foster the integration of conceptual and empirical knowledge (Abrahams, 2011), based on an interplay between theory (or ideas) and evidence (or observables) supported by empirically based argumentation (Gott & Duggan, 2007). Besides, it is acknowledged that they should be used in such a way as to help students to bridge the gap between school science and contemporary issues (Gott & Duggan, 2007; Llorens-Molina, 2010).

Despite the long history of laboratory activities as an educational tool and the large amount of publications, including several books (Woolnough & Allsop, 1985; Woolnough, 1991; Wellington, 1998; Leach & Paulsen, 1999; Psillos & Niederer, 2002; Abrahams, 2011) focusing on them, a lack of consensus still emerges in different domains of the laboratory activities issue, starting with the terminology used to address them. In fact, as it was discussed in a previous paper (Leite & Dourado, 2013), several different words (e.g., practical work, laboratory

work, experimental work, investigations), that have different meanings, have been used to address laboratory activities in an undifferentiated way. This type of terminological issue is common when several researchers or research groups work simultaneously on the same issue, from different epistemological backgrounds. It happened, for instance, in the alternative conception research area (see Abimbola, 1988). Even though it does not necessarily suggest a lack of conceptual rigor from the researchers side, it may have negative implications for students learning, as it may impair readers' awareness of the educational powers and limitations of each set of activities that should, in rigor, be associated with each of the different terms. This is why terminology clarification is a necessary requirement for an appropriate use of this valuable educational resource.

Within an educational context, laboratory activities can be defined as tools that enable indoor reproduction or simulation of natural facts and phenomena (or part of them) through conventional laboratory equipment and/or reusable everyday materials (Hodson, 1994; Abrahams, 2011; Leite & Dourado, 2013) that students and/or the teachers handle to produce data. Hence, laboratory activities are practical activities but it should be stressed that not all practical activities are laboratory activities. For instance, paper and pencil or computer modelling problem-solving activities are practical activities but they are not laboratory activities.

The ultimate goal of using laboratory activities in science teaching is not only to help students to learn how to interpret and explain facts and phenomena (Abrahams, 2011) but also to do it as scientists do (Ogborn et al, 1996). However, a set of intermediate and diverse objectives can be achieved through laboratory activities (Hodson, 1994), including conceptual, procedural, metacognitive and affective objectives. It should not be expected that a single laboratory activity would be able to lead to the fulfilment of such a variety of types of objectives. Rather to achieve such a demanding goal several laboratory activities, with different focus, should be performed. Thus, to enable the attainment of all of those objectives, a set of differentiated laboratory activities, each of them structured according to the requirements of the main type of objective to be achieved through it, should be performed (BERG, 2014; Leite & Dourado, 2013). As it has been argued before (Leite & Dourado, 2013), for instance: if attaining the main objective requires control and manipulation of variables to be done then an experimental laboratory activity may be required; if attaining the main objective involves problem-solving, then worksheet free laboratory investigation may be needed.

However, research suggests that teachers may have got used to the idea that laboratory activities are non-dissociable from science teaching, look at them as a single entity and often lack an appropriate methodological background on the best ways to using them. A consequence of this is that "Students' experience of practical work as implemented could lead to a surface approach to learning rather than deeper learning for understanding." (Sani, 2013, p. 1016). The point is that research suggests that the nature of the activities promoted by the syllabuses depend on the syllabuses' authors (Ferreira & Morais, 2014; Šorgo & Špernjak, 2012) and that textbooks (Park & Lavonen, 2013) and teachers' practices (Abrahams & Reiss, 2012; Sani, 2013) are pervaded by receipt-like laboratory activities that lead straight to the right answer. The popularity of worksheet-based laboratory activities leading to the right answer may lie on the fact that those activities are perceived as being less risky for teachers, that feel afraid of failing in the laboratory classes (Cossa & Uamusse, 2015), and for students who want to get credits for what they have done (Carlo, Mazzaro & Page, 2006). Nevertheless, research suggests that even though teachers resist to new ways of doing laboratory activities, with appropriate training, they gradually overcome their resistance and reluctance and develop willingness and motivation to practice them differently in everyday science classrooms (Kim & Chin, 2011).

Another issue that is worth raising is that laboratory activities may integrate the teaching and learning sequence in different ways (Leite & Dourado, 2013). In fact, the laboratory activities can be inserted at the beginning, the middle or the end of the teaching sequence, depending on whether it is aimed to be a starting point for conceptual learning, whether it is to facilitate conceptual knowledge reconstruction or procedural and conceptual knowledge integration or whether it is to reinforce previous conceptual learning, respectively.

Laboratory activities can have different levels of openness. The level of openness relates directly to the cognitive demands imposed to students (Tamir, 1991), so that the higher the level of openness of the activity, the higher the level of students' demands. Consequently, the higher the level of openness, the deeper the learning that

should be expected to take place. However, there is some empirical evidence that teachers' activities are low demanding (Ferreira & Morais, 2015) for students, which according to BERG – Biology Education Research Group (2014), may be due to teachers' intentions for using them. Their attention is often focused on the hands on part of laboratory activities, based on the argument that students need to perform the laboratory procedure to learn better. However, even though hands-on are important to develop handling capabilities as well as a few technical skills (BERG, 2014; Woolnough & Alsop, 1985), developing those types of skills is hardly relevant unless they are integrated with cognitive reasoning issues (Abrahams & Reiss, 2012). Handling is far less important for meaningful learning than thinking is. As BERG (2014) emphasizes, "practical work isn't just 'doing', it also involves 'thinking about doing'." (p.178). Thus, if conceptual learning is to take place, then it is far more important that students' are cognitively engaged into the activity (have minds-on) than that they handle equipment or materials (have hands-on), without being aware of what they are doing or of what it is relevant for. For this process to be successful, it can be argued that students should also have their hearts-on (Leite & Dourado, 2013), as positive affective involvement would facilitate cognitive engagement. Unfortunately, research suggests that teachers' naïve beliefs about laboratory activities are reflected into their practices (Kang & Wallace, 2005) leading them to often use laboratory activities unthinkably (Toplis, 2012) and to fail to explicitly promote the link between the laboratory activity and the related theory (Chopra, 2017). In addition, research focusing on teachers' practices and representations of practices suggests that teachers' practices regarding laboratory activities are teacher centred and aiming at confirming, empirically, previously taught concepts (Abrahams, 2011; Leite & Dourado, 2007; Ramalho, 2007). This may explain why students' motivation towards laboratory activities decreases along the school path (Abrahams, 2009) and why some of them expect the laboratory to be the place to learn practical skills as well as to illustrate theory taught in lectures (Hanif et al, 2009).

As assessment practices determine what is important to learn (Abrahams & Saglam, 2010; Carlo, Mazzaro & Page, 2006), students' assessment procedures need to be consistent with the aims settled for laboratory activities (Hodson, 1992) as well as with what is in fact valued (Abrahams, Reiss & Sharpe, 2013). As it was argued elsewhere (Hofstein & Lunetta, 2004; Leite, 2005), there is a variety of learning issues that can be assessed when laboratory activities are at stake. This variety is as larger as higher is the level of openness, being investigations the type of activity that offers a larger variety of learning issues to be assessed (Leite, 2005). Besides, there is a variety of assessment tools that can be used (Doran et al, 2002) to assess students' learning from laboratory activities. The traditional laboratory reports are only one of them. They can be useful when open activities are used, as they assume a shape and role similar to the one of a scientific research paper in which all the decisions, procedures, data and conclusions are registered. However, they can be a waste of time when well-structured worksheet-based activities are under question, as to prepare the laboratory report students would need to transcribe (copy) the information and instructions given in the worksheet and to add the right answer only. On one hand, making copies is not what some researchers (e.g., Ellis, Taylor & Drury, 2007) talk about when they argue for writing for learning science. On the other hand, "the majority of students find one way or another to come up with the "right answer". While most of them rely on perseverance to achieve their goal (i.e., redoing or fixing the procedure), many take the alternative route of copying or manipulating data." (Carlo, Mazzaro & Page, 2006, p.1366).

Therefore, more authentic assessment techniques need to be adopted (Hodson, 1992; Gott & Duggan, 2007), especially for summative purposes as it seems that the nature of summative assessment influences school practices with regard to using the laboratory with direct practical assessment favouring laboratory activities (Abrahams, Reiss & Sharpe, 2013). Of course, this may be a challenge for educational managers, as direct assessment in the laboratory is costly. It can also be demanding for teachers, as they themselves may feel the need of training, so that they can find the best assessment practices and to design activities that match their teaching context and their class conditions (Yip & Cheung, 2005) and that are more transparent to students (Ottander & Grelsson, 2006).

Teachers' conceptions are one of the key factors that may influence their teaching practices (Kang & Wallace, 2005) namely in what concerns the use of laboratory activities. Besides, teachers' work conditions may also condition their practices. In fact, teachers often complain about the conditions they have to include laboratory

activities into their teaching practice. They mention laboratory unavailability, inexistence of a laboratory technician, shortage of equipment or reactants, lack of time, and even student's lack of interest on them. The worst part is that instead of finding valuable ways to overcome challenges to laboratory classes' impairments, some teachers opt for the easiest alternative – do not put them into practice.

In summary, teachers' conceptions on the best ways to carry out laboratory activities may influence teachers' practices as well as the potential they take from laboratory activities. Their practices are often inconsistent with what specialists argue for and they mention several factors that impair them from using laboratory activities or from using laboratory activities, as they should be. However, as far as it is known, there is no research on how schoolteachers would like to use laboratory activities if there was no constrain.

RESEARCH QUESTION

A few research studies on teachers' practices or representations of practices are already available. However, as teachers' practices are often limited by factors that they see as constrains to the way they can teach, this study aims at answering the following question: how do Portuguese Natural Sciences teachers' representations of practices regarding laboratory activities compare to a possible ideal form of implementing them?

RESEARCH METHODOLOGY

To attain the objective of the study, a questionnaire focusing on what teachers do and on what they would like to do (if there was no constrain) with regard to using laboratory activities in their junior high school natural sciences classes was designed. The questionnaire was inserted into Google Docs so that it could be answered online. In the first page there was an explanation about the overall aim of the study, as well as about the anonymous nature of the questionnaire and participants could decide on whether they were willing to proceed or not.

The target population was Natural Sciences (a school subject that encompasses biology and geology themes) teachers that were teaching in Portuguese public junior high secondary schools (grades 7 to 9) during the academic year of 2014/15. Due to the large dimension of the population, a sample was drawn. To do so, it was taken into account that data would be collected through an online questionnaire meaning that a large percentage of invited teachers could not reply. Besides, as the contacts of individual teachers were not available, it was decided to contact them through the school Director. Afterwards, it was decided to contact the Director (using the school e-mail address) of all the junior high schools included in the ministry of education official schools database and to ask to him/her to collaborate in the study. Those that accepted were asked to ask four Natural Sciences teachers, with at least three years of teaching experience, to answer to the questionnaire. The objective of this requirement was to ensure that the research participant teachers had a minimum teaching experience at this school level and therefore had a quite good overview of the syllabuses as well as about the possibilities and the constrains associated with putting them into practice with regard to laboratory activities.

The school Director should make the questionnaire web link available to teachers selected and willing to participate in the study so that they could fill it in. According to McMillan and Schumacher (2010), it should be noted that filling in an online questionnaire is a volunteer action that can be accepted as good alternative to informed consent statement signature.

The effective participants in the study are 159 teachers. Due to the anonymous character of the questionnaire, the number of schools they come from is not known. An analysis of data given in table 1 shows that all teachers have more than five years of teaching experience, that is two years more than the minimum required. Besides, it shows that the least experienced group is very small. This is consistent with the fact that, in the recent years, the admission of new teachers has been very rare, due to demographic reasons. A consequence of this is that all but one teacher are over thirty years old. Besides, table 1 shows that the number of male teachers is very small when compared with the number of their female counterparts. The prevalence of female teachers is consistent with what happens in school in several countries (Kelleher, 2011) as well as with what was found in other studies (e.g., Dourado, 2001; Nunes, 2011). As far as teachers' academic background is concerned, all of them have graduated as teachers through a *Licenciatura* (the required 5 years qualification before the Bologna process) and

about 27% (43 out of 159) have taken further post-graduation studies. This means that all of them are fully qualified to be teachers and that some of them even have additional qualifications.

Table 1: Characteristics of the sample (%)
(N=159)

Variable	Categories	f	%
Gender	Female	140	88,1
	Male	19	11,9
Age (years)	Less than 30	1	0,7
	30 to 40	49	30,8
	41 to 50	81	50,9
	More than 50	28	17,6
Professional Experience (years)	5 to 10	4	2,5
	11 to 20	87	54,7
	21 to 30	57	35,9
	More than 30	11	6,9
Higher academic degree	<i>Licenciatura</i>	116	72,9
	Specialization	10	6,3
	Master	32	20,1
	PhD	1	0,7

RESEARCH RESULTS

Table 2 shows that all but one percent of the teachers stated that laboratory activities have been performed in their classes over the last three years. However, teachers are almost divided between a mean of less than and more than six activities a year in each of the classes they taught.

Table 2: Teachers' mean use of laboratory activities over the previous 3 years
(N=159)

Use of laboratory activities		Percentage
Do not use		1
Use	1 to 3 times a year	14
	4 to 6 times a year	37
	More than 6 times a year	48

Comparing these frequencies with data obtained in other studies it can be stated that these data are similar to those obtained for Physics and Chemistry, for example (see Leite & Dourado, 2007). Besides, by comparing them with the syllabuses laboratory requirements, it can be argued that whatever the grade level, the syllabus requires more than six activities to be done. Therefore, performing less than six activities a year in each class is not too much.

About a quarter of the 157 teachers that stated that they use laboratory activities in their classes mentioned that they were fully satisfied with the way they use them (table 3). The other three quarters were not fully satisfied with the way laboratory activities are carried out, being 2% fairly satisfied and 27% moderately satisfied only. Teachers that stated that they were fully satisfied put forwards arguments that are related to the objectives that can be attained through laboratory activities. They argued that laboratory activities:

- i) promote students' conceptual learning
"Students internalize concepts much more easily" (P8)
- ii) promote students' procedural learning
"They improve students' laboratory material handling skills and develop their data analysis competences" (P43)
- iii) increase students' motivation to learn
"Students show enthusiasm every time a laboratory activity is performed." (P13)
- iv) develop students' critical thinking
"They foster students' critical thinking." (P158)

Table 3: Teachers' level of satisfaction with the laboratory activities used in their classes

(N=157)

Level of satisfaction	Percentage
Fully satisfied	26
Quite satisfied	45
Moderately satisfied	27
Fairly satisfied	2
Unsatisfied	0

Most teachers that were quite satisfied put forwards positive and/or negative arguments. The positive arguments compare to those used by the fully satisfied teachers. The negative arguments compare to reasons reported in the literature for teachers to not use laboratory activities. They are as follows:

- i) students do not engage into the activities
"Students do not look at these classes seriously." (P29)
- ii) good laboratory conditions are not available
"There is not a real well equipped laboratory in our school." (P31)
- iii) the class time is too short
"I am not fully satisfied because for some activities, the duration of the class (45 min) is insufficient." (P39)
- iv) the syllabus is too long
"The only reason for my [moderate] satisfaction is the great length of the syllabus." (P71)
- v) the class is too large
"There are too many students in a class." (P128)

Moderately satisfied teachers mentioned negative aspects mainly. Those aspects compare to the ones previously presented. Finally, teachers that were fairly satisfied mentioned negative reasons only. Their reasons compare to reasons found in other studies for not performing laboratory activities, namely:

- i) lack of laboratory
"I cannot perform more laboratory activities because there is no sciences laboratory in my school." (P1)
- ii) shortage of laboratory material
"There is shortage of laboratory material in schools." (P11)
- iii) insufficient discipline workload
"The number of hours per week is very low." (P41)
- iv) shortage of training
"I have inappropriate training to perform laboratory activities consistent with the syllabus." (P41)

An analysis of the reasons above suggests that most teachers would like to have better conditions to use laboratory activities differently. However, comparing the way teachers state that they use laboratory activities with their perspectives on the ideal ways of using them it can be noted that, in each case, teachers mention a variety of ways with quite similar percentages (table 4). It can also be noted that there is a slight reduction on the percentages of teachers in the categories involving the option *after* teaching the content and a *slight* increase on the percentages of teachers in the categories involving the *before* option. This means that most teachers that stated that they use laboratory activities after teaching the content are happy with that approach and would not perform them differently if they had no constrains to their teaching practices relative to laboratory activities. However, a few teachers that use them *after* teaching the content would like to in traduce them *before* teaching it. They are used to introduce the content before the activity because, as P59 stated, they feel that "introducing the theoretical content before the activity helps the majority of the students to understand better the objectives of the activity and to consolidate conceptual learning". However, they would like to start with the activity because, as the same teacher stated, "to suggest problems to be solved through laboratory activities fosters inquiry, requires several types of knowledge to the used and stimulates students' autonomy".

Table 4: Teachers' use of laboratory activities and their perspectives on the ideal way of using them (%)
(N=157)

Laboratory activities <i>versus</i> concept teaching	Real use	Ideal use
Before	1	11
During	34	29
After	14	6
Before or during or after	27	29
Before or during	7	11
Before or after	4	8
During or after	13	6

Besides, the percentage of teachers that use and would like to perform the laboratory procedure either before, or during or after teaching the content remains almost unchangeable (table 4). For these teachers, the decision “depends on the content to be taught and on the activity itself” (P67). This may mean that teachers that believe that laboratory activities can be performed at any moment of the teaching and learning sequence do it because they believe it is the best for their students and that they can overcome the constraints they face in their daily life practice. In fact, laboratory activities should be performed at different stages of the teaching and learning sequence, depending on the main objective to be achieved (Leite & Dourado, 2013). However, a few teachers that are used to introduce laboratory activities at any moment of the teaching and learning sequence would like to introduce them before theory, because, as P9 stated, it would “enable students to interiorize concepts more easily”. In addition, a few teachers that are used to introduce laboratory activities during theory presentation, they would like to use them before theory because, as P31 stated, “It enables the teacher to guide the students towards the formulation of questions that would be answered, with increased motivation, during the presentation of the content”. Hence, a few teachers, with different practices, seems to believe that students would benefit if laboratory activities were introduced before the content.

Table 5 shows that there is not too much difference between the tasks that teachers stated that are carried out before the implementation of the laboratory procedure and the tasks that would be performed in the ideal situation of having no constraints. However, there is a slight reduction in the percentages of teachers that stated that the teacher “Teaches contents related to the laboratory activity”, “Does scientific and pedagogic preparation for the laboratory activity”, and “Selects laboratory materials and Provide information on safety and handling rules”. In fact, as P11 mentioned, some teachers are used to “Start by introducing theory so that students can understand what they are going to do and what they should conclude from the laboratory activities”. It is worth noting that this is what a few of them would like to do under ideal conditions: “Introduce the theory related to the issues to be studied in the lab, so that students can have the theoretical foundations underlying the activity to be carried out.” (P11). However, a few other teachers would like to do it differently, as P18 stated: “Would not introduce the content before the activity; students would be asked to reach conclusions and to discover by themselves. It would be much more interesting even though most students are not used to work on this way” (P18).

Also, there is a reduction in the percentage of teachers that would ask students to “Read and analyse the laboratory worksheet” (table 5). On the contrary, there is a slight increase in the percentages of teachers that stated that they would like to give students the chance to “Design the laboratory worksheet”, “Do bibliographic search” and “Carry out predictions”. This may mean that only a reduced number of teachers would like to give more autonomy to students or to conduct more students' centred activities. P1, which gives students the opportunity to become familiar with the laboratory worksheet in advance in order “[...] to develop the activity without wasting time”, may illustrate this group of teacher. In fact, this teacher stated: “Ask students to design the worksheet. I think that it would be educationally more valuable and the classes would not be receipt-based”. This argument may mean that P1 that trusts students' abilities to learn in a student centred environments.

Additionally, it should be noted that the percentage of teachers that did not answer increased in 19% (from 8% to 27%) from the actual practices to the ideal situation. This means that more than a quarter of the participants may not be aware of what they would like to do before the implementation of the laboratory activities. This is a very intriguing result, as experienced teachers should have an idea about the way they would like to use a key

educational resource like laboratory activities.

Table 5: Tasks carried out before starting the implementation of the laboratory procedure (%)
(N=157)

Responsible person	Action	Real way	Ideal way
Teacher	Teaches contents related to the laboratory activity	31	27
	Does scientific and pedagogic preparation for the laboratory activity	13	10
	Selects laboratory materials	20	16
	Provides information on safety and handling rules	24	19
	Provides information on learning assessment criteria	9	8
	Prepares for teamwork	12	11
	Does a prior trial of the laboratory experiment	3	3
	Asks questions on the activity to be carried out	8	8
Students	Read and analyse the laboratory worksheet	29	24
	Design the laboratory worksheet	4	10
	Do bibliographic search	3	6
	Carry out predictions	1	3
	Practice the handling of laboratory materials and equipment	2	1
	Solve exercises	6	4
Do not answer		8	27

Comparing what teachers stated that is done during the implementation of the laboratory procedure with what would be done (table 6), it can be noted that, in the majority of the laboratory activities, there would be about 20% less teachers guiding students and also about 20% less explaining to students, if there was no constrain to their implementation. This means that during the laboratory procedure, teachers would like to give more responsibility to students: “Would give a more central role to students.” (P3). Consistently, more teachers would like to have students performing the laboratory procedures in small groups or individually (table 6). However, there is no evidence that teachers would ask students to engage more strongly into the activity, as they did not mention that they would ask students to carry out conceptual/cognitive tasks.

Table 6: Tasks carried out during the implementation of the laboratory procedure (%)
(N=157)

Responsible person	Action	Real way		Ideal way	
		None/few	Majority/All	None/few	Majority/All
Teacher	Guides students	18	82	36	64
	Explains issues to students	27	73	45	55
	Asks questions to students	11	89	13	87
	Observes students working	11	89	8	92
Students	Observe teacher's laboratory procedure performance	98	2	99	1
	Help teacher to perform laboratory procedure	89	11	92	8
	Carry out laboratory procedure in small groups	32	68	23	77
	Carry out laboratory procedure individually	94	6	80	20

Besides, some teachers are not confident on students' motivation to engage into learning from laboratory activities. This statement can be illustrated by teachers like P40 that was used to guide students in all the activities because he/she believes that “only with guidance students succeed on performing the activities and getting aware

of the interactions between the activity and the relevant theory”. This teacher would reduce the number of activities in which guidance is provided but only “In an utopian situation in which students are engaged and interested in learning and in which schools have good laboratory conditions”. Also, P157 stated that he/she explains and would explain content issues to the students in all activities because “students are very immature, have no rules, and have their interests focused on other places than the school. Therefore, they need explanations to recall previously acquired knowledge.”. Underlying these teachers’ answers is the perception that students are not motivated (even) to perform laboratory activities which is in disagreement with teachers who state that students enjoy all laboratory activities.

Finally, it should be mentioned that teachers whose students perform (only) the majority of the activities individually would like to have their students performing all the activities individually. To illustrate this, we take P69 o stated that: “as someone said ‘learning by doing’ leads to a deeper understanding of the phenomena”. This statement seems to be strongly influenced by a hands-on conception of using the laboratory for teaching science, which can be negative in terms of students learning achievements, as it was discussed above.

Table 7 shows that, after the laboratory procedure, a few teachers would do things differently, if there was no constraints. In fact, the percentage of teachers that, for the majority of the laboratory activities, would “Remind students about laboratory activity related contents” as well as the percentage of teachers that would ask students to “Discuss on the laboratory activities” previously carried out increased slightly. Besides, the percentage of teachers that stated that they would teach new contents increased 11%. However, this may mean that teachers would like to teach either the new content related to the procedure previously performed or another new content not related to the previous activity. Their answers are not too clear about that, as shown by P20’s answer: “Laboratory activities may be a starting point for approaching new issues.”.

Table 7: Tasks carried out after the implementation of the laboratory procedure (%)

(N=157)

Responsible person	Action	Real way		Ideal way	
		None/few	Majority/All	None/few	Majority/All
Teacher	Reminds students about the activity related content	27	73	22	78
	Teaches new contents	76	24	65	35
Students	Prepare the laboratory report	40	60	25	75
	Discuss on the laboratory activities	11	89	8	92
	Solve problems	61	39	36	64
	Plan new laboratory activities	94	6	61	39

Larger percentage increases were found in two tasks that teachers would ask students to do. One of them relates to laboratory report preparation (15% increase). Teachers stated that they use and would continue to use laboratory reports because “They promote the development of a bridge between theory and practice; laboratory reports (besides being assessment instruments) they lead students to systematize their learning achievements” (P19) or “The elaboration of a laboratory report is an assessment and a consolidation tool.” (P158). These teacher’s answers reveal a deficit of knowledge laboratory learning assessment techniques and/or of critical thinking on laboratory reports potential and limitations. As argued above, laboratory report is a traditional laboratory assessment tool whose educational usefulness depends on the type of the activity that is at stake. It can be useful for investigation like activities (not based on a worksheet) but may be a waste of time for receipt like activities as their laboratory worksheets give all the information to students.

The action whose percentages are different has to do with asking students to solve problems (25% increase). Solving problems in the basis of a laboratory activity to be performed or related to the activity performed would be good for students to develop problem-solving competences or to perceive the usefulness of the newly acquired knowledge, respectively. With regard to this, teachers that ask and would like to ask students to do problem-solving, stated that they do it “so that students learn how to think scientifically; learn with experimentation” (P9) and because “a laboratory activity serves to lead to a conclusion, that is to solve a given problem.” (P112). These results raise some concern, as there is some empirical evidence that teachers often do

not differentiate the concepts of exercise and problem and also that problems are seldom used in the classrooms as well as in the textbooks.

Finally, the largest increase (33%) was noted for “Plan new laboratory activities” related to the majority or all activities performed. P54 that do not ask students to plan laboratory activities, stated that he/she would like to having them doing it for all the activities because “It is important and having the chance to plan new activities would be interesting for the students but it would require much more time for each activity.”. Similarly, P64, stated that “if the syllabus was not so long, it would be possible to ask students to plan new activities and to present problem to be solved through laboratory activities.”. This would be nice, as it would provide opportunities for students to develop procedural competences and to better integrate their knowledge. However, it seems hardly consistent with the reduced ambition shown by teachers in the previous phases.

CONCLUSIONS AND IMPLICATIONS

Almost all participants stated that they were used to include laboratory activities in their teaching practice, even though about half of them seem to use laboratory activities once in two months in each class. However, only about a quarter of the participants mentioned that they feel a moderate or lower level of satisfaction with the laboratory activities they put into practice. Besides, as far as the stage of the teaching and learning sequence in which laboratory activities are introduced is concerned, teachers stated a variety of possibilities that compare to the ones they would introduce them if they had no constraints to putting laboratory activities into practice. The only important difference has to do with the ‘before’ stage, as 10% more teachers would like to introduce laboratory activities at that stage than they were actually used to do. In addition, the percentages of teachers that do and would like to do things in a certain way before, during or after the implementation of the laboratory procedure are quite similar. Exceptions are that: i) a few less teachers would like to give guidance and explanation to students; ii) a few more teachers would like to have students performing the laboratory procedure individually, writing laboratory reports and solving problems after the laboratory procedure. These results suggest that teachers do not feel a strong need to change their practices regarding the introduction and implementation of laboratory activities. Besides, teachers that would do things differently did not express theoretically grounded reasons to do so. Some changes that they would like to do may not even be the best ones, as they would reinforce practices based on doing *for habit*, irrespective of the nature of the activity that is at stake. An example of this is the use of and belief in laboratory reports, which has powers and limitations, as discussed above.

Hence, pre-service and in-service teacher education must deal with the possible ways of using laboratory activities for teaching science in order to help them not only to overcome the temptation of continuing to use the frequent excuses reported in the literature (see Cossa & Uamasse, 2015) to not perform laboratory activities, but also to continue performing them as usual. Training should include a discussion on the potential and limitations of the diverse ways of using laboratory activities as well as on the best ways to carry them out in order to counteract what Kang & Wallace (2005) called teachers’ naïve epistemological beliefs about laboratory activities. Besides, it should help them to find ways of overcoming constraints faced in particular school contexts, for instance by doing laboratory activities (safely but) in places other than the conventional laboratory and or with non-conventional materials. Teachers and prospective teachers may need to perceive that motivation is important but that motivation in itself is not a learning outcome (Hanif et al, 2009). Nevertheless, it is possible to structure and use laboratory activities in such a way as to both increase students’ learning achievements and develop students’ positive attitudes (Tarhan & Sesen, 2010; Toplis, 2012).

Finally, curriculum developers and educational authorities need to find ways of fostering changes namely by fighting the *right answer syndrome* and promoting more realistic school laboratory practices that, as Ogborn et al (1996) would put it, may help teachers to lead their students to explain science as scientists do. As Abrahams, Reiss and Sharpe (2013) have emphasized, laboratory related learning assessment guidelines might need to change in order to foster teaching changes. Doing laboratory activities costs time and money. Therefore, they cannot be done just because ‘they are a part of science’ or because ‘science is a practical subject’. They need to be done because and when they have a meaningful role to play in the specific educational context each teacher is immersed at the moment, so that teachers can help their students to better master the scientific explanations of real facts and phenomena.

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Technology and Social Media: The Change in Family and School Communication

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ABSTRACT

If we could do an analysis on communication in the family environment in the past and nowadays, surely we would find positive and negative changes. Modernity is part of most families worldwide. The technology itself has transformed communication between parents and children and it has modified development of learning. Family and school environment have gained a new member. But are these changes positive or negative? To what extent can we control the use of technology? Keeping communication in the family and school environment is a challenge today.

Keywords: technology – education- family- psychology- modernity- communication- changings- learning- social media.

INTRODUCTION

Our world is moving toward full digital inclusion. The numbers of students who are using electronic tools in every aspect of their lives have rapidly increased. While for students to adapt to new technologies in the school environment is easy, many teachers face certain difficulties with innovations, especially in non-private schools. But which changes has these technologies made in communication between students and their families? And what has changed in learning? How do teachers deal with the challenge of teaching? How modernity modifies the communication environment?

Modernity appears solid because of the rapid centralization of institutional power (Weber, 1946). Technology is a power nowadays that controls our lives and changes the way we communicate. Social media and technology have affected the foundation of a family and of school's communication. Still about globalization, in "Modernity and the Holocaust" (Bauman, 1989: 13) says:

Modern civilization was not the Holocaust's sufficient condition; it was, however, most certainly its necessary condition. Without it, the Holocaust would be unthinkable. It was the rational world of modern civilization that made the Holocaust thinkable. The Nazi mass murder of the European Jewry was not only the technological achievement of an industrial society, but also the organizational achievement of a bureaucratic society.

As we know, there are positive and negative sides of modernity and technology. Although technology is an ally of education, it can also ruin its communication, as well as, in family environment. Students spend much time on their iPad, computers, video games, and cellphones and don't take their books to read. They always find an excuse to not do their homework instead.

Family Communication

Effective communication in the family can lead to better relationships between the members of the family. It must be built on a foundation of trust, listening and understanding. The more effectively your family can communicate together, it will keep you open to share thoughts and feelings, understand the expression out of your children and foster a safe home environment in which all members of your family can feel comfortable and secure in their relationships. Communication is unique within each culture and at the same time, there are universalistic and apply the same value standards to everyone. With the technology this effective communication has changed. Families don't use to spend time together, having dinner or having a simple chitchat. Parents are always busy with their jobs and they are always checking their phones, messages, e-mails and social media. The same is happening with children and teenagers. They don't miss having a conversation in family. It seems that this new technology life has become part of their routine. A routine where each other has your own world. According to Pahl and Spencer (2004), social shift has happened; from relationships that are primarily given to relationships that are chosen. The individualization has risen and family members are spending less time together, their routine has also

changed. As ‘‘the relationship between family and individual biography’’ (Scott, 1997), has loosened recently and the conception of the traditional family has been replaced with the notion of a household.

Outside of the home, communication is when you express your thoughts, feelings and opinions to someone else, while they listen and reciprocate. At home, communication takes on a much more personal level. When you communicate with your family, you can expect a listening ear that can gently or an honest opinion to direct you on the right path. Making sure that your family works on communication skills can keep your family tightly knit while being open and honest with each other.

When a teenager for example, doesn’t have a conversation at home their parents don’t use to listen to them, they will look for it on social media. This can be positive and negative at the same time. Sometimes teenagers use to listen better their virtual friends than their own parents. At this time the issue in family communication starts. That’s why is so important for parents to keep a clear and open conversation with their children. Children need to feel that they can count on their family.

Communication and Learning in Classroom

We are living in a society of constantly changing, where the knowledge is upgraded and the school has to create new strategies using these new technologies tools with the purpose of adapting the multidisciplinary education. The teachers have to innovate and motivate their students. For this to be possible, school have also to invest in new technologies offering better conditions for the teacher, who can be dynamic, innovator and instigator. On base on this, according to Moran (2004) ‘‘ What should a classroom have to have better educations conditions? First qualified teachers motivated and well paid with pedagogy graduation updated. As technology has been inserted in schools, the teachers should think about how to organize researches on internet, work in the labor room, bring to the students a new perceptions of learning. The new challenge for the teachers is to keep the students motivated and look for new knowledge. It is important to be updated to the new technologies and learn how to communicate with these ‘‘new’’ students.

Sometimes teachers download many videos but they don’t know how to work on it during the lesson. The interdisciplinary area is extremely important; to have positive results after the lesson, the teachers have to know critically methodologies to work with these videos in lesson. With simple questions, example: what is this video for? What is the subject? Why am I using these videos? What are my targets? When am I going to use? etc. With this reflection, teachers can have an idea how use technology in learning and how to create ways to achieve the communication with the students.

The teacher plays an important role in the development of student communication. It is at school that the student will learn how to express himself, to be critical and to be a good listener. Communication means nothing if we do not know how to listen. Teachers are extremely important for Education and for the teaching-learning process, since he is the agent responsible for student-mediation mediation. Among the various components that this mediation involves, there is the teacher-student relationship. In the classroom, the teacher communicates with his students. He receives diplomas to teach, teach content, but in many cases he is deficient in communication. Having entered the classroom, you should combine and harmonize the different students disciplinarily and thus lead them to learning. To do this, you must be skilled in communication. The difficulty in communication is not knowing whether to express well, let alone transmit information. This poor communication quality has become one of the main problems affecting classrooms. To make itself understood, although it seems very easy, it is necessary to know the exercise of language, to know how to transmit, which is different from expressing. Such is the art of communication. Dialogue with the student is advantageous; with an undisciplined, very risky class: the advantages and risks are inherent in communication. If, in order to maintain discipline, if you put yourself with authoritarianism, it is likely that nothing will be able to dialogue with the same purpose is more advantageous. Within the increasing focus on new literacy practices and digital media within classrooms today, there is not a question of why we should study digital media in contemporary society today, but how we should and can study its implications for the global technology communication, Chen &Zhang (2010 p.11). But how this communication in classroom has changed since social media and technology starting being integrated? In this study we are going to see the changings in learning and communication.

Social Media and Technology Has Changed the Communication

A powerful tool that contemporary society uses not only to entertain but also to communicate and educate. According to Chen & Zhang (2010), online learning spaces represent a different but equally important multicultural digital media environment. According to Lee (2005), Bauman (1998a: 84) considers consumers as people who ‘live from attraction to attraction, from temptation to temptation, from sniffing out one tidbit to searching for another, from swallowing one bait to fishing around for another’. As needs turn into desires and then into wishes, so the compulsion to consume runs into the dead-end of ‘never wilting excitement’. More and more people have bought news technologies every year. They have spent their money in new cellphone and notebooks generations to keep themselves connected to the virtual world, to communicate. However there is a debate about the positive or negative consequences in different aspects of our lives, more and more people are become part of this virtual community. One are of concern is the families that use Social Media or Technology all the time. Technology has grown up very fast and is difficult to observe the influence that these devices are having nowadays in which family interacts. Technology has affected foundation of a family

Technology and social media have changed family and school’s communication with students and also the advantages and disadvantages of using computers, cellphones, videos, e-mails and social media. In the other hand some communication tools are becoming important. They can be used to develop activities of different curricular contents, for example: creation of communities for discussion and sharing information, the exchange of information and content among teachers from different institutions, in this case, increasing the social network among schools and teachers. This study will also find out how technology has changed the communication in families. Many children and teenagers spend more than seven hours online per day. This situation has increased and parents don’t notice because they are also most of the time connect on their devices and the face to face communication, which is very important for the child development, has been lost.

Since technology has entered in our society, many things have changed. In some schools, children can take their cellphones inside of the classroom and this can affect the lesson. The teacher can lose his patient and consequently, his motivation. So, how can schools solve these problems? Which rules can be set it up to decrease this situation? At home, families and children have talked less and less. Children arrive from school and parents from their jobs. They have dinner and then they go straight to their rooms to check their social media or other technology activity. They have spent much less time together. They don’t share their day’s experiences, their ideas or feelings. According to Moores, (2000):

“It is necessary for us to think about how communication technologies are embedded in the interpersonal dynamics and power relations of life in the private sphere. One of the difficulties which we face in is that broadcasting is no much a taken-for-granted part of modern domestic experiences – an institution- every-day life and it is therefore not easy to distance ourselves enough to explore its significance in routine situations”.

It is possible to manage this situation but parents need to be educated by education professionals. Reorganize a healthy and productive routine where children can use technology with limited. However, students, teachers and families can improve their communication even with their devices around. According to (Krauss, 1998, p. 1029) “the internet is a social technology used for communication with individuals and groups, but it is associated with declines in social involvement and the psychological well-being that goes with social involvement” The output of this study is a source material that teachers and parents can assimilate their opinions about how to use social media and technology in learning and at the familiar environment.

In the field of education, change in the instructional practices of teachers will only occur if there is more than just technical need clear and explicit practices for successfully integrating technology into teaching and learning. They also need strategies for partnering with parents about the use of digital tools but explicit guidelines in terms of the dialogue that would govern social practices Chen & Zhang (2010). With the development of new technologies the family relationship has been influenced as well as, the learning education. Parents need to follow up their children’s unsupervised media interaction by engaging in conversation with them.

The communication in family is extremely importance especially for children during their education time. Nowadays, children and parents are holding their devices and this has affected their communication between them.

Both are losing their patient because they used to do and get everything very quickly. All schools are adopting the technology for their schools and the teachers can use this to make their lesson more interesting. The teacher can teach all disciplines using social media and technology. It can work with all subjects, such as: math, languages, geography.

Communication and Psychology

The impact of social media on the patterns of communication, according to Soren (2010), is turned towards that we today call the modernity, the danger of which lies precisely in the levelling of individuality and sinking into abstract intellectualism contrary to the individualism concreteness and particularity. This article defends that the new media converges the forms and functions of information, media, electronic, communication and electronic computing; interactivity- the freedom in producing a reproducing the content and form of the information during interaction: new life experience for human being. In this case, we can turn our eyes to students (children): in which way these tools have affected children's human being? How about their relationship with their friends and family? As we know, children and teenagers have spent an average time on their devices, chatting, texting messages, etc. The new media are intrinsically social; they foster the development of new communities, specific subcultures with their particular modes of communication. This theme paper discuss that the effects of social media on communication can be positive and negative. Positive: sharing of ideas, tools of communication, bridges communication, gap, acts as the information, marketing tool, etc. Negative effects: intrusion into privacy, loosing of the family's interaction. This article has been chosen because presents a large discussion about the changing communication and also it brings a survey made with students about their opinion at social media effects. It shows the changes in the whole dynamics of situation since interactivity, reciprocity and involvement.

According to Kraus (2002). the language we use to communicate, it is just a symbol system notwithstanding the utility of such symbolic displays, and language endows human communication with three properties: semanticist, generativity and displacement. The ability of language to generate an unlimited number of meaningful novel messages that are not bound to the here and now, combined with the cognitive capacity to exploit these properties, allows human communication to be extraordinary effective and versatile. But taking a look nowadays, how can we describe our communication? Are we using our cognitive capacity while we are talking or we just text messages and don't really have a conversation? We should consider that with the insert of technology, the communication that before was used to transfer information, today seems to be empty.

Intentional relationships, conscientious or unconscientious that exists in discursive and relates fields. The communication has evolved through the history and the process of the language. According to Franco (2006) the communication can be useful when there is respect in its environmental. The language is built by psychological and social extent. In psychological aspect the language is seen as a cognitive for. In social aspect, the language is seen as an instrument that the individual uses to interact with the world. According to Vevere (2015), social media is building socials identities that have changed the way people interact themselves. Their communication is been modified according to their interests. Communication and Psychology: the necessity of observation of the messages. There is a connection between them that is related to many situations during people's life. The communication between two or more people can be considered in three levels: intrapersonal, interpersonal and intercultural. These three levels belong to humans subjective and can happen in various situations.

According to Franco (2006), communication-psychology is related to unconscious aspects that can make modifications in language. Communication is about unconscious aspects that can interfere negative or positively day-by-day. Psychology is the study of human's relationship in communication. This research is important to my article because it is focused in the study and the comprehension of the communication and the psychology in our language development. The understanding of both studies about how communication and psychology have changed along the human's history.

Family, technology and communication

The family is an agent of socialization and the primary source of influence behind the formation of personality and the growth of a child. But with the rapid progression of technological advances, this interaction between family and children has changed by the influence of devices. Media is influencing family relationships and possible effects on

socializing can be seen too. According to Villegas (2013), there are both sides of technology – negative and positive. Some researchers say, according to it, that internet can be seen as a positive tool of communication and better access to education, promote global understanding and make the world better a place to live. There are two important questions that we have to make before giving our opinion: are media shaping the way family interacts or is it family interactions that shape the way media is used? In this article, the researcher made qualitative survey with families and the results show that media plays an integral role in the lives of children and in family life. The average use of TV, computers, socials media, mobile phone, Ipad, is increasing. According to Franco (2013), parents are responsible for the children's media environment. Parents employ media in the home as a safe and affordable distraction or as a habit. The way that parents use media may have a substantial effect on the structure and dynamics of the family, as well as, on the relationship with their children. Media present during the ritual of mealtime could have detrimental effects on the development of a family system. Media-saturated social worlds influence family relationships and dynamics. Traditional evenings spend together eating around the family table neither are now long gone. These communication technologies are altering family relationships. This article was chosen because it has a large field of information about how social media, TV and technology have changed the communication in family relationship.

A process involving two information-processing devices. One device modifies the physical environment similar to the representations already stored in the first device, Daniel Sperber and Denise Wilson (1986, p. 1). In fact, in human communication the information processing devices are people, the representations are mental representations or ideas, and the modifications of the physically environment are the uniquely human disturbances of the acoustic surround called speech. For example, at school or in the Universities, when a student have to make a presentation in front of the classroom, they usually don't know how to express himself because nowadays students are becoming more individualist and they are connected the whole day on social media, they don't really have a communication with their friends and families.

In sum, with the interact media in learning, schools and teachers, can be used to develop a good learning in classroom and somehow, helping with online research and communication. But we must be aware that the modernity has no control: but our lives have. We must analyze the positive and the negative sides of the affects in our lives with simple questions: How is the communication in my family? Am I listening to my children? How is my child progress at school? Is he learning or is he memorize information?

There are many questions and sides to be looked at. It is not difficult but before we look at our children and students, we have to look at ourselves and our behaviours.

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Testing Hypothesis on Theory of Social Networking, Community Banking and Empowerment of People: A Conceptual View

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ABSTRACT

Poor and underprivileged people should come under the banking system so that equitable distribution and social justice can be achieved. Informal sector is playing vital role than formal sector of the country. Micro savings should under the working purview of the micro investment for which social networking and community banking is needed. Research question of the study is whether social networking and community banking can transform micro savings to micro investment? The theory was developed for considering financial inclusion, to attain equitable distribution and social justice. A theory was developed by Ali(2016) which need to be tested. The theory was also interlinked with some goals of Sustainable development goal. The theory which is in a process of development by Muhammad Mahboob Ali on Social networking, community banking and empowerment of people may be empirically tested in different countries of the world and also at Bangladesh by various researchers to give a structural formation, cost-benefit analysis, shadow pricing, validation and reliability of the theory in the real life scenario both global and domestic perspectives with a request to inform the result to the author.

Keywords: Micro savings, Community banking, empowerment of People

INTRODUCTION:

Poor people of the country often did not getting any sort of banking services. Without banking involvement they have to depend on informal sector. As such informal sector have been playing vital role in the economy without accountability and transparency. Micro savings should under the working purview of the micro investment for which social networking and community banking is needed. Otherwise micro savings cannot give good result rather it will have some problems which raised in Uganda, Rwanda etc. countries. In case of Pareto's optimality criteria of utility theory, Hicks, Kaldor and Scitovsky described that social welfare could be increased without making value judgments. As such Pareto optimality of the people can be attained in line of social welfare so that compensation package can be attained. In the free market economy govt. can intervene at least invisible manner.

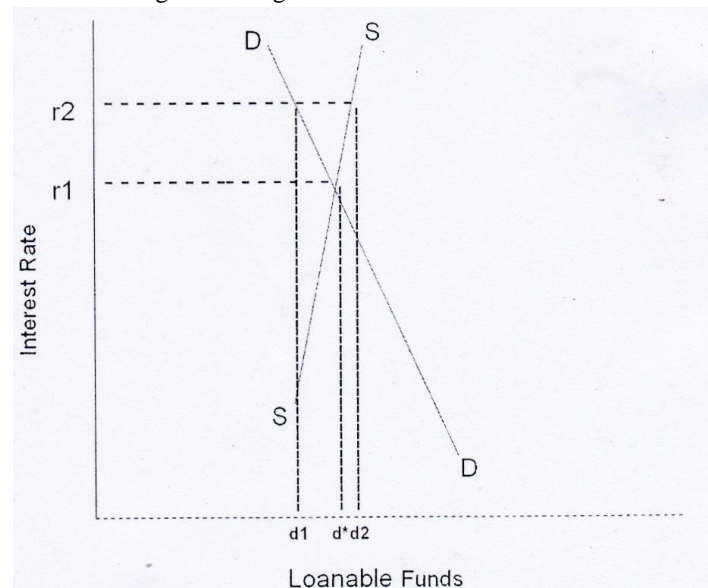
Social networking is the exercise of intensifying the quantity of one's business and/or social contacts by constructing acquaintances from side to side entities, often through social media along with social capital, social business and social investment. Social entrepreneurs are the people most able to deliver that innovation (Leadbeater, 1997). This is a social structure entailing of persons or collections who are associated to each other, for example through relationships. When these networks are characterized in a database and with a web interface, it is frequently mentioned to as a "social network service". However, in traditional system there is no web interface or social media but social capital, social business and social investment works simultaneously. A social network perspective on alliances can have both descriptive and normative outcomes that provide valuable insights for theories of strategic management, organizational theory, and sociology. Incorporating social network factors into our account of the alliance behavior of firms not only provides us with a more accurate representation of the key influences on the strategic actions of firms, but has important implications for managerial practice as well, many of which have yet to be explored (Gulat, 1998).

Rahman (2013) described that financial inclusion promotes inclusive growth, productive capacity, youth employment and combats poverty by unblocking advancement opportunities for the disadvantaged poor. Lack of access to basic financial services leads to significant extent of social exclusion in education, employment opportunities and social safety net. The finance minister AMA Muhith has proposed to increase the volume and coverage of the government's social safety net programmes in the 2017-18 fiscal year to improve the living standards of the poor in the budget speech. He proposed to raise the number of recipients of old age allowance to 3.5 million from 3.15 million, widow and oppressed women allowance to 1.27 million, disability allowance to 825,000, education stipend for students with disability to 10,000 at both primary and secondary levels, and maternity allowance to 600,000. Tk11.35 crore has been allocated as a special allowance for transgender people, while the allowance for financially insolvent disabled people has been increased to Tk700 per month. In addition, the government will continue the existing social protection programmes, including the Vulnerable Group Development (VGD) programme. The government has already employed emergency schemes to provide 30kg rice every month to each of the 330,000 bona fide destitute and flood-affected families in Haor areas, the finance minister said in his budget speech. In addition, Tk57 crore has been allocated to provide cash assistance to the affected people on a monthly basis. Tk82.07 crore has been allocated for 91,447 beneficiaries under the Employment Generation Programme for the Poorest (EGPP). (Source: Dhaka Tribune, 2nd June, 2017)

Still in Bangladesh informal sector is much larger than formal sector where employment opportunity is very high in Bangladesh. In the country, 87 per cent of the labour force is employed in the informal economy according to the labor report on 2010. Those who working in the informal economy include wage labourers, self-employed persons, unpaid family labour, piece-rate workers, and other hired labour (Source: <http://ilo.org/dhaka/areasofwork/informal-economy/lang--en/index.htm>, viewed on 1st March, 2017).

Informal credit market in the absence of regulatory framework is working without any sort of hindrance in the country which needs to bring under supervisory framework. Siddique (2008) described that in the country credit is provided by informal lenders who may be friends and relatives, by mahjans who are intermediaries with trade and/or production relationships with enterprises, and by traditional money-lenders. The informal market is potentially large and expanding. Below we have seen the informal credit market of the country in Figure:1.

Figure:1 Bangladesh Informal credit Market

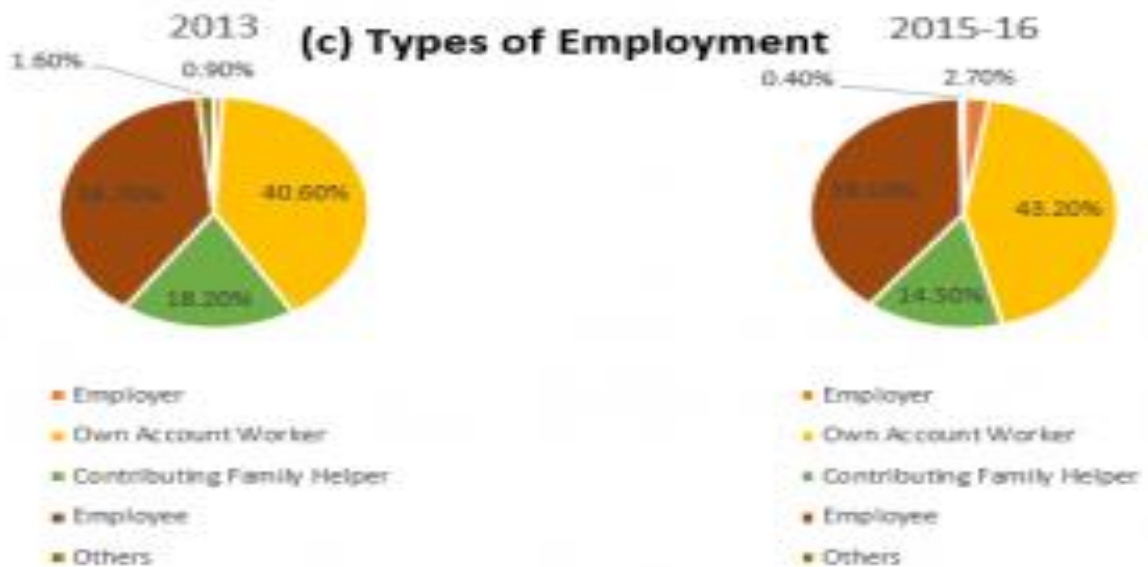


(Source: Siddique, 2008)

Interest rate in the informal market is much higher than formal market and job security as well as obtaining direct taxation from the informal sector is not feasible. As such social networking and community banking may help to convert formal sector.

Rahman(2017) quoting labor force survey 2015-16, majority of employment is generated in the agriculture sector, but employment is gradually shifting to the services sector. Contribution of service sector employment has been growing, with 36.9% of employment generated in 2015-16, compared to 34.1% in 2013 is shown in following Figure: 2.

Figure:2 Types of Employment in Informal sector



(Source: Rahman ,2017)

Entrance to the formal monetary system leftovers to a contest for the underprivileged people of the country as existing financial system mostly ignoring them. Current banking system of the country has a missing services for a larger portion of the people. As such the country need alternative banking framework at a least cost combination and helping the underprivileged people. Moreover, some NGOs are not working due roles as they are charging higher interest rate which is not feasible for borrowers to repay without cutting welfare and social ignorance. Micro savings need to be encouraged to bring the unprivileged people to the banking system. With the introduction of the electronic banking current commercial banking rate is much higher.

Research question of the sturdy is whether social networking and community banking can transform micro savings to micro investment?

LITERATURE REVIEW

Acemoglu and Ozdaglar(2009)described that social and economic networks refers to a set of people or groups of people with some pattern of contacts or interactions between them. Face book, friendship networks, business relations between companies, intermarriages between families, labor markets. Recent years witnessed a substantial change in network research. From analysis of single small graphs (10-100 nodes) to statistical properties of large scale networks (million-billion nodes).Motivated by availability of computers and computer networks that allow us to gather and analyze large scale data. Gangopadhyay and Dhar (2014) described that social networking and online privacy seriously turn out to be a serious concern when sensitive information is being shared and with the changing definition of ‘social networking’ in this internet age.Riggio (2014) described that Social intelligence (SI), is mostly learned. SI develops from experience with people and learning from success and failures in social settings. It is more

commonly referred to as “tact,” “common sense,” or “street smarts”. Lake and Huckfeldt (1998) argued that politically relevant social capital is generated in personal networks, that it is a by-product of the social interactions with a citizen's discussants, and that increasing levels of politically relevant social capital enhance the likelihood that a citizen will be engaged in politics. Further, the production of politically relevant social capital is a function of the political expertise within an individual's network of relations, the frequency of political interaction within the network, and the size or extensiveness of the network. The consequences of social relations within networks are not readily explained away on the basis of either human capital effects or the effects of organizational engagement. Actually social relations are very important. As such social intelligence and social entrepreneurship works with social networking. Social mixing should form an integral part of social intelligence development in teenagers. It argues that parents may have an important role to play, as older generations own circles also remain relatively closed to different cultures, backgrounds and upbringing. (Source: <http://movingonmagazine.co.uk/has-too-much-social-networking-stunted-your-social-intelligence/> (Viewed on 1st January, 2017)). The success of a new venture often depends on an entrepreneur's ability to establish a network of supportive relationships.

Leadbeater (1997) argues that social entrepreneurs need to lead the way with schemes for self-help, particularly by promoting local, national and international twinning arrangements between projects to share ideas, contacts and staff. For liberal feminists, the optimum level of gender arrangement is one that facilitates the individuals to adopt the life style that suits him or her and also accepted or respected (Ritzer, 2001) by the society at large. However, liberal feminists are not in favor of structural change to a great extent. Furthermore, some of liberal feminists think that individual woman cannot make change; therefore, state intervention is prerequisite. BarNir and Smith (2002) argued that the social networks of senior executives account for 11–22 % of the variance in the degree to which firms engage in alliances, depending on the type of alliance. Results also show that the number of inter firm alliances is positively related to several networking properties (propensity to network, strength of ties, and network prestige. Hunt and Kasynathan (2002) pointed out that only a few number of women receiving credit had the ability to control their loans. Many women received loan by their own name and passed on the full amount of their loans directly to their husbands, sons or sons-in-law. Swain (2006) conducted a study following experimental research design in rural India and assessed the potential impacts of a microfinance institution named Self Help Group (SHG). The concept of women empowerment was defined as the process in which the women challenge the existing norms and culture to effectively improve their well-being. Karnani (2007) summarized following problems of microcredit from various studies: Microloans are more beneficial to borrowers living above the poverty line than to borrowers living below the poverty line microcredit; seems to do more harm than good to the poorest; microcredit is the businesses it is intended to fund. Williams & Durrance (2008) found that across a number of instances of community technology, technology use is directly influenced of social networks, and social networks are directly influenced by technology use. Perron (2011) examined case by case the various approaches from companies, public sector entities, philanthropy, etc., and also institutional and private investors in their availability as well as their specific legal capacities and limitations to deliver the funding required supporting the growth. Such initiatives are vital in the fight against poverty and income inequalities. Batool (2013) commented that implementation of emotions intelligently in any organization by a leader to be effective and efficient plays a vital role to leader effectively. Emotional intelligence is one of the useful tools which helps a leader to judge people more clearly and closely and build a connection between people.

Bhattacharya et al. (2014) described that social networking has affected the process of marketing and how present day marketing activities is highly dependent on this phenomenal process of social networking. Also focus has been laid on how social networking affects the process of market signaling and hence reduces the possibility of asymmetric information within a market and lowers the possibility of market failure for a particular product. Yang et al. (2014) observed that social intelligence and technology explore the roles of information, the Internet, and mobile technology in improving our understanding about human behaviors and social interaction in human society at the individual, interpersonal, and community levels—building a sustainable social environment, developing social intelligence, and having practical applications with major impacts in solving societal problems such as health, security, energy, and the environment. Ali (2016) suggested that establishment of integration fund to encourage creative entrepreneurship so that poor downtrodden people can come out with innovative business process through

financial inclusion process, to remove poverty. Rattanawiboonsom and Ali (2016) more intensive and pragmatic policy should be developed for the development of the social enterprises particularly for self-motivated entrepreneurs. Experiences from the research work, they observed that the rural poor are mobilized and working together in self-controlled community based organizations which ensures social welfare and Pareto optimality. Not only small and medium enterprises but also micro enterprises should get special priority and inclusion through financial organizations are being required for developing proper steps to poverty alleviation, public-private and foreign strategic alliances are required in the small and medium enterprise sector with special emphasis on micro enterprises of the country.

This alternative framework was an attempt to develop a theory on how social networking facilitates to empower people which were developed by Muhammad Mahboob Ali (2016) to test any country. The study will extensively tries to display an integral part regarding different dimensions of empowerment before involving in social networking and after involving in social capital, social along with business and social investment along with social intelligence, social enterprises along with micro savings transformed to micro investment. Social intelligence is also one of the key components to readdress to come out from poverty. In Current century a greater role is being played by social media for which interpersonal connectivity is vital. Environmental scanning for doing the business is vital especially to ease the business process and local economies. Empowerment of people rises from decision making process when people do have purchasing power capability. Community banking framework should be developed under a regulatory framework which will work starting in joint effort of Pali Sanchya bank, Karmasonsthan bank and postal savings deposit and creating postal investment sector.

Community banking idea is larger than agent banking or mobile banking. It will give the scope of financial inclusion and current 80% people who are working informal sector will gradually transformed to the formal sector. This will also help to raise direct taxation as well as employees' job satisfaction and job security.

Technological diffusion, innovation, creativity and suitable regulations by the local level planning with local level law of the province are the key to deepening financial inclusion analysis where nano saving must be transformed to nano investment. Community banking will help to expedite the process of social networking and ultimately empowerment of people.

In Figure:1 we have seen a model as concept developed by Ali(2016) based on aforesaid discussion in this section as Social Networking Model and empowerment of people through transformation of Micro savings to micro investment with the help of community banking. However social education in the form of formal or non-formal is very important to act as a complementary.

The Rabobank view(2005) described that Rabobank was founded in the Netherlands more than a hundred years ago as a co-operative bank providing access to financial services for small farmers and offering a secure option for savings to the local community. The driving force behind the Rabobank Group has always been to create opportunities for individuals and organisations to participate fully and independently in economic activities. Rabobank has developed an integrated concept of sustainable rural financing in developing countries. In addition, Rabobank participates through its different departments in international platforms and partnerships concerning the challenge of economic development in developing countries.

Dupas et al.(2012) depicted that while simply expanding access to banking services will benefit a minority, broader success may be unobtainable unless the quality of services is simultaneously improved. There are also challenges on the demand side, however. More work needs to be done to understand what savings and credit products are best suited for the majority of rural households. Ngalemwa(2013) described that village Community Banks (VICOBA) have benefited people in reducing their income poverty by playing an important role in enabling the poor to save and access credits. VICOBA lending model is a unique and an effective tool for development of rural communities.

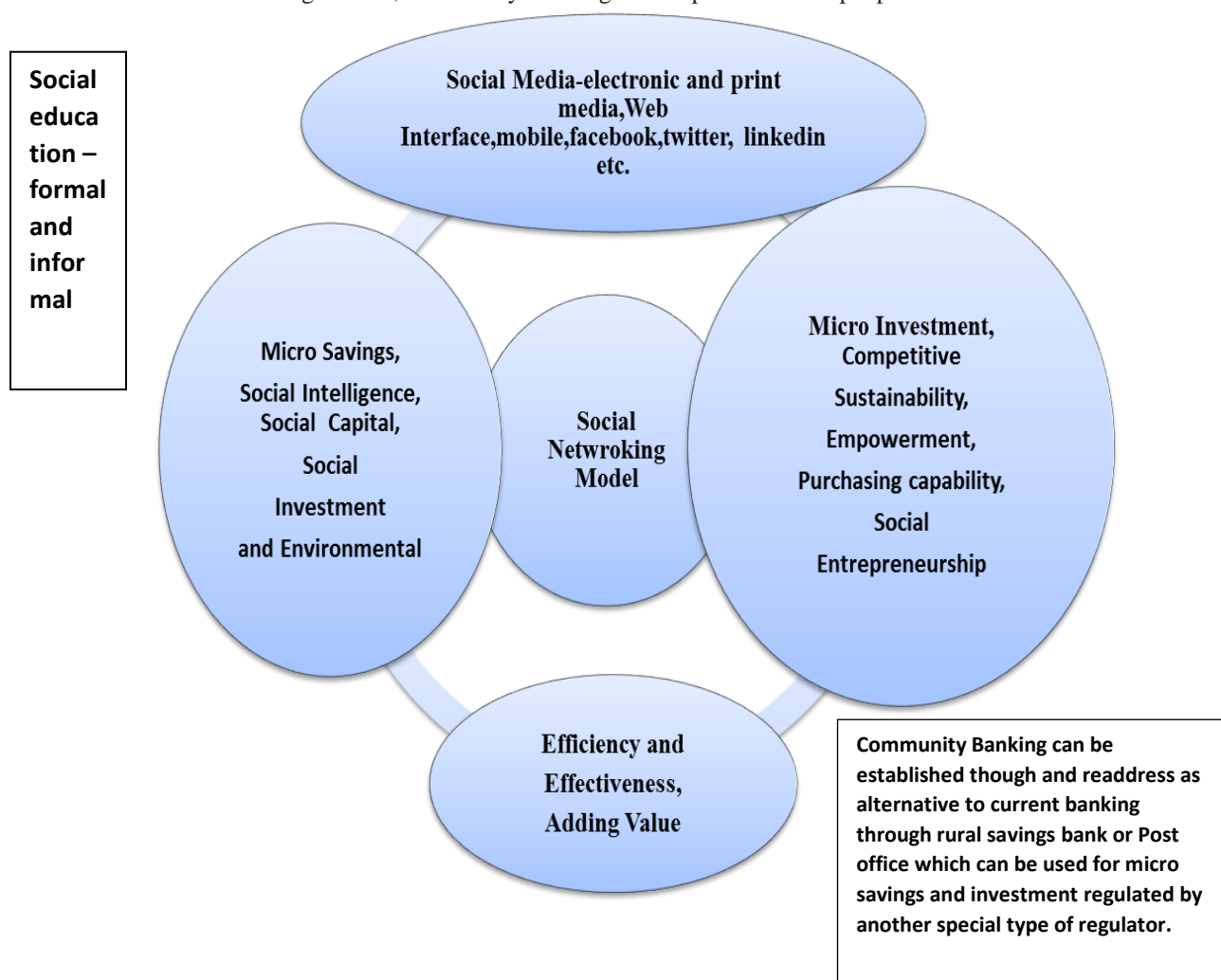
Valkenburg and Piotrowski(2017) argued that the negative spin that youth and media research often receives in the news can give most people the idea that media primarily have negative effects on children and adolescents.

The Sustainable Development Goals (SDGs) possesses 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable

consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another. The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. “Supporting the 2030 Agenda is a top priority for UNDP,” said UNDP Administrator Helen Clark. “The SDGs provide us with a common plan and agenda to tackle some of the pressing challenges facing our world such as poverty, climate change and conflict. UNDP has the experience and expertise to drive progress and help support countries on the path to sustainable development.”(Source: <http://www.undp.org/content/undp/en/home/sustainable-development-goals.html>, 1st March, 2017)

PROPOSED MODEL

Chart:1 Social Networking Model ,Community Banking and empowerment of people is shown below:



(Source: Concept of a model built by Muhammad Mahboob Ali, 2016)

Note: Aforesaid model may be tested by other researchers of various countries and inform to the author so that it can be scrutinized and further improvement of the model can be done, if necessary.

Chart:1 Social Networking Model ,Community Banking and empowerment of people through transformation of Micro savings to micro investment with the help of community banking .However, there have been report that by a section of the people that misuse occurs in case of social medial towards under 18 years and female group. Further some reports indicated that social media misuse by terrorists. Constant monitoring on social media is required to be arranged by the competent authority and cyber police of the respective country. Social integration should form an essential part of community aptitude expansion in adolescents. Guardians should have a significant role to play as adult age group hold loop so that staying comparatively closed to dissimilar societies, surroundings and rearing up in a meaningful manner when global world is opened.

ANALYSIS OF THE FINDINGS AND DISCUSSIONS

The result from the study tried to describe those people's empowerment which is closely related with Social Networking, Social intelligence and social entrepreneurship along with social capital and social investment all work as a holistic approach. Community bank will help financial inclusion which in turns endorses wide-ranging development, creative ideas and ventures, increasing occupational opportunities and contests lacking by releasing progressive changes for the underprivileged and deprived people of the country with the help of digitalization process. This will also reduce the fraudulent activities of the cooperative banks and fraud syndicates due to lack of proper supervision and monitoring. As such Govt. should take initiatives to set up community banking for the unbanked people at a cheaper rate but effective manner. Acemogluand Ozdaglar(2009)comment on social and economic networks for improving the livelihood of the people as well as creating employment opportunity is feasible through using social networking and community banking. Social welfare is needed for the betterment of the poorer group of the country.

People's conditions are not good before getting involved in social networking and after getting involved in the income of the family had been increasing. After involving in social networking the women started to participate in different income generating activities. Then, they also started to control over income, expenditure, credit and savings. They could then participate in household decision making more than before. Rural savings will be turned to rural investment lead to social entrepreneurship for which we need implementation and help from local level planning. It will be found that in dimensions the people started to become more empowered than before involving in social networking. This may be supported by Technology, innovation and suitable regulations -the key to deepening financial inclusion analysis where nano saving must be transformed to nano investment. Leadbeater(1997) proposed social entrepreneurship can be systematically developed through community banking which can act for social welfare.

Rabobank at Netherlands works as a co-operative bank providing access to financial services for small farmers and offering a secure option for savings to the local community which may create an example for our country. Ngalemwa(2013) suggestion can be followed as village Community Banks (VICOBA) have benefited people in reducing their income poverty by playing an important role in enabling the poor to save and access credits Employment opportunities with economic growth must be ensured at the formal sector for which informal sector should be squeezed out.

CONCLUSION

Social networking and community banking may be applied for transforming micro savings to micro investment through creating social capital. This will also help to transfer to formal sector from informal sector. Employment opportunity accompanied with economic growth should be raised. This will help to attain equitable growth, social justice and removing income inequality. If we cannot take the benefits of demographic dividend then it may transform to demographic bomb. Actually financial inclusion is feasible thorough arranging community banking under regulatory measures otherwise it may create a disorder. As present government of the country is pro people so they need to take initiative to arrange community banking with a separate and strong regulator and reducing percentage of informal sector to formal sector. Emotional intelligence should be used to judge people and to empower themselves. This will also help to attain some goals of sustainable development goal. Social welfare and grand utility will be tangent when equitable distribution can be attained. As such micro savings must be transformed

to micro investment both rural and slum dwellers of the urban area. However, service charges and cost of transaction of the community banking must be kept very low so that the compensation criteria provided by the Hicks, Kaldor and Scitovsky.

The theory which is in a process of development by Muhammad Mahboob Ali on Social networking, community banking and empowerment of people may be empirically tested in different countries of the world and also at Bangladesh by various researchers to give a structural formation, cost-benefit analysis, shadow pricing, validation and reliability of the theory in the real life scenario both global and domestic perspectives with a request to inform the result to the author.

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Terrorist Attacks in the EU and their Impact on Short-Term Student Mobilities – Case of International Business Weeks Network

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ABSTRACT

Acts of terrorism have the significant impact on many areas of our societies. The paper explores the possible impact of the terrorist attacks in Europe on short-term students' mobilities called International Business Week (IBW) that are organised by the network of 15 European business colleges/universities. The network was established in 1999 to encourage finance/business students to apply for international mobility. The paper describes possible security concerns of the students when considering their mobility during their studies. The research was made in 2017 at 4 IBWs, 2 of them in the countries that haven't been exposed to terrorism recently (College of Polytechnics Jihlava, Czech Republic and Satakunta University of Applied Sciences, Pori, Finland). Other 2 parts of research were made in the countries that have experienced severe terrorist attacks in the last 2 years (EPHEC, Brussels, Belgium and IUT St Denis, France). Presented data were obtained through semi-structured interviews with university/colleges representatives and questionnaires distributed among the participants of IBWs, both from the home university and visiting students. Analysed data reflect their awareness about unsafe areas (regions, states, cities) and their decision-making process when deciding for mobility. Presented paper is a part of a longitudinal research about barriers to international students' mobilities within IBW international network, aiming to analyse barriers of mobilities with the focus on security concerns of the students.

INTRODUCTION

Internationalisation of higher education in the European Union, including students' mobilities, became a major theme since the 90s in policy debates as well as in related research. Recent studies emphasise the complexity of students' motivations for applying to international mobilities (f.e. within Erasmus Program) but also at the same time explore barriers or factors that reduce students' interest in internationalisation (f.e. Deakin, 2012; Van Mol, 2013; Brooks, Waters, 2013; Altbach, 2016). The main motivators for the students' mobilities include improvement of the foreign language skills, personal growth, potential reinforcement of employability by

obtaining the higher quality education or even intention to emigrate (Altbach, 2016), not forgetting the role of specific personal psychological and personal traits (Carlson, B., 2015). Van Mol's (2013) research on the topic revealed how significantly variable are students' motivations, experiences and outcomes within European countries. Various research on students mobilities has repeatedly revealed that the likelihood of the decision to study/work abroad is influenced by the students' socio-economic background, their previous experiences of travelling, and influence of family members or friends who are abroad or who have lived abroad in the past (Jahr and Teichler 2002; King et al. 2010).

As for the limits of student mobility, several research studies reveal the overall impact of financial constraints or insufficient foreign language proficiency (Souto-Otero, Huisman et al. 2013, Lörz et al., 2015), university students also fear that they might lose their current job and are afraid of separation from a partner, children or friends (Carlson, S., 2011; Fischer et al., 2013). The lowest barrier of student mobility in the Czech Republic is the capacity of a mobility program, also problems with the recognition of studies decreased significantly (Šmídová, 2015). Van Mol (2013) presented the system of major factors with the influence on students' mobilities within European countries, in which students' personal motivations are framed with the global context and macroenvironment of the students' home country (see Figure 1).

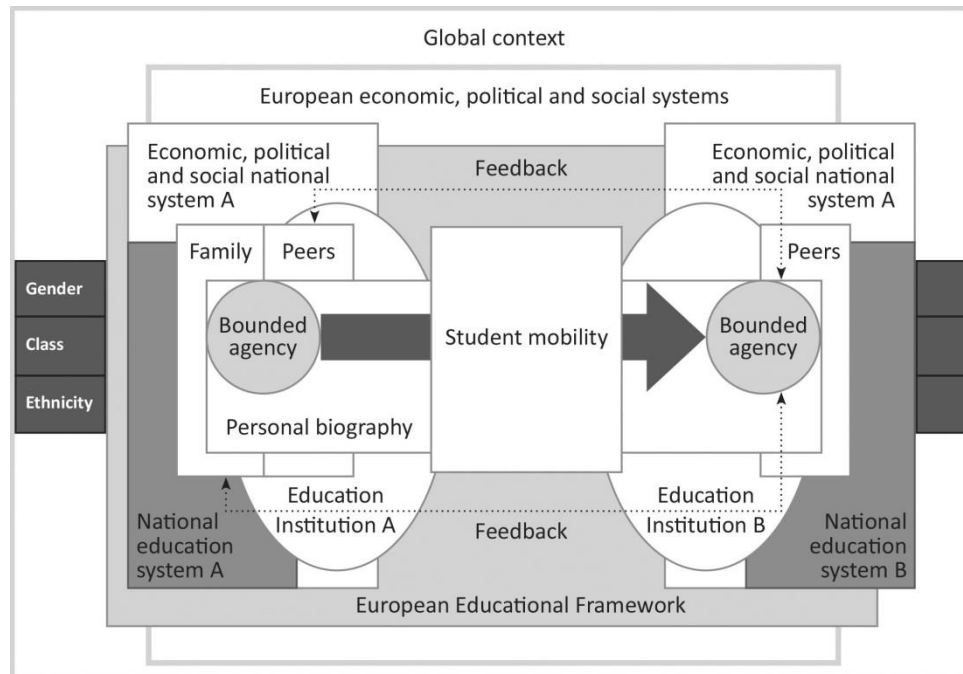


Figure 1: System approach for student mobility dynamics, (source: Van Mol, 2013, p. 153)

It also suggests that it is impossible to analyse the concept of internationalisation without considering the realities of the environment, with its major challenges. According to DeWitt (2017), the most current challenges for higher education and its international dimension are United Kingdom's intended withdrawal from the EU (Brexit), increasing political instability and the surge of national-populist appeal around the world, as well as the refugee challenge and the recent terrorist attacks in Europe.

Knight (2008) mentions two ways how terrorism might affect international student mobility, including the pace of higher education internationalization: through tightening visa requirements for the countries such as the United States and through the fear of terrorism expressed by potential international students, which might affect cross-border students' flows for a certain period of time. F.e. the 9/11 attacks resulted in a temporary decline in international student enrollment in the US universities, which continued until 2005/06. Since then American higher education institutions have shown resilience and the enrollment of international students has been growing (Choudaha, 2016). Denman and Hilal (2011) have discussed the impact of 9/11 attacks on the Saudi society and international students' mobility in higher education and have defined boundaries – if not barriers – from within Saudi society and those abroad. They concluded, that it is ' necessary to entertain educational strategies which would help us move beyond barriers and enable us to create bridges'. Similarly, Kell and Vogl (2008) discussed

the link between terrorism and threats to the nation state and the presence of international students after 9/11 from the Asian-Pacific perspective. They have described increasing state regulation concerning conditions for students entering the countries and various aspects of the students' private lives and studies. There are many impacts and aspects of terrorism, yet the impact of international terrorism on international students' mobility within EU has not been explored deeply yet.

This article explores the possible impact of the terrorist attacks in Europe on short-term student mobilities. It is focused on the International Business Week (IBW) Network members: the IUT (French: Institut Universitaire de technologie) St. Denis, a part of the University of Paris 13, SAMK (Satakunta University of Applied Sciences) in Finland and College of Polytechnics Jihlava (CPJ) in the Czech Republic and associate member of the IBW Network EPHEC (French: Ecole pratique des hautes études commerciales) in Brussels, Belgium.

The IBW network was established 19 years ago by Belgian Leuven University College (University College Leuven-Limbourg since 2015) and University Paris 13 in France. The project reflected the situation in the late 90s: the two universities tackled the problem of low interest of finance students in Erasmus mobility. Both the universities partnered on the first IBW in Leuven in 1999. In the following years, the number of universities/colleges in the network increased (CPJ joined the network in 2008). In 2017 there were 13 partnering business universities/colleges from Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Latvia, Netherlands, Portugal and Ukraine. Each IBW network member regularly organises a week of project activities, that has an educational and social programme. Students work in international groups on an international business case but also try to get to know visited a country and its culture (Chalupová et al. 2016).

The aim of the paper is to identify the impact of recent terrorist attacks in Paris (2015) and Brussels (2016) on the international short-term students' mobility within IBW Network. This topic was explored from the point of view of the participants of 4 IBWs in academic year 2016/17 (at IUT St Denis, EPHEC in Brussels, CPJ and SAMK) and the representatives of the 4 colleges/universities involved in internationalisation/organisers of IBWs.

THE STUDY

Data were obtained through qualitative and quantitative methods. Semi-structured interviews took place during 4 IBWs in academic year 2016/17 (March – April 2017) at IUT StDenis, EPHEC Brussels, CPJ in the Czech Rep. and SAMK in Finland with international offices executives or lecturers responsible for IBW activities.

Questionnaires were distributed among the participants of the 4 mentioned IBW were completed with the help of interviewers. Questions were focused on attitudes to travelling, mobility and demographics, Likert scale was used.

The students were asked in the questionnaire about their:

- Personal information (gender, nationality, semester of studies, university/college),
- Travelling decision process (including security worries),
- Travel and mobility barriers.

The students at each IBW were divided by two criteria:

- Whether they attended IBW at their home university/college or they have been visiting students
- Whether students attended IBWs that took place in the areas, that haven't been recently (up till May 2017) targeted by terrorist attacks (Czech Rep. and Finland) and IBWs that were affected by terrorist attacks (Belgium and France).

Number of participants of the 4 IBWs in total was 187, answers of 162 (87%) respondents were processed (see Table 1).

Table 1 Research respondents at 4 IBWs (March – April 2017)

IBW Respondents	Home university/college – number of respondents	Visiting university/college – number of respondents	Total Number of Respondents (Row Fr.)
IUT St Denis, France (FRA)	22 (100%)	20 (91%)	42 (95%)
EPHEC Brussels, Belgium (BE)	4 (100%)	20 (67%)	24 (71%)
Total FRA+BE	26 (100%)	40 (77%)	66 (85%)

CPJ Czech Rep. (CZE)	8 (100%)	14 (54%)	22 (65%)
SAMK Finland (FIN)	30 (100%)	44 (98%)	74 (99%)
Total CZE+FIN	38 (100%)	58 (87%)	96 (83%)
Respondents at 4 IBWs	66 (100%)	96 (83%)	162 (87%)

Source: Own research

Contingency tables are an easy way of displaying relations among categorical data, depending on the character of the data we then use suitable tests of independence (Zámková et al., 2015). According to Heřák et al. (2007), for the case of a contingency table of the $r \times c$ type (r is the number of rows, c is the number of columns) we most often use the test statistic:

$$\chi^2 = \sum_i \sum_j \frac{(n_{ij} - e_{ij})^2}{e_{ij}} \quad (1)$$

e_{ij} is an expected and n_{ij} observed frequency. We use the statistic χ^2 in Pearson's chi-square test with asymptotically $\chi^2_{(r-1)(c-1)}$ distribution. The null hypothesis of the test assumes independence. To use the Pearson's chi-square test the condition that maximum 20% of the expected frequencies are less than five must be met, see Agresti (1990).

FINDINGS

Results of the quantitative research among the students showed that the majority of respondents that attended IBWs in their home universities/colleges generally evaluate EU as a secure place to live in (see Table 2). Surprisingly, all students that attended IBWs in their home universities/colleges in the countries that have experienced terrorist attacks recently (Belgium and France, BE + FR) consider European territory to be a safe place to live in. Over 80 % of students that attended IBWs in their home universities/colleges in the countries with no recent terrorist attacks (Czech Rep. and Finland, CZ +FIN) consider EU to be safe. It was not possible to use Pearson's Chi-sq. Test due to small theoretical frequencies.

Table 2: Views of the students from home university/college on EU safety

To what extent do you agree with the following statements? Please, mark an answer in each line. [The EU is a secure place to live in]	2-Way Summary Table: Observed Frequencies		
	CZ+FIN	FRA+BE	Row Totals
Tend to agree	33	26	59
Column %	82.5%	100%	
I cannot decide	5	0	5
Column %	12.5%	0%	
Tend to disagree	2	0	2
Column %	5%	0%	
Totals	40	26	66

Source: Own research

Research among the students that decided to travel abroad to attend the IBWs showed almost identical results – vast majority of the respondents (almost 80%) evaluate EU as a secure place to live in (see Table 3). There was no difference whether they travelled to the countries that have experienced terrorist attacks recently (BE+FRA) or not (CZ+FIN). Again, it was not possible to use Pearson's Chi-sq. Test due to small theoretical frequencies.

Table 3 Views of the visiting students on EU safety

To what extent do you agree with the following statements? Please, mark an answer in each line.	2-Way Summary Table: Observed Frequencies		
	CZ+FIN	FRA+BE	Row Totals
[The EU is a secure place to live in]			
Tend to agree	42	34	76
Column %	79.25%	79.07%	
I cannot decide	8	7	15
Column %	15.09%	16.28%	
Tend to disagree	3	2	5
Column %	5.66%	4.65%	
Totals	53	43	96

Source: Own research

Respondents were also asked in an open question to name cities, states and regions they don't want to visit because of the safety concerns. Only a few respondents filled in the answer – therefore we have decided not to use chosen categories (home and visiting students) and show the answers at the individual IBWs. As it is visible from Table 4, most of the respondents consider the Middle East as the region that raises safety concerns, as well as the states in the territory torn by the recent war conflict (Syria), or with political and security crises (Iraq, Iran and Turkey). Only minimum students mentioned European cities that they consider to be unsafe to visit. Paris (3 respondents at IBW in Finland) and Brussels (2 respondents at IBW in Brussels). It is obvious that respondents consider EU a territory that they don't connect safe concerns with.

Table 4 Views of the students – safety concerns regarding territories

IBW	Cities	Freq.	States	Freq.	Regions	Freq.
IBW Paris (FRA) 44 participants 42 respondents	Mosul	2 (5%)	Syria	12 (29%)	Middle East	10 (24%)
	Aleppo	1 (2%)	Turkey	8 (19%)	Africa	7 (17%)
	Ankara	1 (2%)	Iraque	5 (12%)	South America	2 (5%)
	Istanbul	1 (2%)				
	Brazzaville	1 (2%)				
	Mexico City	1 (2%)				
	Montreal	1 (2%)				
IBW Brussels (BE) 34 participants 24 respondents	Istanbul	4 (17%)	Turkey	8 (33%)	South-East	3 (12%)
	Damascus	2 (8%)	Syria	8 (33%)	Asia	2 (8%)
	Brussels	2 (8%)	North Korea	2 (8%)	Middle East - Crimea	1 (4%)
	(Maalbek)				Some African regions –	1 (4%)
IBW Jihlava (CZE) 34 participants 22 respondents	0	0	Iraq	6 (27%)	Middle East	4 (18%)
			Syria	3 (14%)	South America	1 (5%)
			Turkey	3 (14%)	Asia	1 (5%)
IBW Pori (FIN) 75 participants 74 respondents	Aleppo	11 (15%)	Syria	29 (40%)	Middle East –	20 (27%)
	Baghdad	5 (7%)	Iraq	17 (23%)	Africa	4 (5%)
	Paris	3 (4%)	Iran	8 (11%)	(Central Africa)	2 (3%)
			Turkey	7 (10%)	America+Sout h America -	

Source: Own research

Negative news in media related to the safety situation tends to discourage respondents when considering their travel plans. The majority of respondents that attended IBWs in their home universities/colleges; 50% of students from Czech Rep. and Finland and 46 % of students from Belgium and France; tend to agree that media coverage of the safety situation may discourage their travel activities (see Table 5). There was no significant difference between in the answers of the two respondents groups, statistical testing confirmed the independence between

respondents' home university (CZ+ FIN, the countries with no recent terrorist attacks, or BE+FRA, the countries that have experienced terrorist attacks recently) and decisions regarding travelling with negative news on safety situation in mind: $\chi^2 = 0.4322$; sig. $p=0.806$ ($p>0.05$).

Table 5 Views of the students from home university/college on the influence of negative media news on their travel activities

To what extent do you agree with the following statements? Please, mark an answer in each line. [Negative news in media related to the safety situation discourage my travel activities]	Observed Frequencies		
	CZ+FIN	BE+FRA	Row Totals
Tend to agree	20	12	32
Column %	50%	46.15%	
I cannot decide	8	7	15
Column %	20%	26.92%	
Tend to disagree	12	7	19
Column %	30%	26.92%	
Totals	40	26	66
	Chi-square	Df	P
Pearson Chi-square	0.4322065	df=2	p=0.80565
M-L Chi-square	0.4271236	df=2	p=0.80770

Source: Own research

Similarly, the majority of respondents that attended IBWs at universities/colleges abroad, tend to agree that media coverage of the safety situation may discourage their travel activities; 53% of students from Czech Rep. and Finland and 47 % of students from Belgium and France; (see Table 6). The difference between the answers is not statistically significant $\chi^2 = 0.932$; sig. $p=0.627$ ($p>0.05$).

Table 6 Views of the visting students on the influence of negative media news on their travel activities

To what extent do you agree with the following statements? Please, mark an answer in each line. [Negative news in media related to the safety situation discourage my travel activities]	Observed Frequencies		
	CZ+FIN	BE+FRA	Row Totals
Tend to agree	28	20	48
Column %	52.83%	46.51%	
I cannot decide	9	6	15
Column %	16.98%	13.95%	
Tend to disagree	16	17	33
Column %	30.19%	39.53%	
Totals	53	43	96
	Chi-square	Df	P
Pearson Chi-square	0.9320834	df=2	p=0.62748
M-L Chi-square	0.9303902	df=2	p=0.62801

Source: Own research

The semi-structured interviews took part during the four selected IBWs. Those who have been interviewed, have been involved in international students' mobilities for more than eight years, taking active part in an IBW network.

On November 2015, Paris was hit by a couple of terrorist attacks in Paris, and also near IUT, in St. Denis. IUT St. Denis faced unprecedented situation: about half of the international students cancelled their attendance at IBW at the very last moment, after all the procedures had been finished (it took place after the attacks, in the week 7-11 December 2015). In an interview in December 2016 IUT representative admitted, that the media coverage on the situation in Paris may have played a negative role:

'They (the representatives of the universities/colleges which students have cancelled their attendance) clearly said to us that some families don't want to send their children here. It was the case of Zweibrücken, some students from the Czech Republic. The Dutch came, part of the Czech students came, Denmark has cancelled. It was for the first time.'

'We tried to explain them (to the partner schools) that Paris was safe, maybe even more than before because of the army and all the security measures. It is maybe psychological, it is very difficult, and essentially the foreign press they like to maximise things. It was 10 or 12 years ago, we have riots in suburbs, they set police cars of fire, the foreign press took it and my friends from America called me what is happening in Paris, that they said that they have heard about the tank in Paris etc.'

EPHEC in Brussels have been organising Accounting Week (international week organised outside IBW Network) in March 2016 when the attacks on Brussels Airport broke out. EPHEC had to cancel the programme, incoming students have been evacuated (Marketing Week and Law Week at EPHEC in Louvain la Neuve, organised at the same time, continued as planned, only one student team from Scotland left earlier). EPHEC International Relations Officer have commented in April 2016, what effect the terrorist attacks had on the student mobilities:

','Regarding the incoming mobility Erasmus+, we have thin decrease of the Erasmus for this full semester (Summer Semester 2016/17), last semester we had less students than the years before. So, normally we are increasing (numbers of incoming students) years after years and this semester we have, let's say, 20% less students, which is actually corresponding with decrease of tourism in Brussels as well, 20% decrease because of the terrorist attack that we have had last year (2016).'

','According to us, it is clearly linked to the attacks. In second semester, so right now (April 2017) there is increase again, so I think it was short term decrease because of that, and now after one year the fear has passed and things are going back to normal.'

Lecturer responsible for IBW organisation at SAMK in Finland

','I think we are, or we should be somehow, the winners, because Finnish society is so stable. We haven't had any terrorist attacks or that kind of things. I think it is very peaceful here in Finland, that is why I think that perhaps our exchange students amount from France has been increasing year after year.'

Also, Head of International Office at CPJ in the Czech Republic (in April 2017) has been very specific about the influence of the terrorist attacks on the students' mobilities, mentioning also refugee crisis as a challenge:

','Of course, I see present threats on international students mobility. It may be recent terrorist attacks. Our students had lower interest in Erasmus in Brussels and Paris over past 2 years. They also stopped travelling to Turkey or even Greece or Malta. It may be affected by the refugee crisis.'

She had also been persuaded, that security issues after the terrorist attacks in EU may be the driver for students to choose relatively safe Czech Republic for their mobility stay:

','On the other hand, lately we have increase in incoming students from France or Finland – it seems that we are viewed as a safe country. Western Europe begins to discover us again. In my opinion the trend will be stronger.'

Korstanje (2016) speaks about symbolical milestones starting a new era where the psychological fear predominates not only within the United States but also elsewhere, in connection with terrorist attacks such as 9/11. Choudaha (2017) similarly defines waves - the key events and trends impacting international student mobility within temporal periods. At the present time, according to Choudaha (2017), internationalisation of the higher

education institutions are on the macroeconomical level predominantly affected by Wave III, that is being shaped by the slowdown in the Chinese economy, UK's referendum to leave the European Union and American Presidential elections. The time will show if the recent rise in terrorism attacks in the regions, which have been considered relatively safe, have started a new era (or wave) when the international students' mobility would be more often affected by the rise of violence and international terrorism.

CONCLUSIONS

The current state of international tensions shows how fragile the environment can be for cross-boarder education. Internationalisation of higher education remains a major strategic goal of higher education institutions, emphasising change and growth through openness, dialogue and connectedness. It is undeniable that international terrorism is one of the forces that can impede international initiatives. As our study showed, terrorist attacks in 2015 Paris and 2016 Brussels had a quick and prompt impact on IBW and student mobilities; however, the situation returned to the normal state eventually. Also, research among the students from various EU states that attended IBWs in Belgium, France, Finland suggests that the respondents consider EU a safe place, they rather connect real danger with areas that are affected by war conflicts and political or security instability. This can be viewed as some signs of optimistic perspectives on the future of student mobilities within EU.

Hawawini (2016) predicts the future in a creation of 'metanational university' (the ultimate, although yet non-existent form of a global higher education institution). The author describes it as '*an interconnected and integrated knowledge and learning network spanning the world and composed of complementary campuses that operate in a symbiotic mode*', that should be '*driven by a desire to learn from the world by melding together the knowledge acquired at each location and create new insights*'. Larsen (2016) also feels that the future of internationalisation process of higher education institutions lies within networks as they need to take into account '*existence and productive effects of networks of socio-spatial relations in shaping individual motivations, identities and experiences as transnational students and scholars*'.

It is undeniable that, international terrorism can have the impact on international students' mobility. This factor is significant for the higher education institutions policy-making, even though this is just the first step to find out more. Internationalisation is about so much more than just student mobility. Over the past years, there was a steady growth in short-term credit mobility, branch campuses and other forms of transnational education, such as joint and double degree programmes, international research collaboration, international service learning and internships and internationalisation of the curriculum. Further research on this subject is recommended. Above all, it is necessary to search for an answer to the question which action can be taken to diminish the impact of the international terrorism on the international students' mobility and the possible positive role of the international networks of higher education institutions – define how it can help diminish impacts of security threats on students' mobilities and if they can become more important stakeholders for the policy makers on the national and subnational level.

The long-term impact of international terrorism on the higher education sector is yet to be examined. It is possible that we are at the beginning of a new era when terrorist attacks in the main European centres of education (such as Berlin, Brussels, Paris and London) will have a strong effect on higher education systems, due to the interconnection of higher education institutions in different parts of the world. However, it seems inevitable to accept that the international students' mobility is threatened by terrorist attacks, although perhaps only indirectly.

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Testing the Main Differences and Mediating Effects of the Coping Scales

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ABSTRACT

The aim of the study was to examine to what extent personality traits and individual variables are related to the use of proactive and preventive coping. The research sample consisted of 442 full-time university students in helping professions. The results showed that older students tended to be more proactive while men used slightly more preventive coping strategies than women. Moreover, controlling for respondents' well-being had a significant effect on the strength of the relationship between these two variables. In addition, proactive coping, social support and depression explained 47% of the variance in well-being, with the strongest unique contribution being depression.

Key words: Personality, proactive, well-being

INTRODUCTION

The concept within the forward-looking coping strategies which links successful ways of managing life with self-regulatory goal achievement is called proactive coping. Proactive coping is seen differently than traditional conceptions of coping. Proactive copers do not perceive potential imminence, risk or negative situation in the future as negative threats. Instead, they perceive the stressful experiences with more positive motivation than in the traditional view of coping (Greenglass, 2002; Schwarzer & Taubert, 2002). In this sense, proactive behavior is associated with a focus on potential future obstacles and overcoming them through positive motivation and personal growth. Moreover, proactive copers manage an effort to build up general resources to manage challenging goals without sense of potential threat or assessment of harm.

Proactive coping is characterized by individuals who are able to handle negative events in the distant future (such as health complications, widowhood, job loss or poverty). Whereas those negative situations may or may not become the reality, preventive copers generate resources needed to overcome such situations, for example by purchasing insurance, drawing up their last will, and/or creating a financial reserve (Reuter & Schwarzer, 2009). Both proactive and preventive constructs are future-directed, called future-oriented coping constructs (Gan, Yang, Zhou, & Zhang, 2007).

The employment of proactive and preventive coping may be facilitated by a feeling of personal well-being (Greenglass & Fiksenbaum, 2009). Moreover, someone who proactively controls his or her life is more often in a better condition than those who feel that their life is worthless, do not experience happiness and see ordinary life situations only through a negative lens. Social support is another personality trait that facilitates coping behavior, since the perception and actuality that one is cared for and is part of a supportive social network means that one pays more attention to cope with stressful changes effectively (Greenglass, 2002; Greenglass, Fiksenbaum, & Eaton, 2006). On the contrary, proactive coping creates the conditions for reducing the feeling of depression (Almássy, Pék, & Papp, 2014). In order to answer research questions summarized below, these personality traits as well as individual sociodemographic variables (gender, age, level and field of study) were analyzed.

Moreover, the presented study was focused on a sample that experienced their path through the university while studying chosen specialization in helping professions. This profession represents a wide range of teaching, life coaching, specialization in social work, social education, linguistics and medicine. Graduates find application in various institutional contexts and social networks. What unites these professions is direct work with people requiring the necessary skills to be able to manage the job role. These skills include problem-solving, future-planning and communication skills belonging to a well-honed set of soft skills. Having earned these skills

effectively, one may generate knowledge about how to behave and decide during difficult life situations. Therefore, acquisition of these skills seems to be especially important for those working in helping professions. Further, we believe that the development of coping behavior represents not only the necessary professional skill of future professional, but also represents individual personality development of each student.

To summarize, the aim of this study was to examine to what extent personality traits (well-being, social support and depression) are related to the usage of proactive and preventive coping in university students in helping professions. Explained variance of the selected individual variables (gender, age, level and field of study) was also tested. The research questions were set as follows:

- Q1 Is there a significant difference of selected individual variables on overall coping scales? Is there a significant difference if the dependent variable is considered separately?
- Q2 After controlling for respondents' well-being, is there still a significant relationship between proactive coping and depression?
- Q3 Which variable in a set of independent variables (proactive and preventive coping, social support and depression) is the best predictor of an outcome of well-being?

METHODS

Participants

442 full-time university students attending the traditional face-to-face classes at a public university were a part of this study. The age ranged from 18 to 28 with the mean age of 20.86 years ($SD = 1.59$). 301 (69%) respondents were in the age category of 18-21 years and 135 (31%) in the age category of 22 to 28 years. 89% (393) of full-time students were female pursuing bachelor's degrees (183, 47%) in the field of Social education (106, 27%). Preference of females in the research sample was expected, reflecting the real proportion of students in the helping professions. Details of the individual variables are listed in Table 1.

Table 1. Frequency of the individual variables in the research sample ($N = 442$)

Descriptive variables			Frequency (N)	Valid %
Gender	male		49	11.1
	female		393	88.9
Age	18-21 years		301	69.0
	22-28 years		135	31.0
Level of study	Bachelor's degree	1 st year	218	49.7
		2 nd year	131	29.8
		3 rd year	62	14.1
	Master's degree	1 st and 2 nd year	28	6.4
Field of study	Social education		112	25.7
	Preschool teacher training		96	22.0
	General nursing		56	12.8
	Midwifery		39	8.9
	Health and social care worker		34	7.8
	English for business administration		99	22.7

Measures

The original version of the Proactive Coping Inventory (PCI; Greenglass, Schwarzer, & Taubert, 1999) has been widely used to measure the proactive coping behavior on diverse research samples (Sirota & Yaroslavskaya, 2014; Vernon, Dillon, & Steiner, 2009). The proactive and preventive subscales were firstly measured by the identical Czech validated version of the PCI (Šolcová, Lukavsky, & Greenglass, 2006). Then scores were calculated based on the followed study where the underlying factor structure and psychometric properties were empirically assessed suggesting refinements of the scales (Vaculíková, 2017). These changes affected item 48 ("When I apply for a position, I imagine myself filling it") and also item 8 ("I try to let things work out on their own" – reverse scored) from the proactive coping scale and item 39 ("I make sure my family is well taken care of to protect them from adversity in the future") from the preventive coping scale. Since items did not load

highly on any of the factors, they were deleted from the scales. Furthermore, 21 remaining items from the PCI covering proactive and preventive coping were used in this study. The proactive coping scale included 12 items with $\alpha = .82$, explaining 22% of the variance. The preventive coping scale included 9 items explaining 10% of the variance with α of .75. The proactive coping subscale includes autonomous goal setting and goal attainment behavior of the respondents (i.e., “I like challenges and beating the odds”) and the preventive coping subscale is focused on a potential but not actual events that can be managed by the experience gained from the previous situations before stressor is fully developed (i.e., “I prepare for adverse events”). A four-point Likert scale ranging from 1 (*not at all true*) to 4 (*completely true*) was used with the individual variables added (i.e., gender, age, level and field of study).

The Social Support Survey (MOS; Sherbourne & Stewart, 1991), a 19-items measure, was used in this study in the Czech language (Kožený & Tišanská, 2003) to measure social support. A four-point Likert scale ranging from 1 (*none of the time*) to 4 (*all of the time*), with higher scores indicating a higher level of social support, was employed. A degree of psychological well-being was measured by the Czech version (Dragomirecká, Lenderking, Motlová, Goppoldová, & Šelepová, 2006) of the original 10-items Schwartz Outcomes Scale-10 (SOS-10; Blais et al., 1999). A four-point Likert scale ranging from 1 (*none of the time*) to 4 (*all of the time*), with higher scores representing greater well-being, was implemented. Lastly, experiencing symptoms of depression was assessed by the Czech version (Preiss & Vacíř, 1999) of the 21-item Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). Sadness, pessimism, self-dislike, self-criticalness and other negative feelings correspond to a symptom of depression giving a single score for the BDI-II. A four-point Likert scale was used, representing no symptoms to severe symptoms of depression.

Data preparation and statistical analysis

Influential multivariate outliers were checked by inspecting the Mahalanobis distance. All outliers with extreme values were removed from further analyses (Field, 2009). A non-significant Little's Missing Completely at Random test confirmed the use of the Expectation Maximization technique for replacing missing data with predicted values.

First, descriptive statistics were calculated for the individual sociodemographic variables characterizing the research sample, as well as for the two coping scales and measured personality traits (well-being, social support and depression). Second, the statistical techniques to compare groups (MANOVA) were applied (Q1), followed by the partial Pearson correlation analysis aimed to examine the associations among coping variables and the scores on the personality traits (Q2). In addition, the significant contribution of the personality trait variables of the correlations analysis was examined by having them as independent variables in the separate linear regression model with the two proactive and preventive coping scores as dependent variables (Q3). SPSS v. 22 was used for all presented analysis.

RESULTS

The proactive coping had a mean score at 2.70 ($SD = .46$) and preventive coping reached $M = 2.74$, ($SD = .46$). The scores ranged from as low as 1.50 (two respondents) to 3.92 (one respondent). These scores are located above the center position of the four-point scale used in the questionnaire indicating high use of coping behaviour. A paired-samples t-test demonstrated no significant differences in the employment of proactive and preventive strategies ($t(441) = -1.32$, $p = .19$). Out of the measured personality traits, the social support reached the highest level on the four-point scale ($M = 3.52$, $SD = .43$), followed by well-being ($M = 3$, $SD = .48$) and feelings of depression ($M = 1.54$, $SD = .36$). In other words, participants on average positively viewed their use of a supportive social network with assistance available from other people, being in a positive condition with low signs of depression.

Significant and positive correlation was found between proactive and preventive coping scales ($r = .38$) and between proactive coping and the two personality subscales, i.e. social support ($r = .18$) and well-being ($r = .49$). Moreover, proactive coping correlated significantly and negatively with depression ($r = -.38$), whereas preventive coping was significantly and positively associated to well-being ($r = .16$) and women tended to use more preventive coping than men (see Table 2).

Older students were more proactive than younger students. Personality traits correlated moderately to high with each other while women made use of a wider repertoire of social support than men. Interestingly, the education level was important in neither the formulation of any of the coping behaviors nor in personality traits. In addition, a lower level of social support and well-being was characteristic for students in healthcare and linguistic fields of study. However, there was not much of overlap of the individual variables, ranging from 3% to 1%.

Table 2. Descriptive and correlation between coping scales, personality traits and individual variables

Variable	Possible range	Proactive coping	Preventive coping	Social support	Well-being	Depression
Age	18–28	.12*	.06	.03	.09	-.05
Gender	1–2	-.00	-.09*	.15**	.03	-.07
Level of study	1–2	.06	.03	.06	.06	-.02
Field of study	1–2	-.03	-.00	-.17**	-.09*	.03

Note: ** = $p < .01$. * = $p < .05$. Gender: 1 = male, 2 = female; Level: 1 = first year of study, 2 = higher years of study; Filed: 1 = pedagogical disciplines, 2 = healthcare and linguistic disciplines.

Differences by means (Q1)

A one-way between group multivariate analysis of variance (MANOVA) was performed to investigate gender, age, level and field of study differences in coping. Two dependent variables were used (proactive coping and preventive coping). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance and multicollinearity, with no serious violations noted.

There was no statistical significant difference between male and female on the combined dependent variables, $F(2, 444) = 2.26$, $p = .106$; Wilks' lambda = .99, $\eta^2 = .01$. When the results for the dependent variables were considered separately, the only difference to reach a marginally statistically significance between males and females was for preventive coping, $F(1, 445) = 3.98$, $p = .047$, $\eta^2 = .02$. An inspection of the mean scores indicated that males reported slightly higher levels of preventive coping ($M = 2.86$, $SD = .45$) than female students ($M = 2.72$, $SD = .45$).

Age differences were significant only on between-subjects test ($F(2, 438) = 2.50$, $p = .084$; Wilks' lambda = .99, $\eta^2 = .011$). The results showed statistically significant difference between age groups (group 1: 18-21 years and group 2: 22-49 years) for proactive coping, $F(1, 439) = 1.02$, $p = .026$, $\eta^2 = .011$ (1% of the variance in proactive coping score is explained by age). Older students scored marginally significantly higher ($M = 2.67$, $SD = .46$) than younger students ($M = 2.77$, $SD = .44$) on proactive coping.

Testing independent variable grouping the respondents according to the level of study did not reach statistical significance on the combined dependent variables, $F(6, 876) = .65$, $p = .687$; Wilks' lambda = .99, $\eta^2 = .004$, neither separately on proactive coping ($p = .347$) and preventive coping ($p = .601$). In addition, there was significant difference regarding neither field of study on the combined ($F(10, 868) = .84$, $p = .594$; Wilks' lambda = .98, $\eta^2 = .010$) nor on separate dependent proactive ($p = .897$) and preventive variables ($p = .336$).

Mediating effect of well-being in proactive coping and depression (Q2)

Presented correlations between coping scales do not necessarily mean that the relationships actually exist. Therefore, a third relevant variable was tested in the model. Specifically, partial correlation was used to explore the relationship between proactive coping and depression, while controlling for well-being. Zero-order correlation and the first-order correlation were tested to see if the apparent relationship is empirically significant (see Figure 1).

There was significant negative partial correlation between proactive coping and depression, controlling for well-being, $r = -.13$, $n = 447$, $p < .01$, with high levels of perceived proactive coping being associated with lower levels of perceived feelings of depression. An inspection of the zero-order correlation ($r = -.38$) suggested that controlling for well-being had a significant effect on the strength of the relationship between these two variables.

The original zero-order correlation coefficient decreased by -.25, suggesting that the indirect effect of proactive coping was highly mediated by well-being. On this basis, the model presented in the Figure 1 was appropriate.

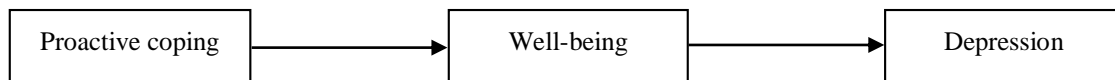


Figure 1. Tested mediating effects of well-being

Linear regression results for well-being (Q3)

Checking the assumptions

Assumptions of multiple linear regression were checked. Calculating minimum range corresponding to the sample size requirements, taking into account the number of independent variables ($N > 50 + 8m$), reached a satisfactory sample size (Tabachnick & Fidel, 2007, 123). Simultaneously, multicollinearity, singularity, normality, linearity, homoscedasticity, independence of residuals and outliers were also checked and showed no serious violation. Since there was very low correlation between preventive coping and well-being ($r = -.11$, $p < .01$), the independent variable was excluded from the model and analysis was recalculated. The collinearity diagnostics, i.e. Tolerance and Variance inflation factor (see Table 3), were calculated and indicated that the remaining independent variables did not violate the multicollinearity assumption. Four outliers were identified exceeding the critical value for evaluating Mahalanobis distance values (i.e., 16.27). These cases were deleted, thus improving the model for further analysis.

Table 3. Linear regression coefficients for depending variable well-being

Model	Unstandardized		β	Correlations			Collinearity Statistics	
	B	SE (B)		Zero-order	Partial	Part	Tolerance	VIF
Proactive coping	.27	.04	.26	.47	.31	.24	.84	1.19
Social support	.24	.04	.22	.36	.28	.21	.95	1.06
Depression	-.60	.05	-.45	-.60	-.49	-.41	.83	1.20

Evaluating the model and each of the independent variables

The tested model including proactive coping, social support and depression explained 47% ($Adj. R^2 = .47$) of the variance in perceived well-being and reached statistical significance ($F(3, 47) = 129.60$; $p < .001$). Not surprisingly, feelings of depression made the strongest unique contribution to explaining well-being ($\beta = -.45$). When the variance by all other variables in the model was controlled for with a statistical significant contribution to the equation, i.e. proactive coping ($\beta = .26$) and social support ($\beta = .22$) were significant ($p < .001$) predictors of the dependent variable (well-being). Students who had at their disposal a wide social network undertook more actions in order to prevent potential negative threats.

DISCUSSION

The aim of the present study was to examine personality traits, namely well-being, social support and depression, and individual variables, namely gender, age, level and field of study, in the use of proactive and preventive coping strategies by university students in helping professions. The focus of interest was aimed at students whose basis of study forms educational, psychological, linguistic and medical disciplines and practical skills developed largely through self-experiential learning. Acquired knowledge and a well-honed set of soft skills are further deepened and developed through teaching practice in the educational and health facilities. Graduates are prepared to work with people and for people. Therefore the ability to anticipate and manage negative stress situations is crucial for this sector. It involves not only the ability to act proactively and preventively, but also the skills to prepare others to cope with these situations.

The presented study brings the results exploring the associations among coping strategies, personality traits and measured individual variables as well as results of the significant contribution in the separate linear regression model with the two proactive and preventive coping scores as dependent variables. It was found that older

students tend to be more proactive than younger students. The importance of age for coping strategies has been also suggested by other authors (Gan, Hu, & Zhang, 2010; Sollar & Sollarova, 2009; Vaculíková, 2016). As expected, older students were likely to be confronted with potential changes due to aging and therefore were more experienced to cope with the potential stressors. Overall, the examined students sample was quite young, with the mean age of 20.86 years, ranging from 18 to 28 years. Although the age may have made them a rather homogenous sample, the differences were seen between the age group of 18-21 years and age group of 22-49 years among students in helping professions. Gender was important for preventive coping: men used slightly more preventive coping strategies than women. On the other hand, women used wider support-relevant social interactions than men, a finding which has been noted in numerous studies (Greenglass, 2002; Matud, Ibáñez, Bethencourt, Marrero, & Carballeira, 2003; Šolcová, Lukavský, & Greenglass, 2006).

Findings confirming the relatively important role of education for the use of coping behavior are widely reported (Ouweland, Ridder, & Bensing, 2008; Pill, Peters, & Robling, 1995; Sollar & Sollarova, 2009). This hypothesis might be explained by the idea that, through education, students acquire the necessary skills for effective coping behaviours. However, the highest achieved level of education analysed in this study did not make any difference in the use of either proactive or preventive coping. Given that the research group was a narrowly-profiled group of university students, the result is not surprising. Included respondents have already achieved the highest level of education in the sense of full-time students enrolled in public university. Presented analysis compared freshmen versus students from higher grades. We assumed that the first-year students will use less proactive and preventive strategies than more experienced students. In addition, the education level was not important in the formulation of any of the coping behaviors – nor were personality traits.

A very similar result was observed by the individual variable that covers students' study specialization. Pedagogical disciplines, namely social education and preschool teacher training, were compared to healthcare and linguistic disciplines (including general nursing, midwifery, health and social care worker and English for business administration). The results show that the field of study did not make any difference in the employment of proactive and preventive coping. In addition, while exploring the relationship with coping scales and personality traits, it appeared that a lower level of social support and well-being was characteristic for healthcare and linguistic fields of study. However, the explained portion of the variance was very low (ranging from 3% to 1%), suggesting that other unmeasured personal features may also explain additional variance in coping.

Moreover, controlling for respondents' well-being had a significant effect on the strength of the relationship between these two variables. The original association decreased, suggesting that the indirect effect of proactive coping was highly mediated by well-being. In addition to well-being, proactive coping, social support and depression explained 47% of the variance in well-being, the strongest unique contribution being depression. Employment of proactive strategies and social supports with a lower level of perceived feelings of depression contributes to the quality of students' experiences of their lives (i.e. well-being).

A limitation of this study may be a dispositional characteristic of the PCI coping measure. Thus, responses to specific potential stressors may result in a different action. Further, conclusions arising from this study can be only generalized to presented research sample of university students in helping professions. Generalization of the results to the entire population or while investigating specific stressor situations would be inappropriate. Another limitation is that significant individual variables (gender and age) did not explain much of the portion of the variance in proactive and preventive coping. It seems that coping strategies are more dependent on other variables than on stable personality characteristics. Lastly, the obvious limitation is the use of self-reports, which always reflect declared behavior instead of the real behavior of respondents.

For future research, it would be beneficial to measure the coping strategies in the form of specific types of potential future stressors that are encountered. Depending on necessary skills to manage specific stressors effectively, a personality trait and individual characteristics may or may not explain employment of proactive and preventive coping strategies. This point has been partly confronted, showing that people handle different stressors and unpleasant life situations differently (Ouweland, De Ridder, & Bensing, 2006). Therefore, a study of situational features is a promising way to understand in which way situations shape coping behavior (De

Ridder & Kerssens, 2003). In that case, multivariable analysis can indicate which specific factors account for much of the effect on coping strategies and thereby can better assist our understanding of resources.

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The Adaptation Study of Student Teachers' Teaching-Learning Situation Preferences Scale into Turkish¹

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ABSTRACT

The researches on individual differences and knowledge construction processes in education indicate the importance of the match between teachers' teaching approaches and students' preferred learning styles on academic achievements, attitude and improved behaviors in all educational levels. As a result, there is an increase in the number of researches on defining and identifying learning styles preferred by students. The aim of this study is to adapt the questionnaire that is developed by Baeten, Dochy, Struyven, Parmentier and Vanderbruggen (2016), aims to identify student teachers' instructional preferences and consists of four sub-dimensions –namely knowledge construction, teacher direction, cooperative learning and passive learning- with 40 items in total into Turkish. The study employs survey method. While the original questionnaire consists of 40 items, in the adapted version six of them were excluded because of either insufficient factor loading or taking place in more than one factor. The remaining 34 items are placed under the four original sub-dimension found in the original questionnaire as follows: knowledge construction 11 items; teacher direction 9 items; cooperative learning 9 items and passive learning 5 items. The reliability coefficients are found to be sufficient in the whole questionnaire and all sub-dimensions. The model is verified in Confirmatory Factor Analysis with a low conformity.

Keywords: instructional preferences, academic achievement, questionnaire adaptation

INTRODUCTION

Teaching-learning process is one of the most difficult issues to be examined in a curriculum. The whole process is built upon transferring or sharing a content in accordance with pre-defined objectives. When desired outcomes are reached, teaching-learning process can be called as successful. However, the most critical elements in the process are methods and techniques that direct the process and styles that focuses on individual features (Babadoğan, 2009). The researches in education that are on individual differences and knowledge construction process indicate that the harmony between teachers' teaching styles and learning styles preferred by the students affect the academic achievement and development of attitudes and behaviors significantly in primary, secondary and tertiary levels. As a result, there is an increase in the number of studies that aim to identify learning styles preferred by students (Samancı and Keskin, 2007). Learning styles term was first used by Rita Dunn in 1960. Dunn describes learning styles as different and distinctive ways that every student uses while preparing to learn new and difficult information and while learning and remembering it (Boydak, 2001; cited by Poyraz, Gülten, & Soytürk, 2012). When individual differences of the students are ignored, it is not possible to say that all students

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benefit the education equally (Oral, 2003). In terms of teachers' point of view, it is quite difficult to find a solution to learning inequality caused by individual differences (Demir, 2008). When teachers use a single strategy in teaching, it cannot be enough as individual differences are inevitable to occur in the class (Aşan, 2009). Every student comes to the learning environment with differences in experiences, cognitive capacity and strengths and weaknesses. Individuals prefer different ways in receiving, absorbing and processing the information (Bozkurt and Aydoğdu, 2009) and none of these ways is superior to the others (Aşkın, 2006; Berings and Poell, 2002). While some students express themselves verbally better, others do it through figures and visuals. Some learn by doing and experiencing in the learning environment while some others do it by listening, interactively or individual studies. All these direct researchers' attention towards individual differences in learning process (Can, 2011) and learning styles that is one of these differences (Ünal, Alkan, Özdemir, & Çakır, 2013).

Learning style provides information on how an individual learns differently from the others. This lets the individual to control the learning process. Teachers should know what their students' learning styles are in order to provide an effective teaching (Güven 2004). When teachers are aware of their students' learning styles, they can organize how they will lecture, test and set the classroom rules. Such a teaching will result in success. (Murphy 1992). In other words, the knowledge of learning styles helps teachers in teaching process and students in learning process. Therefore, choosing and organizing teaching methods and strategies, classroom environment and tools appropriate to students' learning styles is an easier and more economical way than expecting students to adapt current situation. Today, there are different approaches in identifying students' learning preferences (Aksoy & Pakkan, 2011). Defining student characteristics that affect learning process and providing a consistency between teaching-learning process and these characteristics are important in designing teaching and learning processes. The way that every student use in receiving and processing the information is unique. While some students focus on data, incidents and algorithms, some are better with theories and mathematical models. While some students react better to te visual representations of the information such as schemas, graphics and visuals, some prefer written or oral explanations. Some prefer active and interactive learning while some others prefer to do it more individually and in the light of their own emotions. These differences identify students' learning preferences (Felder, 1996; cited by Kılıç, 2002). Trying to state the importance of students' preferences in teaching and learning situations within the class so far, this study aims to adapt the scale that intends to determined student-teachers' instructional preferences developed by Baeten, Dochy, Struyven, Parmentier ve Vanderbruggen (2016) into Turkish in order to provide a resource to the researchers that aim to study this topic. Determining student-teachers' teaching and learning situation preferences is beneficial in at least two ways. First, this will be an evaluation of the education that they received so far in their school life. Second, it will give an idea on what they might do when they start teaching in the class.

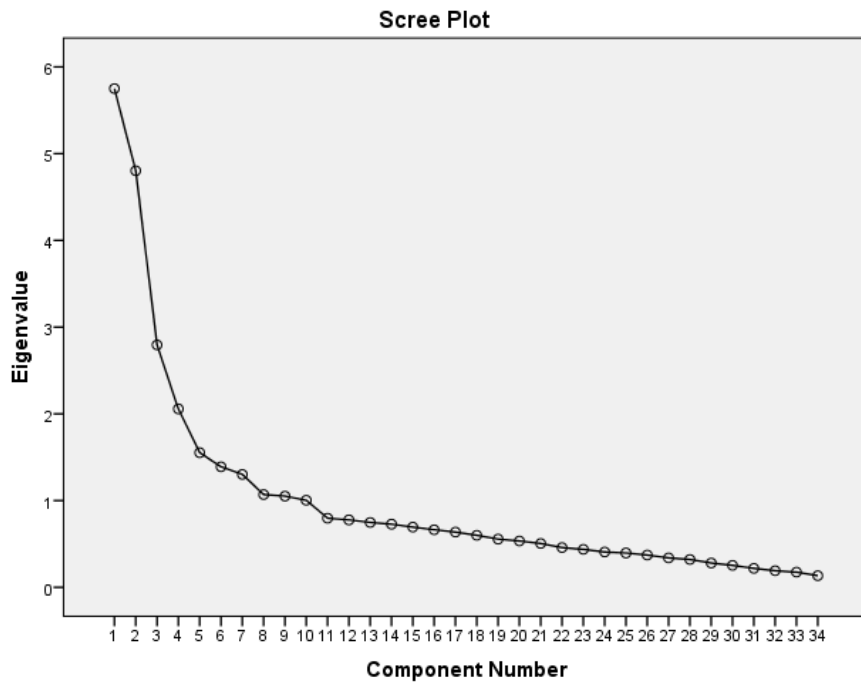
METHOD

This study employs quantitative design and survey method. The studies that aim to collect data in order to determine specific features of a group are called survey studies (Büyüköztürk et al., 2012). They aim to represent a current or past situation as it is or was; the situation, individual or object that is focus of the research is identified in its own specific conditions (Arlı & Nazik, 2004; cited by Demirbaş, 2015, p. 10). Survey, indeed, is not a method on its own but is accepted as a tool that is used to collect data for a research. However, most of the survey researches are non-experimental in which the independent variable is not controlled experimentally or correlational research. The data collected through survey is used to either present a description or examine the relation between variables in this context (Hutchison, 2004, p. 285).

Data Collection (The Adaptation of the Scale)

Before starting the adaptation of the scale that is developed by Baeten, Dochy, Struyven, Parmentier and Vanderbruggen (2016), aims to determine student-teachers' instructional preferences nad consists of 40 items and four factors namely constructivist learning, teacher direction, cooperative learning and passive learning, the corresponding author was reached through e-mail for written permission to adapt the scale into Turkish. After receiving the permission, the researchers started translation process. There are different approaches in providing language equivalence such as translation-back translation (Brislin et al., 1973; cited by Çetin & Basım, 2012) or applying the scale to the same group in source and target languages after translation and then carrying out some

statistical
this study,
lecturers
the English
scale into



analysis. In
three English
translated
form of the
Turkish

independently and the translated versions were discussed with the participation of all three lecturers in order to reach a consensus. Then, the Turkish form was examined by a Turkish lecturer to check grammar and semantics and revisions were done. After forming the final version of the Turkish form, the English and Turkish versions of the scale were applied to 72 ELT student teachers that study at Aksaray University with Turkish form was applied two weeks later than the English version. Correlation coefficients of the items and dependent samples t-test results of the two application were examined in order to check language equivalence. In these analysis, it is expected to that the correlation coefficients are statistically significant while t-test results are not (Çetinkaya, Şimşek, & Çalışkan, 2013). The correlation coefficients of the items in Turkish and English versions of the scale change between .69 and .92 while results are statistically significant ($p < .01$). The correlation between total scores is .97 ($p < .01$). There is not a statistically significant difference in t-test results ($p > .05$). As a result, it can be concluded that the language equivalence is provided.

After providing language equivalence, the scale was applied to 321 student teachers that study at Aksaray University in order to collect data for exploratory factor analysis (EFA). The KMO value is .787 and Barlett Sphericity test result is significant ($p = .000$; $p > .01$) which indicate that the data is appropriate for EFA. The criteria set for the items are to have a high factor loading only in one factor; have a difference of at least 0.1 if they take place in two or more factors and have a minimum 0.4 factor loading value (Büyüköztürk, 2012, p. 127). According to these criteria, items 10., 13., 21., 24 and 35. were excluded from further analysis because of either insufficient factor loading or having a smaller difference than .1 in two or more factors. The KMO value is .790 and Barlett test result is significant again ($p = .000$; $p > .01$). The scree plot was used in determining the number of factors in EFA and the number of factors is set according to the number of points above where the shape forms an elbow (point of separation) (Field, 2009).

Figure-1 AFA Scree-Plot

As seen in Figure-1, the factor loadings take an even form starting from the fifth point where elbow form is shaped. Therefore, it is concluded that there are four factors in the scale as in the original form of it.

Table-1 Factor Loadings

	Factor			
	1	2	3	4
S1	.670			
S2	.733			
S3	.510			
S4	.440			
S5	.539			
S6	.836			
S7	.485			
S8	.738			
S9	.666			
S11	.560			
S12	.446			
S14			.582	
S15			.568	
S16			.476	
S17			.695	
S18			.565	
S19			.617	
S20			.670	
S22			.598	
S23			.510	
S25		.572		
S26		.604		
S27		.620		
S28		.636		
S29		.706		
S30		.645		
S31		.529		
S32		.456		
S33		.521		
S36				.704
S37				.700
S38				.714
S39				.794
S40				.775

As seen in Table-1, factor loadings change between .440 and .836. There are 11 items in factor one and the lowest and highest factor loadings are in this factor. There are nine items in factor two and factor loadings change between .476 and .695. There are nine items in factor three too and factor loadings are between .456 and .706. In factor four, there are five items and their factor loadings change between .700 and .794.

Table-2 Reliability Analysis Results

Factor	Cronbach's Alpha Coefficient
Constructivist Learning	.842
Teacher Direction	.800
Cooperative Learning	.795
Passive Learning	.844
The Whole Scale	.820

According to Cronbach's alpha reliability test results (Table-2), the coefficients of the four factors change between .795 and .844 while it is .820 for the whole scale. The reliability coefficient of the first factor is .842; it is .800 for factor two, .795 for factor three and .844 for factor four.

Table-3 Item Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
30	S 109.84	173.353	.397	.817
31	S 109.98	173.884	.379	.817
32	S 109.90	172.890	.301	.817
33	S 110.31	177.959	.477	.821
34	S 110.20	176.581	.331	.819
1	S 108.14	179.137	.358	.818
2	S 108.12	177.522	.315	.816
3	S 108.44	175.972	.322	.816
4	S 108.42	176.126	.357	.815
5	S 108.88	177.197	.331	.818
6	S 108.42	174.950	.391	.814
7	S 108.44	176.429	.337	.815
8	S 108.45	173.574	.420	.813
9	S 108.41	174.812	.368	.814
10	S 108.23	181.811	.498	.822
11	S 108.47	178.425	.312	.819
12	S 108.84	174.915	.337	.815
13	S 108.82	171.953	.415	.812
14	S 108.90	175.296	.385	.817
15	S 108.88	173.845	.341	.815
16	S 108.95	173.644	.327	.815
17	S 108.86	176.402	.453	.818
	S 109.31	175.320	.481	.817

18	S	109.36	175.094	.485	.817
19	S	108.92	172.716	.412	.813
20	S	108.95	172.598	.374	.814
21	S	109.17	172.963	.353	.814
22	S	108.92	174.722	.339	.815
23	S	109.02	175.734	.350	.818
24	S	109.00	168.709	.450	.811
25	S	109.18	173.421	.304	.816
26	S	108.93	169.508	.406	.812
27	S	109.23	173.607	.311	.816
28	S	109.13	172.533	.341	.815
29					

When item total statistics are examined, it is seen that item total correlations are between .301 and .498 (Table-3). When item total correlation values are above .30 indicates that there is not a significant problem in terms of internal consistency and no other item is to be deleted (Field, 2009).

Table-4 Explained Total Variance

Item	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.750	16.912	16.912	5.750	16.912	16.912	4.549	13.379	13.379
2	4.803	14.125	31.037	4.803	14.125	31.037	3.826	11.254	24.633
3	2.795	8.221	39.258	2.795	8.221	39.258	3.558	10.465	35.097
4	2.057	6.050	45.308	2.057	6.050	45.308	3.471	10.210	45.308
5	1.553	4.567	49.875						
6	1.390	4.088	53.963						
7	1.302	3.829	57.792						
8	1.069	3.145	60.937						
9	1.052	3.093	64.030						
10	1.003	2.951	66.981						
11	.797	2.344	69.325						
12	.778	2.287	71.612						
13	.748	2.200	73.812						
14	.728	2.142	75.954						
15	.695	2.043	77.997						
16	.664	1.953	79.951						
17	.637	1.873	81.823						
18	.599	1.763	83.586						
19	.556	1.634	85.220						

20	.535	1.573	86.793						
21	.505	1.486	88.280						
22	.458	1.348	89.627						
23	.438	1.288	90.915						
24	.407	1.198	92.113						
25	.396	1.163	93.276						
26	.372	1.094	94.371						
27	.339	.998	95.369						
28	.321	.945	96.314						
29	.280	.823	97.137						
30	.254	.746	97.883						
31	.219	.644	98.527						
32	.192	.565	99.092						
33	.175	.514	99.606						
34	.134	.394	100.000						

Extraction Method: Principal Component Analysis.

According to Table-4, the variance explained by factor one which consists of eleven items is 13.379%; it is 11.254% by factor two which consists of nine items, 10.465% by factor three which consists of nine items and 10.210% by factor four which consists of five items. The total variance explained by 34 items in the scale is 45.308%. The explained variance in this research can be accepted as sufficient as variance ratios between 40% and 60% are identified as ideal (Scherer, 1988).

The model fit of the structure identified by EFA was tested by confirmatory factor analysis (CFA). The criteria such as chi-square and degree of freedom (df) ratio, Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA) that are widely used in researches (Gizir & Aydın, 2016) were used to evaluate the appropriateness of the model. As seen in Figure-2, chi-square value is 1674.40 and df is 521; chi-square-df ratio (X^2/df) 3.21. When this ratio is below three, it is considered as perfect and when it is below five it is considered as good fit in large samples (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). According to it, the fit is medium level. RMSEA value is .083 and when it is lower than .05 there is a perfect fit while it indicates good fit below .08 and weak fit below .10 (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). This statistics show a weak fit. When fit indexes are examined, it is seen that GFI=.76 and AGFI=.73; when they are above .90, it indicates a good fit otherwise there is weak fit. As a result, there is again weak fit in the model. The standardized RMR goodness of fit index is .083 that indicates a weak fit again as its being below .08 is a sign of good fit and below .10 is a sign of weak fit (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). Finally, NNFI (.85) and CFI (.86) values also indicate a weak fit as their being above .95 indicates perfect and above .90 indicates good fit. As CFA results indicate an insufficient goodness of fit for the first model, modification indexes were examined and a modification was made between the items 1 and 2 that are within the same factor and 30 and 32 that are again in the same factor ($X^2=1432.18$, $sd=519$, $RMSEA=.074$ ($p=0.000$), $NFI=0.84$; $NNFI=0.88$; $CFI=0.89$; $IFI=0.89$; $RFI=0.82$, $GFI=0.79$, $AGFI=0.76$, $RMR=0.091$). The modification is accepted when items are in the same factor and are adjuncts (Harrington, 2008, s. 71).

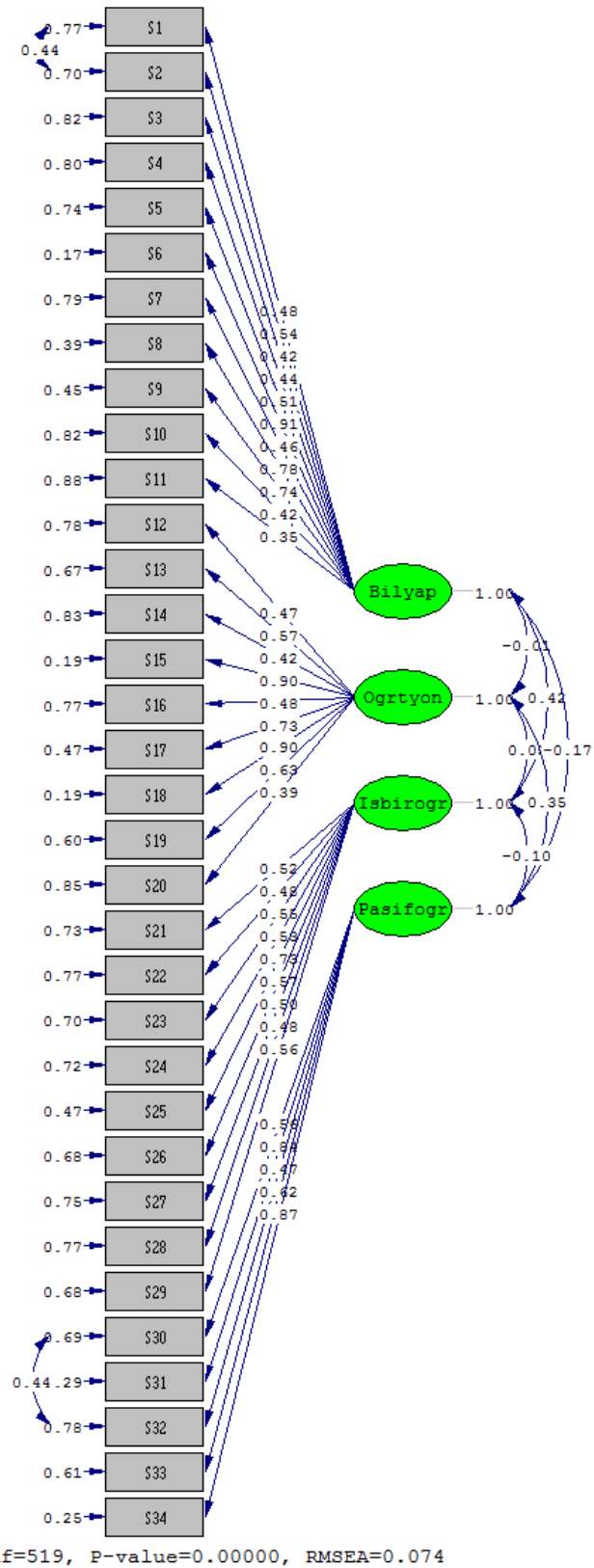


Figure-2 Results of CFA

RESULTS AND DISCUSSION

This is a validation and reliability study that aims to adapt the scale that is developed by Baeten, Dochy, Struyven, Parmentier and Vanderbruggen (2016) and investigates student teachers' preferences in teaching-learning situations. The scales that are applied to students generally aim to determine their perceptions. On the other hand, those applied to teachers investigate their preferred teaching methods. The difference of the scale developed by Baeten et al. (2016) is that it tries to determine student teachers' preferences on what kind of teaching should be done in the class and consists of 40 items in four factors, namely constructivist learning, teacher direction, cooperative learning and passive learning. Six items from the original version of the scale are not included in the final form of the adapted Turkish version either because of insufficient factor loading or being under more than one factor. The remaining 34 items are under four factors (eleven items in constructivist learning, nine items in teacher direction and cooperative learning and five items in passive learning) as in the original version. The whole scale and the factors have sufficient reliability scores. While the model that is provided by EFA has been verified by CFA, the goodness of fit indexes are weak. The modification has not provided a significant improvement. Still, the adapted scale can be used in order to study the teaching and learning situation preferences of student teachers from all subject field.

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The Analysis of the Value Orientation of Adolescents

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ABSTRACT

The paper is focused on the analysis of the value orientation of adolescents. The theoretical frame composes of the basic conceptualization of values, explanation of the importance of adolescent value orientation considering their personality development and self-knowledge. The goal of this study is to stress the outcome of how the values and value orientation of adolescents – high school students are. These results are based on qualitative oriented research conducted in adolescents (N = 67), whose average age was 17,6 years. We have used the method of incomplete sentences. We have analysed incomplete sentences finished by pupils. It turned out that there is a link between the value orientation of adolescents and their perception of own personalities and social ties. Adolescents perceive themselves as a part of the community, mainly the one in school. They are aware of their strengths and weaknesses, but are not always able to use them for their good. The significant value for adolescents is a family. The present study is a part of the project VEGA 1/0623/15 Value Messages Perceived by Pupils in Formal Education.

Key words: values, value orientation, adolescents, qualitative oriented research

INTRODUCTION

People acquire values from various sources. The first and very important source of values for a person is his family and his closest surroundings. The person later confronts his values acquired from family environment with those presented by school and various educational institutions, teachers as well as with the values of his schoolmates, peers or friends. Of course, we shall not overlook the influence of broader social environment and various social groups, in which one takes part and which also present their values. Further significant factor influencing values and value structure of an adolescent are media in all their complexity. As Vernarcová (2015) states the growth and the power of social media bring the pressure on young people with unrealistic image of beauty. Rogers claims that “a person assesses the world, objects keeping his own surviving and satisfaction of his needs in mind. The focus of the assessment is the person himself. In the process of education, a person starts to overtake the values from other adults, leaves the cleverness of own organism, resigns own assessment sources and tries to behave in compliance with values set by someone else.” (Rogers in Zelina, 1996, p. 161)

The biggest contrast between values is obvious mainly in the adolescence period, when a socializing adolescent focuses onto various social groups and continuously loosens the ties to his family. The preference of particular values is also influenced by the personality of an adolescent, his interests, needs or attitudes, but also by the events in his life. The values themselves are for us a “significant source of motivation, are considered to be goals that we strive to achieve” (Ištvániková, Čizmarík, 2007, p.12) and do hereby influence our behaviour, thinking, attitudes and preferences.

Langmeier and Krejčířová (1998) state there may be a conflict between the role and the status of the adolescent stemming mainly from the fact, that the environment expects mature and responsible behaviour of an adult (role), but ones rights and duties do not correspond with the above (status). There is also a frequent conflict between the values of young and old generation (where the older generation insists on its values and younger generation keeps searching for own values) and the conflict between the family values and values of outer society. The conflict between the characters of emotional relationships within family in the adolescence period is also critical. The individual is not anymore bound to standards and attitudes of own parents. He criticizes, revolts, but in many cases is still dependent on own parents. He still needs educational approach of his parents, where they shall with tact lead him, provide enough space for decision making, be sufficiently patient and tolerate emotional swings, provide opportunities for real intimacy, support positive activities, acknowledge strengths and values of others, support emancipation tendencies (Langmeier, Krejčířová, 1998).

The acquaintance with values, value preferences and structure is important also to support self-knowledge of the adolescent. It helps to understand one's own acting as well as the society. We agree with Prudký (2004), who states that if we do not know and do not understand values accepted and appreciated by given person, group, nation, culture, institution, society or global world, we are not able to comprehend behaviour and striving of these social units. Not knowing values, we are getting lost in the world. (Prudký, 2004)

The meaning of term “value” is being analysed by more authors. According to Čačka, from the psychological point of view, the values are certain generalisation of human striving tendencies, leaning on his experiences and ideas and are normally formed by every individual subjectively what proves their uniqueness and bounds to a person itself. (Čačka, 1997). Cakirpaloglu (2004) states that current psychological theory normally agrees with the statement that the value is considered to be a specific psychical category creating relatively stable and durable personality structure important for individual, social and historical activities of a person. The values are convictions about good or beneficiary, but also about bad or undesirable that regulate individual or group activity. The assessment therefore is considered to be a psychical process, in which the relation between subject and object is regulated by quality and intensity of existing values. (Cakirpaloglu, 2004).

Schwartz (1999) describes values as concepts of the desirable on the basis of which people choose behaviour, assess people and events, explain own behaviour and assessments. According to him, the values are used as motivators leading to pursuance of socially accepted goals, defence of chosen solutions and regulation of human activity. In his theory he defines fives basic and necessary characteristics of values, to which he later added the sixth one:

1. Values are terms or convictions, cognitive structures closely related to emotions;
2. Values relate to desirable endings or behaviours;
3. Values go beyond specific situations unlike standards and attitudes, which usually relate to particular phenomena;
4. Values serve as standards and criteria, they regulate the choice or behaviour and phenomena assessment;
5. Values are arranged according to their relative importance;
6. Motivational application of values depends on their relative importance for a personality and relevance in relation to particular behaviour (Schwartz, 1999).

One is not born with values, the values are not congenital. According to Prudký (2009) there are two processes of value creation. The first are processes used to provide an assessment: value vision, missions, preferences, orientations, frame, structures, and behaviour standards. The second process is social learning in process of socialisation of the individual. Through social learning, the individual, institution, community, even cultures adopt some values by internalisation or by identification with those. The individual integrates into society through socialization. It is so called double-hatted process, where the society desires that the person integrates into society under certain conditions, but the person also wants to be recognized together with the standards that he is complying with. When analysing values, we focus mainly on social frequency, for example life development stages (so called: socialization phasing). Under the most popular value theories we would find socialization hypothesis that presumes two mutually conditioned facts:

- a) The values get established in the social environment through socialization
- b) The values significantly tend not to change, they are resistant against changes from the moment, when the subject adopts, interiorises them.

Further important influence on the creation of values have socialization mediators. Here we speak of function and importance of the family, school, media, but also of broader social and political influences or person's development from the inception to extinction, or the development of other organisms, about community of dimensions e.g. revolution or coup in the state. According to Frankl, the subject without values walks towards extinction. For every subject, the search for meaningfulness is typical. As far as he cannot find it, it ceases to exist. (Frank in Prudký, 2009).

Considering its functions, the values may be divided into two big groups. One of them is relevant for the process of adaptation and the second one for the individual growth (McGuire, 1969). Schwartz similarly mentions two main areas, particularly growth values and security values (Schwartz et al., 2012). The relation between the values and behaviour is not straightforward. The behaviour is more likely influenced by system, by the arrangement of values rather than by the only individual value (Sak, Saková, 2004) and not even this relationship is always clear. The values belong to motifs leading us in their particular way through everyday life, but one cannot consider them to be the only motifs preceding every human behaviour. However, they influence many aspects of human life in a certain way, starting from the occupation one chooses, to lifestyle, choice of clothes, but also choice of friends. The values and value orientation that a person has make his orientation in life easier and improve his ability to choose “the right direction”.

The values are relatively stable, but they have dynamic character, they are subject to environment and personality changes. Schwartz implies (1992) that the structure of values may change relatively quickly (e.g. through the influence of technical, economic, political and security condition changes. He claims that the conflict of values itself may precede changes in value structure, as well as the transformation of overall value orientation of an individual (Schwartz, 1992). The younger are usually more flexible towards changes, mainly in the

adolescence period. It is just the age, when they need attention, help with adoption of adequate and socially, as well as subjectively, acceptable values.

All of us live in certain social environment that may be more or less complicated. Our attitudes, values, decision making, behaviour, standards are being significantly influenced by many factors e.g. society, various personalities, with which we are in direct or indirect contact, media. Social values are criteria assessing human behaviour, the own one as much as the one of others. (Zahn et al., 2008 in Koukolík, 2016). Schwartz and Bilsky (1987, 1994) also add that these social values are composing of abstract terms bound to emotional statuses and social actions.

Koukolík emphasises the significant role of neutral bases of social values that are given by society through activation of abstract term representation in prefrontal cortex and moral feelings dependent on context that is coded in frontal and infralimbic areas. This is probably basis for human ability to communicate about social values in various cultural circumstances (Koukolík, 2016). In this context, Koukolík reminds us of the problem with social standard adherence (2016). Social standards are perceived as broadly shared attitudes defining behaviour which is perceived as good and moral. They compose of basic “grammar of social interactions” (Bichieri, 2006 in Koukolík, 2016, p. 207). Social standards have many forms, starting from culturally highly specific ones through general standards, whose moral importance differs depending on society and culture (for example: standards assessing and defining sexual behaviour) to more general standards that are formalized and even legalized (e.g. standard “thou shalt not kill”) (Koukolík, 2016, p. 207). The values as a part of biological dispositions of a man have been, so Koukolík, connected with activation of instincts as source of values (e.g. Freudian concept). Values that are being perceived in such a way are currently defined as “a tool and a result of group control”.

Unlike values, value orientation is a system being established on a basis of real, living contact with values. Horák (1997) defines it as selective focus of an individual on creation and usage of values. The values contained in the value chart of an individual are consequently appearing as focus of a person on certain direction. This statement is also supported by Grác, who perceives value orientation as a “way how and why certain phenomena and subject reflect in given person as values and value systems and how the established values and value systems direct human behaviour to certain direction” (Grác in Horák, 1997, p. 26)

According to Prudký (2009), for values as an object of research, qualitative research is more adequate than quantitative one. According to the aforementioned author, it is connected with the polysemy of values, their differentiation. Values are also directly connected with subjective, group, cultural and further influences (Prudký, 2009)

The aim of our research was to find out about value preferences and value orientation of adolescents. We have formulated following research question: What kind of value system do adolescents maintain?

METHODS AND PARTICIPANTS

The participants of the research were adolescents attending high schools (N=67), composing of 43 girls and 24 boys. The average age of participants was of 17,6 years.

For our research, we have used an incomplete sentences technique. The respondents had to finish 19 incomplete sentence by stating the first thought coming to their mind. The incomplete sentences were divided into three main categories according to their content. First category composed of sentences oriented onto pupil himself, trying to find out how he perceives himself, what he considers his strengths, weaknesses, how his wishes are etc.:

1. I am....
2. At most, I would praise myself for...
3. I feel the biggest joy when....
4. Most of the times I am sad when....
5. I think I am able to...
6. I would say about myself...
7. My biggest weakness is...
8. I am the weakest ...

The second category of sentences focused on school, teachers and education itself. The pupils stated how they spend and perceive time in school, what they think of their class, what's their opinion on teachers, what is the most important thing for them in school:

9. What I like about school is...
10. I don't like being in school when...
11. When I think about school, I....
12. For me, the most important thing in the school is...

13. In the school I feel...
14. The most important thing in the school is....
15. School is for me...
16. If the teachers....

The third category dealt with family of a pupil:

17. My father....
18. My mother....
19. The most important thing in my family....

To analyse the individual finished incomplete sentences, we used the open coding method. During the analysis, we followed the adjusted method of the grounded theory (Corbin, Stauss, 2008). The individual categories of incomplete sentences have been created only roughly. We haven't analysed more detailed categories for the purposes of this study.

FINDINGS

a.) Student oriented incomplete sentences analysis

The biggest part of students (18) identifies themselves in the sentence of **"I am..."** as a *"student"*, the further 13 as a *"human"* and 12 others as *"man"* or *"woman"*. Therefore, the most of the students perceive themselves in connection with the school environment.

It is similar in the sentence of **"I am the weakest ..."** where as many as 29 respondents added their *"in the school"*. Many of the completions of further sentences from the self-perception area have a connection to school what is comprehensible for the adolescence period, as adolescents spend a significant part of the day in a school environment.

In case of sentence **"At most, I would praise myself for..."** there was a very frequent answer (17) added, stating *"study results"*. Further 22 students would praise themselves for their *"positive characteristics"* and 8 for their *"talents and skills"*.

The sentence **"I feel the biggest joy when..."** was completed by the most students by *"being off"* (19), 11 students feel joy when *"others are happy"* and 10 of them when *"they make happy themselves"* through something. In this case, only 8 respondents mentioned school in connection to joy.

Similar negative statements relating to school came up in the sentence of **"Most of the times I am sad when..."** As many as 19 adolescents completed by *"when I am in school"*. The other answers related mainly to *"personal failures"* (12) and to *"relationships in social groups"* (10).

The sentence **"I think I am able to..."** was completed by as many as 25 students as *"to do more"* and 19 respondents think that they are able to *"make their dreams and resolutions come true"*.

The sentence **"I would say about myself that..."** was completed by 26 students by various *"positive self-reflections"* and in case of 16 students by a *"negative self-reflection"*, 7 students completed the sentence by a simple *"I am / I exist"*.

The sentence **"My biggest weakness is..."** was completed by students mainly negatively, 17 students stated their *"laziness"* and that they are *"bad at human relations"*. 9 students stated that they *"have no weaknesses"*. In their sentence completions, the students perceive themselves more as people than as students. While the first incomplete sentence of **"I am..."** was finished by *"a human"* only by 13 respondents and by *"a student"* by as many as 18, the completion of the sentence **"My biggest weakness is..."** was linked to school only in 2 cases, when the students answered by *"my choice of school"*.

b.) School environment oriented incomplete sentences analysis

In the sentence **"What I like about school is..."** the students answered mainly *"social relationships"* (22), *"school equipment"* (15) and *"learning to be organized and have a regime"* (14). But there were also respondents *"liking totally everything"* (5) or 4 students *"did not like anything at all"*.

In the sentence **"I don't like being in school, when..."** the students mostly completed by *"I am wasting my time"* (19) and *"demandingness of the school"* (18). 6 students did not like *"how the school is organized"* and *"the attitude of teachers"*.

It is pleasant that in the sentence **"When I think about school..."** as many as 51 respondents came up with their *"positive attitude towards school"*.

However it does not correspond with the completion of sentence **"In the school I feel..."**, where only 22 students answered by *"good"* and as many as 33 students answered by *"bad"*.

In the sentence focused on the importance of the school in the life of adolescent **"For me, the most important thing in the school is..."** almost the half of the students stated *"value of education"* (30). Almost one third of students (17) considers the *"social relationships and social climate"* to be the most important.

Also in the sentence *“The most important thing in the school is...”* the most frequent answer was *“education”* with the same number of respondents (30). The fact that a valuably spent time is influenced by also completely different factors, not only the educational ones is proven also by *“food”* to be the most important thing in the school for 6 students.

In the sentence *“The school is for me...”* 28 respondents have shown their *“positive attitude”* and 23 respondents their *“negative attitude”*. 7 students stated that they consider school to be *“a part of the life”*.

In the sentence *“If the teachers...”* 29 students would wish that the teachers had *“better pedagogical skills”* and 19 students would appreciate teachers’ *“better characteristics”*.

c.) Family oriented incomplete sentences analysis

In the case of a sentence *“My father is...”* 35 students expressed their *“positive attitude”* to their own father, 12 stated *“he was working”* and 8 stated their *“negative attitude”*.

In the sentence *“My mother is...”* 44 students equally stated their *“positive attitude”* towards their mother, *“negative attitude”* was expressed by 3 students.

In the sentence *“The most important thing in my family is...”* the students state a broad scale of completions. Except of few exceptions, this sentence was finished in the meaning of strong family values. People are wishing each other health, happiness, love and family understanding when congratulating someone. Equally, such values were mentioned in the sentence completions. The value of *“love”* was mentioned by 21 students, *“understanding”* by 10 students, *“social cohesion”* (9), *“to be a member of a family at all”* by 8 students. *“Health”* was mentioned only by 3 students, but as the proverb goes, the health will be appreciated as soon as one doesn’t have it anymore. Considering the age of respondents it is probable that the health is not absent in their life yet and they therefore perceive the value of health only marginally.

CONCLUSIONS

The goal of the study was to evaluate the value system of adolescents through quality oriented research. We have applied the method of incomplete sentences oriented onto three areas – the adolescent himself and his personality, educational environment and family of the adolescent. The research has shown that the adolescents perceive themselves as a part of the society, mainly of the school community. They are aware of their strengths and weaknesses, but are not always able to use them for their good. Many respondents have said laziness was their weakness and expressed their wish to be more persistent in following their dream or to be able to advocate their opinion.

Adolescents perceive school as a certain value and perceive it more positively, although many have negative attitude towards school or perceive it as an inevitable part of their life. They understand that the school will help them to move forward in life and to achieve something. They think that certain self-denial, motivation, self-consciousness, goal-orientation or persistence in advocating one’s opinion or persuasion are necessary to be successful in life. However they would appreciate modernization of the education system as well as changes in approach of teachers as such. As for teachers, they would welcome better characteristics, greater tolerance, empathetic attitude, openness or friendliness, but also better performance of pedagogical skills. Šramová (2014) has done a research on students preparing for teaching profession, which among others showed insufficient preparation of future teachers for practical teaching. It showed that the students are aware that to obtain a required amount of theoretical knowledge is necessary, however, they would put more emphasis on managing so called practical skills, which they lack in their preparation for the teaching profession (Šramová, 2014).

Adolescents participating in our research perceive education as an important value and part of their life, even if they feel overloaded in learning, mainly in learning of things they consider unnecessary for their future. The collective of their class, or social relationships and climate are perceived as very important part of educational environment. They appreciate, when they feel supported within class collective. It demonstrates the importance of social standards in the group they are members of.

Family and good relations within family are important value in a life of an adolescent. Positively evaluated are mainly understanding, love, and cohesion within family and even possibility to belong to a family. The value of health was present in adolescents’ expressions only marginally.

According to Machů and Navrátilová (2014), the teachers are usually not acquainted with the values of their pupils. Therefore it is hard for them to find a direction to which the pupils should be formed, although it is teachers who, along with family members of a child, may have the most significant influence on formation of pupil’s personality and value system.

According to Vernarcová and Ternényová (2016) teachers can make a world of difference for all students and can help them to succeed by implementing certain adaptations or interventions. Knowing the values of their students can lead to maximizing of learning process.

We agree with Brunclíková and Cabanová (2017), that the individual, and the formation of his value system, is affected by the closest surroundings and, last but not least, the society in which he grows up and in which his own moral attitudes, values and own worldview are shaped. An individual personally recognizes the world with

its own opportunities and opportunities, and is self-confident in its own form of behavior resulting from its value orientation (Brunclíková, Cabanová, 2017). The value system keeps continually developing and a young person is therefore confronted with alternatives, outer pressures and social changes that influence his / her preferences very much. In this stage is therefore necessary to mention education to values that also leads to adolescent's personality cultivation process (Šramová, Hamranová, 2015).

Our new study opens further questions and new topic in the field of values and value systems of adolescents that we plan to analyse in the future.

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The Anxiety Levels of University Students Residing at State Dormitory

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ABSTRACT

Objective: This study was planned as a descriptive study to determine the anxiety levels of university students residing at state dormitory.

Materials and Methods: The research was carried out among female and male students residing in dormitories linked to Trabzon province Credit and Residence Institution. A total of 243 students (115 girls-128 boys) formed the sample of the research. Beck Anxiety Inventory (BAE) and a data collection tool developed by researchers were used. Due to the abnormal distribution of anxiety scores by gender and other grouping variables ($p = 0,001$) and the non-homogeneous distribution ($p = 0,002$), analyze was performed by non-parametric methods and Mann Whitney-U test was applied.

Findings: Of the 243 students who completed the whole questionnaire, 47.2% were females ($n = 115$) and 52.8% were males. 80.0% of female students ($n = 92$) and 72.7% of male students ($n = 93$) were found to have severe anxiety. 78.8% ($n = 115$) of students with severe anxiety were between 21-23 age group. There was a significant relationship between students' anxiety levels by gender ($p = 0.007$). The mean rank of anxiety scores of females (134,88; $n = 115$) was found to be higher than that of male anxiety scores (110,43; $n = 128$) ($Z = -2,710$; $p = 0.007$). No significant relationship was found between students' regular drug use and anxiety levels ($p = 0.072$).

Results: It has been determined that a large part of the students residing at dormitory have severe anxiety. The relatively small number of the sample restrains the generalization of the results. It is suggested that similar studies should be carried out with larger samples to achieve more generalized results.

Keywords: Anxiety Level, University Students, State Dormitory

INTRODUCTION

University youth is the most dynamic indicator of the sociocultural structure of society. The most important features which distinguish university youth from other youth groups are; they are managers, decision makers and well-equipped individuals. It is a social task to determine the problems of university youth and to offer solutions in order to make it possible for the countries to develop and advance. The years of university studenthood are one of the most turbulent stages of development and the last phase of adolescence, which is considered to be a transitional period, both socially and biologically. In addition to the general confusion of adolescence, this period

has been a period of many problems such as separation from the family and home, friends and group selection, candidacy for a job and uncertainty about finding a job (Hergüner, Arslan, and Dündar, 2002).

University youth and the problems that this young group faces are important issues that need to be addressed. These problems have different dimensions. Failing to find answers on many questions about physical development and sexuality, exam problems, fatigue due to extreme work, difficulties in interpersonal relations, difficulties in establishing girlfriend/boyfriend relations, neurotic tendencies, anxiety, depression, problems of adaptation to the environment, problems in dormitory, extreme dependence on parents and homeland, academic and professional problems and social cohesion are among the well known and pending problems of university youth (Kutlu, 2004). Psychological problems of this group are more common and striking; because they are more prone to change within the youth segment due to its age and development characteristics, as it constitutes the most elite group of socio-economic-cultural societies and is more sensitive to contradictions to the personal, interpersonal and socio-cultural differences of their essence. Research findings indicating the degree of neuroticism in college students are higher than those in general population suggest that this situation should be addressed to the problems of this population found that 35% of university students had generalized anxiety disorder. 70% of the first year students reporting symptoms of depression, anxiety and fear also supports the findings (Güney, 1985). The studies conducted on university students showed that the former feels more lonely than the latter; males more than females, academically unsuccessful ones more than academically successful ones, the ones who spend their free time alone more than the ones who spend it with others, the ones who don't think their monthly income is sufficient for social activities more than the ones who do, the ones who don't receive social support from people more than the ones who do, the ones who don't have a lot of close friends more than the ones who do, the ones who are unwilling to form social relationships more than the ones who are willing, the ones who think they lack social abilities more than the ones who don't the ones who don't open up about their problems more than the ones who do, the ones who are not comfortable with their relationships with their mother, father, opposite sex, same sex, siblings more than the ones who are and the ones who are not content with their parents' relationships more than the ones who are (Buluş, 1997).

Before the students begin studying at the university, there is a need for orientation and assistance in order to be able to solve the problems they may encounter in college life. These services enable students to adapt to the university environment, to adapt and to solve the problems they may encounter in the first few days and to participate more often and effectively in education and training activities. With these exercise-orientation programs, it is easier for the students to adapt to the university life, to learn the difference of being a college student and to learn the academic and social facilities organized to introduce new students to the academic and social environment (Kutlu, 2004).

ANXIETY

Like other illnesses, it is also possible to treat depression, so called "disease of the century". Clinical methods for treatment are widely applied. It is known that in the eighteen-month treatment and follow-up program of depressive patients, the rates of regular and recommended use of drugs remain at around 70-80%, even if all conditions are met. This is an important reality that reduces the ability to cope with depression (Eskin, Ertekin, Harlak and Dereboy, 2008). We could define anxiety as the degree of fearing the future and worry that we can not express.

Anxiety is a warning for 'being alert'. It warns about the emerging threats and ensures that the person takes precautions to deal with them. Fear is a similar warning; but it is an outward, well-known, clearly defined reaction to a threat which is not rooted in internal conflict. Anxiety, however, is a response that is shown against a threat that is based on unknown, innate, uncertain or rooted internal conflict. It is often difficult to make a distinction between these two items; since fear may result in the displacement of an unconscious, innocent, repressed stimulus to another object in the outside world (Carvey, 1998). Anxiety, known as apprehension or grief, manifests itself in breathing problems, tremors, and the emergence of displacing an internally suppressed stimulus to another object on the outside world. In addition, psychological problems such as distress, excitement, and the feel of facing bad things are other symptoms of anxiety (Mantar, Yemez, and Alkin, 2011).

MATERIALS AND METHOD

The research was carried out among female and male students residing in dormitories linked to Trabzon province Credit and Residence Institution. A total of 243 students (115 girls-128 boys) formed the sample of the research.

In order to obtain the data, the Beck Anxiety Inventory (BAE) was used to measure the anxiety levels of the student group, along with the Information Form containing information such as scholarship, marital status, work, family and financial status of male and female students. The Beck Anxiety Scale measures the prevalence of anxiety symptoms experienced by an individual. Based on self-report, BAE consists of 21 items, and each item is scored between 0 and 3, and the total score ranges from 0 to 63. The amount of the total scores on the scale indicates the severity of the anxiety experienced by the individual (Arlhur, Charles, 1967). It's validation and reliability study was carried out by (Ulusoy et al. 1998) in our country. For the statistical analysis of the data obtained in the study, 21.0 package program of SPSS (Statistical Package for the Social Sciences) licensed by KTU was used. Normal distributions of variables were examined by Kolmogorov-Smirnov test; and since the data were not normally distributed ($p = 0.001$), Mann Whitney-U test was used to compare beck anxiety scores between groups. Same tests were applied on new continuous variables defined on the scores of the factors representing the subgroups ($p < 0.001$), which were determined as the result of the factor analysis applied on the scale. A chi-square test was used to compare the questions in the questionnaire filled by the participants and to determine the family structure, education level, social and cultural characteristics of the participants and the scale scores categorized according to the specified criteria (Beck, Epstein, Brown and Steer, 1988). No statistically significant result was found in any of these analyzes. A chi-square test was then used to examine the answers given to each item of the BAE scale and the distributions given to the questionnaire questions. As a result of this analysis, significant correlations were found between some questionnaire items and some items of BAE scale.

FINDINGS

Of the 243 students who completed the questionnaire completely, 47.2% were female ($n = 115$) and 52.8% were male ($n = 128$). Of the participants, 29.6% ($n = 72$) were 18-20 years old; while 60.1% ($n = 146$) were 21-23 and 10.3% ($n = 25$) were 23 years and over. 95.5% of the participants ($n = 232$) had their birth-mother, while 2.9% ($n = 7$) had step-mothers. 82.7% of the participants ($n = 201$) had their birth-father, while 2.9% ($n = 7$) of them had step-fathers. 25.5% ($n = 62$) of participants were smokers, while 12.4% ($n = 30$) of them used alcohol.

As for the results of the Mann-Whitney-U test regarding whether the BeckAnxiety scores of 243 students who participated in the survey and filled the questionnaire completely differed according to the gender, there was a significant difference in the distribution of Beck Anxiety scores between the genders ($p = 0.007$). The mean scores of the anxiety scores of females (134,88; $n = 115$) were found to be statistically significantly higher than the mean scores of the anxiety scores of males (110,43; $n = 128$) ($Z = -2,710$; $p = 0,007$).

Table 1: Analysis Result Representing Beck Anxiety Scores By Gender

Gender	n	Beck Anxiety Scores	
		Mean Rank	Median
Female	115	134,88	34 (27-42)*
Male	128	110,43	31 (26-37)*
Total	243	-	32 (27-39)*
* 25. ve 75. percentile values ($U = 5879,0$; $Z = -2,710$; $p = 0,007$)			

The Kaise-Meyer-Olkin sampling adequacy measure, corresponding to the number of selected samples and the factor analysis technique, was found to be above the 0.5 threshold (0.893), which was widely accepted in the literature, and the Bartlett sphericity test result was found to be statistically significant ($X^2 = 1797,539$; $p < 0,0001$). Findings show that factor analysis can be performed on the scale filled by the individuals who constitute our sample. In this direction, maximum likelihood (maximumlikelihood) was used as the factor deduction method for the scale, and Kaiser normalization and Oblimin rotation were applied as the rotation method. As a result of the factor analysis applied by the mentioned methods, it was determined that BAE items consisting of 21 items are clustered within three subgroups ($X^2 = 269,883$; $p < 0,0001$).

Table 2: Factor Groups Including Clusters, Which Are Formed by Factor Analyzes (ranked by the coefficient of the most relevance to the relevant factor)

Factor	Items Contained By The Factor
Factor 1 (Physical Manifestations)	Item 2: Hot flush Item 1: Numbness or tingling somewhere on the body, Item 3: Malaise on legs, tremor, Item 18: Indigestion, dyspepsia, Item 6: Dizziness or drowsiness, Item 11: Zonesthesia, Item 20: Blush, Item 21: Cold sweat, Item 10: Irritability, Item 4: Inability to relax, Item 7: Tachycardia, Item 19: Fainting
Factor 2 (Shivering)	Item 12: Tremor in hands, Item 13: Shakiness,
Factor 3 (Fears)	Item 17: Being possessed by fear, Item 16: Fear of death, Item 5: Fear of worse thing to happen,, Item 9: Being terrified, Item 14: Fear of losing control, Item 8: Fear of losing stability, Item 15: Having trouble to breathe

Factor Score Statistics

Table 3: The analysis result showing the gender-specific difference of the first factor scores clustering on the items that express physical indicators

Gender	n	First Factor Score	
		Mean Rank	Median
Female	115	141,33	21 (17-25)*
Male	128	104,64	18 (15-21)*
Total	243	-	19 (16-23)*

* 25. ve 75. percentile values
(U=5137,5; Z=-4,070; p<0,0001)

Table 4: Analysis result showing the difference of third factor scores clustering on items expressing the fear of step-father status

Step-father	n	Third Factor Score	
		Mean Rank	Median
Yes	7	162,57	15 (12-19)*
No	208	106,16	10 (8-13)*
Total	215	-	10 (8-13)*

* 25. ve 75. percentile values
(U=346,0; Z=-2,379; p=0,017)

Table 5: Analysis result showing the difference of second factor scores clustering on the items we can express as tremor according to scholarship status

Getting scholarship	n	Second Factor Score	
		Mean Rank	Median
Yes	100	131,08	2 (2-4)*
No	143	115,65	2 (2-3)*
Total	243	-	2 (2-3)*

* 25. ve 75. percentile values
(U=6242,0; Z=-1,906; p=0,05)

Table 6: Analysis result showing the difference in the third factor scores clustering on the items expressing fear according to regular drug use status

Regular Drug Use	n	Third Factor Score	
		Mean Rank	Median
Yes	19	149,37	11 (9-16)*
No	223	119,13	10 (8-13)*
Total	242	-	10 (8-13)*

* 25. ve 75. percentile values
(U=1589,0; Z=-1,824; p**=0,035)
** 10000 sample shows the single-tailed p value obtained by the Monte Carlo resampling technique. The value is the range of 99% confidence interval is 0.031 to 0.040.

Chi-square test analyzes analyzing the responses to each item of BAO scale and the answers to questionnaire

Table 7: Distribution of responses to the first item of the scale according to working status

n		Item 1: Numbness or tingling somewhere on the body,				Total
		Never	Mildly	Medium Level	High Level	
Working Status	Employed	17	7	3	3	30
	Non-employed	118	61	31	3	213
Total		135	68	34	6	243

$X^2=8,523$; $p=0,036$

Table 8: Distribution of responses to the second item of the scale according to education level of the mother

n		Item 2: Hot flush				Total
		Never	Mildly	Medium Level	High Level	
Education Level of Mother	Literate	11	3	0	0	14
	Elementary School	51	48	22	1	122
	Secondary School	32	13	7	5	57
	High School	19	10	2	1	32
	University	10	5	2	1	18
Total		123	79	33	8	243

$X^2=22,329$; $p=0,034$

Table 9: Distribution of responses to the third item of the scale according to gender

n		Madde 3: Item 3: Malaise on legs, tremor				Total
		Never	Mildly	Medium Level	High Level	
Gender	Female	64	21	25	5	115
	Male	82	39	4	3	128
Total		146	60	29	8	243

$X^2=22,696$; $p<0,0001$

Table 10: Distribution of responses to the sixth item of the scale according to gender

n		Item 6: Dizziness or drowsiness				Total
		Never	Mildly	Medium Level	High Level	
Gender	Female	49	41	22	3	115
	Male	81	33	12	2	128
Total		130	74	34	5	243
$X^2=11,220$; $p=0,011$						

Table 11: Distribution of responses to the sixth item of the scale according to parental attitude

n		Item 6: Dizziness or drowsiness				Total
		Never	Mildly	Medium Level	High Level	
Parental Attitude	Protective	60	50	24	3	137
	Democratic	43	16	6	0	65
	Careless	1	1	3	2	7
	Authoritarian	26	6	1	0	33
	No response	0	1	0	0	1
Total		130	74	34	5	243
$X^2=52,417$; $p<0,0001$						

Table 12: Distribution of responses to the seventh item of the scale according to parental attitude

n		Item 7: Tachycardia				Total
		Never	Mildly	Medium Level	High Level	
Parental Attitude	Protective	86	27	18	6	137
	Democratic	39	18	7	1	65
	Careless	0	2	3	2	7
	Authoritarian	22	8	2	1	33
	No response	1	0	0	0	1
Total		148	55	30	10	243
$X^2=24,447$; $p=0,018$						

Table 13: Distribution of responses to the ninth item of the scale according to stepfather status

n		Item 9: Being terrified				Total
		Never	Mildly	Medium Level	High Level	
Stepfather Status	Yes	3	1	3	0	7
	No	146	36	22	4	208
	No Response	18	3	4	2	27
Total		167	40	29	6	242
$X^2=47,350$; $p<0,0001$						

Table 14: Distribution of responses to the tenth item according to gender

n		Item 10: Irritability				Total
		Never	Mildly	Medium Level	High Level	
Gender	Female	17	33	40	25	115
	Male	40	44	31	13	128
Total		57	77	71	38	243
$X^2=15,130$; $p=0,002$						

Table 15: Distribution of responses to the tenth item of the scale according to mother's existance

n		Item 10: Irritability				Total
		Never	Mildly	Medium Level	High Level	
Mother's Existance	Yes	50	76	70	36	232
	No	7	1	1	2	11
Total		57	77	71	38	243
$X^2=11,431$; $p=0,01$						

Table 16: Distribution of responses to the tenth item of the scale according to stepfather status

n		Item 10: Irritability				Total
		Never	Mildly	Medium Level	High Level	
Stepfather Status	Yes	3	1	0	3	7
	No	48	71	56	33	208
	No Response	6	4	15	2	27
Total		57	76	71	38	242
$X^2=21,796$; $p=0,01$						

Table 17: Distribution of responses to the tenth item of the scale according to education level of father

n		Item 10: Irritability				Total
		Never	Mildly	Medium Level	High Level	
Education	Literate	3	0	0	1	4
Level of Father	Elementary School	15	24	20	21	80
	Secondary School	12	18	15	8	53
	High School	20	19	25	2	66
	University	7	16	11	4	38
Total		57	77	71	36	241
$X^2=29,615$; $p=0,013$						

Table 18: Distribution of responses to the thirteenth item of the scale according to working status

n		Item 13: Shakiness				Total
		Never	Mildly	Medium Level	High Level	
Working Status	Employed	20	4	5	1	30
	Non-employed	165	38	9	1	213
Total		185	42	14	2	243

$X^2=10,397$; $p=0,015$

Table 19: Distribution of responses to the sixteenth measure of the scale according to fathers existence

n		Item 16: Fear of Death				Total
		Never	Mildly	Medium Level	High Level	
Father's Existence	Yes	136	38	17	10	201
	No	12	10	1	0	23
	No Response	15	1	3	0	19
Total		163	49	21	10	243

$X^2=13,332$; $p=0,038$

Table 20: Distribution of responses to seventeen items on the scale according to the regular drug use

n		Item 17: Being possessed by fear				Total
		Never	Mildly	Medium Level	High Level	
Regular Drug Use	Yes	7	7	1	4	19
	No	125	60	30	8	223
	No Response	0	1	0	0	1
Total		132	68	31	12	243

$X^2=16,127$; $p=0,013$

Table 21: Distribution of responses to the eighteenth item of the scale according to gender

n		Item 18: Indigestion, dyspepsia				Total
		Never	Mildly	Medium Level	High Level	
Gender	Female	32	32	34	17	115
	Male	73	31	18	6	128
Total		105	63	52	23	243

$X^2=25,587$; $p<0,0001$

Table 22: Distribution of responses to the twentieth item of the scale according to gender

n		Item 20: Blush				Total
		Never	Mildly	Medium Level	High Level	
Gender	Female	52	35	20	8	115
	Male	80	32	13	3	128
Total		132	67	33	11	243
$X^2=9,162$; $p=0,027$						

Table 23: Distribution of responses to the twenty-first item of the scale according to gender

n		Madde 21: Item 21: Cold sweat				Toplam
		Never	Mildly	Medium Level	High Level	
Gender	Female	49	40	19	7	115
	Male	83	26	13	6	128
Total		132	66	32	13	243
$X^2=12,269$; $p=0,007$						

RESULTS

When the respondents were categorized in the Beckankset scores, it was found that there was moderate or severe anxiety in all participants. This result shows that complaints of anxiety disorder, which is increasing in our country and in the world, was found to be at high level in our present sample.

In terms of our study sample, it was seen that the anxiety complaints in females were higher than the males ($U=5879,0$; $Z=-2,710$; $p=0,007$). It was found that there was a more significant difference in the level of statistical significance between this score and gender and that the physical symptom severity due to anxiety in females was higher than males ($U=5137,5$; $Z=-4,070$; $p<0,0001$).

Family structure and dependence were also found to be significantly different between the anxiety scores obtained by factor analysis. Third factor scores, focusing on fears of the step-father wise and drug-addicted (regular drug users) survey participants, were also found to be higher than those of birth-father wise and non-drug users. This result shows that the frequency of mental disorders and various fears is higher in individuals living with stepfather and using drugs regularly.

Analyzes of relationships between BAE items and other questions directed to participants in the questionnaire showed that there was a statistically significant relationship between some items of the scale and some of the survey questions. Similar to other findings, these significant relationships were found to be related to variables such as gender, family structure (parental attitude, mother's existance, father's existance, step-father), and dependency status (regular drug use). With this type of analysis; it was found that unlike other findings, the education level of the parents created significant difference in terms of some scale items.

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The Application of Linear Algebra in Examples as a Motivating Tool for Teaching Mathematics at Universities

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ABSTRACT

This paper deals with the question as to how to formulate solved examples of mathematical applications, and also, how these should be presented directly in Mathematics tuition, so that these examples could motivate students to a true interest in the study of this subject. Herein, some principles - and especially, demonstrations show how it is possible to formulate motivating examples from mathematical applications; and more specifically, from Linear Algebra. Linear Algebra is usually taught during the first term at most universities – as is the case for Tomas Bata University in Zlín. Linear Algebra is not one of the most difficult parts of Mathematics. For these reasons, it is useful - in the course of teaching Linear Algebra to demonstrate in an intelligible way, the wide scale and possibilities of its use in the solution of real problems. The authors are preparing a collection of solved Linear Algebra and Single and Multivariable Calculus examples; and in this paper, want to describe their experiences - which could be of use to other university teachers, or students.

Keywords: Linear algebra, teaching Mathematics, ISO Standards

INTRODUCTION

"A student is not a vessel in need of filling; but a torch in need of lighting". This is quotation of Jan Amos Komenský alias Comenius (*1592-1670†), the internationally recognised Czech thinker. He was entitled "Teacher of Nations ". The selection and presentation of some suitable motivational solved examples of linear algebra for teaching this part of Mathematics courses can most certainly, contribute to Comenius' quotation above such that it could become a reality.

These solved mathematical problems were - and still are, very popular with students. After studying them, the solved examples are much easier for individual students to calculate. However, it is not an easy task to select some suitably motivational solved examples from practice for the introductory lessons in which is applied linear algebra is presented in an interesting manner, with lots of wide-ranging, uncomplicated, and also effective examples for students. This is - for a Mathematics teacher of course, a subjective task, although one tries to remain as objective as possible. In addition, every experienced teacher rarely uses good-quality materials unchanged without perhaps changing them in some way - because, as is generally known, everything can be improved ... and history has proven many times that Maths can approach the solution of the same task with the application of a variety of procedures.

The authors believe that this paper presents three samples of three motivational solved examples that could fulfil the above task. Incidentally, the first of the authors is a university lecturer and the second is a student. These three examples are part of the upcoming collection of solved examples of Mathematical applications for students in the first semesters of the Faculty of Management and Economics and the Faculty of Applied Informatics of TBU in Zlín.

When preparing the motivational examples, the authors pondered over their form of expression - given in PDF format, as well as to their content. Distance (Combined) Studies students as well full-time student, must sometimes make do with a passive form of presentation of such examples. The examples are, in such cases, are usually located on the web, e.g. in Moodle-based Tuition courses, for these students.

All three examples are written in such a way that any student who has absolved several hours of tuition of linear algebra should understand them. The first two examples are logically inter-connected and resolve the same problem - chosen from the Economics field, by using various mathematical tools. Students can easily understand these two examples if they can master basic arithmetic operations like vectors or matrices, and can calculate

the inverse matrix. The third example is from the Traffic Flow Smoothness Control Field - and is thus, used for ensuring greater road safety. To understand this example, it is enough to know the classical Rouché-Capelli-Frobenius Theorem and its significance for solving linear equation systems, where the Gaussian Elimination method is used. The requisite curriculum materials usually teach such examples in the introductory parts of Linear Algebra.

Let us now look in more detail at the formulation of these examples. The structure of each example starts with the name of the example. The name is in bold font, while professional terminology keywords are in bold italics in order to increase their distinction. The authors consider the inclusion of the name in the example as an extremely important fact from the didactic point-of-view because it is, somehow, an abstract that informs students with the maximum attempt for brevity; about what Mathematical tools are needed to be applied in order to solve the problem in practice. This is definitely helpful for both students and teachers if a teacher needs to work with an example, e.g., after a long time delay.

Examples are sometimes complemented by tasking instructions, concluded by a highlighted symbol. After the instructions, remarks are also sometimes included after the formulation of the example, in cases where it is necessary to complement the Linear Algebra subject matter by an explanation that connects theory with practice area under consideration. This necessarily requires the explanation of the technical terminology, but sometimes - also to describe in a solved practical problem in more detail. The remark can have a fundamental importance for the correct understanding of the example's formulation, as well as for its solution. The key professional terms are re-highlighted again.

Another part of the example is its solution. Here, the principle is respected that each figure contains its title with an intelligible content. As a matter of course, using the appropriate national standard (Czech Standard ISO 80000-2: 2012) should be used for writing mathematical symbols. Any national standard always takes into account the corresponding international standard (i.e. International Standard ISO 80000 -2: 2009). In some mathematical publications at conferences especially - this is not always respected; since the journals' editors keep an eye on complying with all such requirements.

Herein under are the demonstrations of three such examples.

RESULTS - SAMPLE SOLVED MOTIVATIONAL LINEAR ALGEBRA EXAMPLES

EXAMPLE 1

The **input-output matrix** application for the calculation of product **production** takes into consideration the **total consumption of raw materials** where the **input-output matrix** is known and this represents the **linear input-output model of that production**.

A company produces two products V_1 and V_2 and the consumption per unit quantities of the raw materials S_1 and S_2 is given by the following **input-output matrix** A

$$A = \begin{pmatrix} 1 & 5 \\ 3 & 4 \end{pmatrix} \begin{matrix} S_1 \\ S_2 \end{matrix}$$

$$\begin{matrix} V_1 & V_2 \end{matrix}$$

We can interpret the first column of matrix A in a way such that the production of 1 piece (more generally speaking, of one measurement unit) of the product V_1 consumes the raw materials S_1 and S_2 , respectively, with the values of 1 and 3 currency-units respectively. Thus, matrix A describes the mapping between the consumed input S_1 and S_2 and output V_1 and V_2 ; and that we can sketch this situation schematically as follows

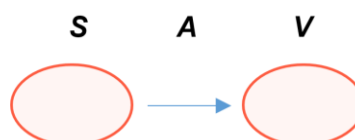


Fig. 1: Relationship between raw materials S and products V , as defined by input-output matrix A

The company has secured a contract in a given year with a supplier for 1,400 units of material S_1 , and 2,000 units of material S_2 .

1. Discover whether it is possible for the company to determine the number of pieces k_1 and k_2 respectively, of products V_1 and V_2 in which all of the contracted raw materials are consumed.
2. How will production change, in the course of which – and using the given production model, it processed only 950 units of raw material S_1 and 650 units of raw material S_2 which is already available in the company's stores? ■

SOLUTION:

Ad 1. Define the "input" vector of the raw material items

$$\vec{x} := (1,400; 2,000) \quad (1)$$

and, examine the change in coordinates when it is expressed as a linear combination of certain vectors \vec{a}_1, \vec{a}_2

$$\vec{x} = k_1 \vec{a}_1 + k_2 \vec{a}_2, \quad (2)$$

where the respective real coefficient k_1 and k_2 determines the number of measurement units - (here, units/pieces), of a product V_1 and V_2 and vectors $\vec{a}_1 = (1, 3)$, $\vec{a}_2 = (5, 4)$ are defined by the columns of input-output matrix A . It is sometimes useful to substitute the coordinate form of the "input" vector \vec{x} from (1) in the **standard basis**

$$Be = \langle \vec{e}_1, \vec{e}_2 \rangle = \langle (1, 0), (0, 1) \rangle, \quad (3)$$

whose coordinates in (1), define the consumption of raw materials, it is sometimes highly useful to move over to its **Semi-Cartesian** form to express the linear combination in the initial standard base Be from (3). It holds

$$\begin{aligned} \vec{x} &= (1,400; 2,000)_{Be} = 1,400\vec{e}_1 + 2,000\vec{e}_2 = 1,400 \cdot (1, 0) + 2,000 \cdot (0, 1) = \\ &= (1,400; 0) + (0; 2,000) = (1,400; 2,000), \end{aligned}$$

from which, it is clear that it is only in the standard basis that the coordinates of an arbitrary vector are the same as the corresponding coefficients of the respective linear combination are. Since our vectors \vec{a}_1, \vec{a}_2 – taken from the columns of matrix A , are **linearly independent**, these vectors then define a further basis Ba (one of infinitely many "possibles")

$$\langle \vec{a}_1, \vec{a}_2 \rangle = \langle (1, 3), (5, 4) \rangle =: Ba \quad (4)$$

in a **Real Arithmetic Vector Space** \mathbb{R}^2 , of **dimension 2**; thus the **scalars** k_1, k_2 are determined uniquely, and express new "output" vector coordinates \vec{x} , in the basis of Ba .

By substituting these into **Vector Equation** (2) and their rewriting by individual coordinates; one successively has

$$\begin{aligned} (1,400; 2,000) &= k_1(1, 3) + k_2(5, 4) \\ 1,400 &= k_1 + 5k_2 \\ 2,000 &= 3k_1 + 4k_2. \end{aligned} \quad (5)$$

The solution of this linear equation is $k_1 = 400$, $k_2 = 200$, or the **Vector Solution** $(k_1, k_2) = (400, 200)$. This "output" production solution vector, (more details on this are provided in Example 2), can be written in a more detailed manner based on Ba , as follows

$$\vec{x}_{Ba} = (k_1, k_2)_{Ba} = (400, 200)_{Ba},$$

thus, this vector's calculated coordinates in the basis Ba , defined by the columns of input-output matrix A , establish the production of 400 units (pieces) of the product V_1 , and 200 units of the product V_2 , in the course of which the total consumption of the contracted raw materials is ensured.

Also, note in addition the validity of a **matrix equation with (untraditional) row vectors**

$$(1,400; 2,000) = \boxed{\vec{x}_{Be} = \vec{x}_{Ba} \cdot A^T} = (400, 200) \cdot \begin{pmatrix} 1 & 3 \\ 5 & 4 \end{pmatrix}. \quad (6)$$

Ad2. A production process - according to the given model for the total consumption only (sourced) from raw materials in stock S_1 and S_2 , respectively, in quantities of 950, respectively 650 units, cannot occur - precisely

because the exactly one form of "input" vector $\vec{x}^0 = (950, 650)$ would then - according to the basis B_α , (easily verified by resolving an analogous linear equation system, like (5)) the "output" form

$$\vec{x}_{B_\alpha}^0 = (-50, 200)_{B_\alpha},$$

in which the negative number $k_1 = -50$ of product V_1 units does not correspond to reality, while – at the same time, each differing linear combination $k_1 \vec{a}_1 + k_2 \vec{a}_2$ would lead to a different vector than the required "input" vector $(950, 650)$.

EXAMPLE 2

The application of the *inverse* matrix A^{-1} relative to the *input-output* matrix A for the solution of a matrix equation which describes the role of the production of products while considering the *total consumption of raw materials* - formulated in Example 1, and which now will represent the *Linear Production Model*.

Reformulate Example 1 - the production of products V_1 and V_2 from raw materials S_1 and S_2 , where production is given by square matrix A , into the matrix equation formulation

$$S = A \cdot V, \quad (1)$$

where S or respectively V , is given by the *Consumption Matrix*, respectively the sought *Production Matrix*. ■

Comment Regarding Theory

In Example 1 about the production of products V_1 and V_2 and the total consumption of the raw material costs S_1 and S_2 , a square 2×2 input-output matrix was considered

$$A = \begin{pmatrix} 1 & 5 \\ 3 & 4 \end{pmatrix}, \quad (2)$$

which - as is clear, is *regular*, i.e. $\det A = -11 \neq 0$, thus, matrix equation (1) has only one solution

$$V = A^{-1} \cdot S. \quad (3)$$

However, generally speaking, the matrix need not be square; but rectangular $m \times n$, with m rows and n columns. In this case, Equation (1) describes the situation where all of the raw materials cost items $S_1, \dots, S_i, \dots, S_m$ (where the below-mentioned items s_i are given by the number of consumed units S_i , so, one can use these to define the following *Consumption Matrix – Consumption Vector*)

$$S = \begin{pmatrix} s_1 & S_1 \\ \vdots & \vdots \\ s_i & S_i \\ \vdots & \vdots \\ s_m & S_m \end{pmatrix} \quad (4)$$

total consumption in the production of n products $V_1, \dots, V_j, \dots, V_n$, where the under-mentioned items v_j are given by the number of product measurement units V_j , hence, we can define the *Production Matrix* or *Vector* as follows

$$V = \begin{pmatrix} v_1 & V_1 \\ \vdots & \vdots \\ v_j & V_j \\ \vdots & \vdots \\ v_n & V_n \end{pmatrix} \quad (5)$$

and then, it is valid that *equation* (1), which is a *mathematical model* of the Economic Linear Production Model with matrix $A = (a_{ij})$ $i = 1, 2, \dots, m; j = 1, 2, \dots, n$. Its *element* a_{ij} *specifies the consumption of items* S_i *in the production of one product measurement unit* V_j . If its j^{th} column, (as one already knows from Example 1), expresses that - *for the production of one product measurement unit* V_j , *cost items* S_1 *are consumed* - (raw materials) a_{1j} , *etc., up to* a_{mj} *and including cost items* S_m .

In conclusion, let us note that the sum of the elements/items in the i^{th} row $a_{i1} + a_{i2} + \dots + a_{in}$ represents the **consumption per item S_i as per a certain matrix (vector) of production element/items normalized into units, (unit costs)**

$$V_E := \begin{pmatrix} 1 \\ 1 \\ \vdots \\ 1 \end{pmatrix} \begin{matrix} V_1 \\ V_2 \\ \vdots \\ V_n \end{matrix} \quad (6)$$

so, for the whole production represented by Production Matrix V from (5), a cost item S_i consumes a number of S_i consumed measurement units, which are given by the **linear combination** of values v_1, \dots, v_n with coefficients a_{i1}, \dots, a_{in} , where

$$S_i = a_{i1}v_1 + a_{i2}v_2 + \dots + a_{in}v_n. \quad (7)$$

SOLUTION:

According to Example 1 - where we used row vectors however, we can rewrite that solved linear equation system, (labelled as (5)), and which contained a given vector \vec{x} , matrix A , and a sought vector with components k_1 and k_2 and to rewrite them into matrix equation (1), using the standard column vectors, as follows

$$S = A \cdot V, \text{ where } S \equiv \vec{x} = \begin{pmatrix} 1,400 \\ 2,000 \end{pmatrix}, V \equiv \vec{v} = \begin{pmatrix} k_1 \\ k_2 \end{pmatrix}, \quad (8)$$

thus, we start from the equation

$$\begin{pmatrix} 1,400 \\ 2,000 \end{pmatrix} = \begin{pmatrix} 1 & 5 \\ 3 & 4 \end{pmatrix} \cdot \begin{pmatrix} k_1 \\ k_2 \end{pmatrix}, \quad (9)$$

or, in the equivalent form

$$\vec{x} = A \cdot \vec{v}, \quad (10)$$

from which we obtain the sought **Production Vector** by using well-known matrix operations, like

$$\vec{v} = A^{-1} \cdot \vec{x} = \frac{1}{\det A} \cdot A^{\text{adj}} \cdot \vec{x} = \frac{1}{-11} \cdot \begin{pmatrix} 4 & -5 \\ -3 & 1 \end{pmatrix} \cdot \begin{pmatrix} 1,400 \\ 2,000 \end{pmatrix} = \begin{pmatrix} 400 \\ 200 \end{pmatrix}. \quad (11)$$

Perhaps as an interesting point, let us note that - should we use row vectors $\vec{x}, (k_1, k_2) = \vec{v}$ like in Example 1; we would have to write vector-matrix equations (10) - due to the existence of the feasibility of matrix multiplication in a different order of vector and matrix, as well as the local column vectors \vec{x}, \vec{v} . These can then be transposed into row vectors \vec{x}^T, \vec{v}^T and then, it would analogically hold that

$$\vec{x}^T = \vec{v}^T \cdot A \quad (10^*)$$

$$\vec{v}^T = \vec{x}^T \cdot A^{-1}. \quad (11^*)$$

EXAMPLE 3

The application of a *parametric* form for the solution of some system of linear equations in order to calculate the maximum frequency on the controlled segment of a road traffic-flow network, consisting of four transport nodes as a necessary element of its *smooth traffic flows* and *security* in the course of fulfilling the required traffic frequencies on two exit roads

The required frequency of the road traffic network is given by the following figure

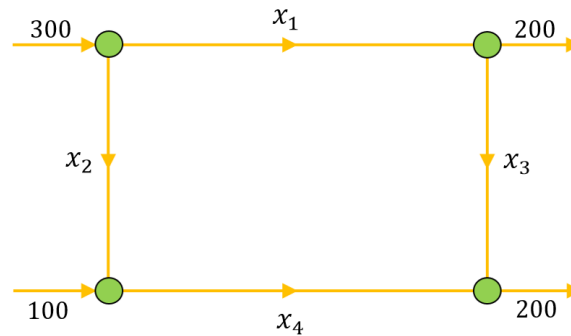


Fig. 2: Resolving smooth traffic flows

from which, it is evident that we want to reach the same traffic-load on two (parallel) exit roads that is equal to a frequency of 200 cars per minute. What are the frequencies on the roads x_1, x_2, x_4 , if we require the actually controlled frequency of only 60 cars per minute on the given segment x_3 , in addition, what is the maximum possible frequency that can be achieved on the controlled road x_3 in question, under the conditions displayed by the traffic diagram? ■

SOLUTION:

The system of linear equations that corresponds to these crossroads has the following form

$$\begin{aligned} x_1 + x_2 &= 300 \\ 100 + x_2 &= x_4 \\ x_3 + x_4 &= 200 \\ 200 + x_3 &= x_1. \end{aligned}$$

The equivalent elementary (row) operations of the augmented matrix of our system, together with a Gaussian elimination, successively give its following reduced row echelon form

$$\begin{aligned} \left(\begin{array}{cccc|c} 1 & 1 & 0 & 0 & 300 \\ 0 & 1 & 0 & -1 & -100 \\ 0 & 0 & 1 & 1 & 200 \\ 1 & 0 & -1 & 0 & 200 \end{array} \right) & \xrightarrow{\cdot(-1)} \sim \left(\begin{array}{cccc|c} 1 & 1 & 0 & 0 & 300 \\ 0 & 1 & 0 & -1 & -100 \\ 0 & 0 & 1 & 1 & 200 \\ 0 & 1 & 1 & 0 & 100 \end{array} \right) \xrightarrow{\cdot(-1)} \sim \left(\begin{array}{cccc|c} 1 & 1 & 0 & 0 & 300 \\ 0 & 1 & 0 & -1 & -100 \\ 0 & 0 & 1 & 1 & 200 \\ 0 & 0 & 1 & 1 & 200 \end{array} \right) \\ & \sim \left(\begin{array}{cccc|c} 1 & 1 & 0 & 0 & 300 \\ 0 & 1 & 0 & -1 & -100 \\ 0 & 0 & 1 & 1 & 200 \end{array} \right) \end{aligned}$$

and from here, by means of back-substitution into this reduced system of equations and the choice of unknowns x_3 like parameter t , and as well as the requirement that the frequency values are non-negative, we arrive at the following relationships

$$\begin{aligned} x_3 &= t \geq 0 \\ x_4 &= 200 - t \geq 0 \Rightarrow t \leq 200 \\ x_2 &= 100 - t \geq 0 \Rightarrow t \leq 100 \\ x_1 &= 200 + t \geq 0. \end{aligned}$$

Thus, when we substitute the currently-desired controlled frequency $x_3 = 60$ of cars per minute for all admissible values of the controlled frequency $x_3 \leq 100$, (as per the Rouché–Capelli–Frobenius Theorem about particular solutions from the infinite number of possible solutions), we obtain - by successive substitution, the resulting optimized frequencies

$$x_1 = 260; x_2 = 40; x_3 = 60; x_4 = 140,$$

that ensure the smooth flow and security of traffic in the monitored segment.

CONCLUSIONS

If a teacher has enough time for an active form of communicating examples, whereby the authors mean the presentation of such examples during the tuition process, they can use many effective ways to make

their motivating influence much stronger. At this point, it is useful to mention motivational strategies in Mathematics teaching - these are analysed in detail by Posamentier and Krulik, (2011).

The authors hope that the examples presented in the article - which do not require any great knowledge of the linear algebra subject matter, due to its content ... and perhaps, of the form of its expression, can be an inspiration for mathematics teachers at other universities. The authors of course, would warmly welcome proposals that would improve the examples presented herein.

Note, for lectures and seminars led by Mr. Fialka (co-author), it is an advantage that - concurrent with Mathematics tuition in the first semester, there is a concurrent course in Micro-economics - this subject - more than any other requires Mathematics much more than other economic subjects. This is then, a very powerful intrinsic motivation for students to be interested in Mathematics.

This paper represents a continuation of Mr. Fialka's research into Multivariable Calculus - (Fialka, 2008a; Fialka, 2008b). The Ministry of Education, Youth and Sports of the Czech Republic supported this in the context of Research Project No. 504: Innovation in Mathematics II, on the functions of several variables by means of a web presentation with graphics and animations and its use at universities with engineering fields of studies.

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The Changes in South Korean Early Childhood Teachers' Awareness Found in the Experience of Practicing Waldorf Education

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ABSTRACT

The purpose of this study was to determine what changes the experience of practicing Waldorf education brought about in awareness among early childhood teachers in South Korea. Over 100 years have passed since early childhood education started in South Korea. Lots of overseas early childhood ideas have been introduced into South Korea, with Waldorf education relatively recently introduced. Waldorf early childhood education has made rapid, quantitative growth and teachers have participated enthusiastically in its development in South Korea for about 20 years since its principles and methods were introduced. This study made and analyzed interviews with four early childhood teachers practicing Waldorf education. They saw their awareness changed through such themes as 'early childhood teachers as theoretical and practical mediators,' 'early childhood teachers as models based on repetitive rhythmic life,' 'teachers' expertise as the basic premise for parents' positive-active cooperation,' and 'chances for reflection on true early childhood teachers.'

Keywords: Waldorf Education, Practical Experience

1. Research Background

South Korea has been affected by educational philosophies of Froebel, Piaget, Montessori, and Dewey for over 100 years after the country started to provide early childhood education. As of 2017, the South Korean early childhood education society saw lifestyle and values changed more rapidly with accelerated social changes than ever before due to urbanization, rapid development of transportation and communication culture, and the decreased childbirth rate. In such a situation, Waldorf early childhood education was introduced into South Korea as one of the various approaches to early childhood education to improve early childhood education qualitatively.

Waldorf early childhood education was selected as the Model of 21C Innovative Model in the 44th International Education Meeting held in Geneva, Switzerland under the sponsorship of UNESCO in 1994. To meet lots of demands by those concerned with education, EBS broadcasted the visit to Waldorf education institutions in Germany in 1997 and drew great attention from parents in South Korea. In 1999, the first Waldorf Kindergarten early childhood education site in South Korea was registered in the International Free Waldorf Kindergarten Association.

In South Korea, Waldorf education has made rapid, quantitative growth and incumbent teachers participated enthusiastically in the growth for 20 years after its principles and methods of Waldorf early childhood education with the curriculum based on the development of growing young children were introduced. Now lots of early

childhood education institutions completed the course of Waldorf education and tried to change into Waldorf education institutions.

This study aimed to investigate the characteristics of Waldorf education South Korean early childhood teachers perceived through their inner stories found in their daily education journals based on rhythmic life as well as in the course of exploration into Waldorfealy childhood education they experienced while practicing Waldorfealy childhood education.

II. Research Questions

What changes has the experience of practicing Waldorf education brought about in South Korean early childhood teachers' awareness?

III. Waldorf Early Childhood Education Status in South Korea

Waldorf education has rapidly spread in South Korea due to Waldorf-Education Worldwide, an international touring exhibition held in South Korea with the support of the headquarter of UNESCO in 1996, and the international symposium. To meet lots of demands by those concerned with education, the Korea Steiner Education and Art Association was established in March 1997 and EBS broadcasted the visit to Waldorf education institutions in Germany in May 1997 and broadcasted it again in November 1997 and in May 1998 and drew great attention from parents in South Korea. Due to the great attention, the Center for Anthroposophy in Korea was established in 2000. In May 1999, the first Waldorf Kindergarten early childhood education site in South Korea was registered in the International Free Waldorf Kindergarten Association and lots of early childhood education institutions have completed the course of Waldorf education and tried to change into Waldorf education institutions. The early childhood education institutions pursuing Waldorf Kindergarten and Waldorf education in South Korea are as follows:

<Table 1> Waldorf Kindergartens in South Korea

Region	Number
Seoul	6
Incheon	1
Gyeonggi	3
Busan	1
Jeonnam	1

Source: Collection from the Center for Anthroposophy in Korea, 2017 (www.steinercenter.org/)

<Table 2> Infanthood and early childhood education institutions pursuing Waldorf education

Region	Number	Region	Number
Seoul	29	Gwangmyeong	2
Bucheon	13	Gwangwon	2
Incheon	12	Anyang	2
Goyang	6	Daegu	2
Gunpo	4	Busan	1
Yongin	4	Gyeongbuk	1
Jeonnam	3	Yangpyeong	1
Ulsan	3	Pyeongtaek	1
Chungnam	3	Paju	1
Suwon	3	Yangju	1
Siheung	3	Chungbuk	1
Gwacheon	3	Daegu	1
Uiwang	2		

Source: Collection from the Center for Anthroposophy in Korea, 2017 (www.steinercenter.org/)

IV. Research Methods

1. In-depth interview

A. Participant selection

One-to-one in-depth interview was made with one director and three teachers at a Waldorf Kindergarten providing Waldorf education in Seoul. There are six Waldorf Kindergartens in Seoul as of 2017. The early childhood education institution in this study was a Waldorf Kindergarten, which had been a playroom and nursery. The participants in this study were teachers who had completed the expert's course in Waldorf education under the sponsorship of the Center for Anthroposophy in Korea and worked in practice.

B. Questionnaire development

The interview was based on a semi-structured questionnaire for the purpose of this study.

A one-to-one (semi-structured) interview was performed with each participant; reflective journals, observations, and educational journals, which had been written by the incumbent early childhood teachers, were collected for data to analyze; and I continued to communicate with the participants by phone calls as well as via e-mail during the course of the study.

C. Interview

At the first meeting for interview, the participants were given full explanation about the purport of the study and gave a consent and interview was performed in the handcrafts room for parents at the first basement level of the kindergarten between 6:30 and 9:00 p.m. every Wednesday in a total of 4 sessions between May 10 and 31, 2017.

Although I had some difficulty in performing interview with the teachers, who were tired after taking care of young children, rapport had been formed with them, thanks to the long acquaintance with the medium of Waldorf education. Before in-depth interview, I tried to make them comfortable by sharing daily routines. During the interview, the participants were basically asked to answer the questions in the semi-structured questionnaire given in advance and were given additional questions when necessary. While this study has a limitation that only one interview was performed because of the participants' location or personal schedules, reflective journals, observations, and educational journals, which had been written by the incumbent early childhood teachers, were collected for data to analyze and I continued to communicate with the participants by phone calls as well as via e-mail during the course of the study.

2. Participants

The general characteristics of a total of 4 participants in the in-depth interview are as follows:

<Table 3> General characteristics of participants

Division	Age	Childcare career in practice (yrs)	Career in Waldorf practice (yrs)	Class operation type
Director (Female)	67 (Married)	24	17	Entire nursery
Teacher A (Female)	49 (Married)	20	16	Mixed-age class for 3- to 5-year-olds
Teacher B (Female)	35 (Unmarried)	10	8	Mixed-age class for 1- and 2-year-olds
Teacher C (Female)	45 (Married)	8	6	Mixed-age class for 0- and 1-year-olds

3. Data analysis

The interviews were recorded and transcribed with the participants' consent; of the collected data, the contents repeated in their conversations and writings in relation to the theme were extracted to arrange and analyze separately. The basic unit for content analysis was from a theme to another, as told by an early childhood teacher. I repetitively read the basic units, drew items repeated in the teachers' conversations and writings in relation to the question, grouped them into a preliminary category with a common theme, analyzed the basic units according to the preliminary category, and reorganized the category until most of the basic units were categorized. Through this course, all the themes were grouped either into a single unit or into different categories on the basis of commonness and specificity. To secure integrity and validity of this study, the categorized texts were sent to my colleague, who was a graduate student; then, the participants were asked to review them.

V. Research Results

The changes in awareness among teachers practicing Waldorf education were categorized as follows:

1. Early childhood teacher as theoretical and practical mediator

Early childhood teachers in South Korea experienced conflicts between theory and practice through Waldorf education or felt confused in their values when they discovered any difference from their own and became embarrassed to find a gap between theory and practice. However, they got their own practical knowledge and attitude while experiencing the course of Waldorf education.

“I’m sure that it was quite different in practice before I received Waldorf education.

The class was quite different as well. Oil application, wet water painting, wax clay, wax crayon, woodwork, telling children's stories, outdoor play, (...), still, I tried to give instruction naturally. And I tried to pursue children-centered practice rather than fixed plans. Of course, at first, I felt unfamiliar and was poor at it, but I tried to apply Waldorf education properly to meet the rhythmic life in practice through self-reflective thinking in order to narrow the gap between its theory and practice.”

(One-to-one interview with Teacher A, May 10, 2017)

“Applying the major in early childhood education in South Korea and the experience of Waldorf education, regardless of length, in practice, we need to make steady efforts in each region or situation.. And we need to be able to apply the theory to practice properly, instead of thinking that Waldorf education is different from practice. Don't say it's hard...”

(One-to-one interview with Teacher B, May 17, 2017)

Early childhood teachers' efforts to find a more realistically appropriate solution through critical and reflective thinking in the conflicts between theory and practice and to explore and apply their own theoretical knowledge to practice was not different from the finding from literature review (Oh & Lee, 2006). They critically assessed even the educational philosophy of the institution that didn't meet theirs according to their own criteria and made efforts to connect their existing ideas, values, and theories with practice through reflective thinking during the course of Waldorf education to narrow the gap between the initial theory and practice.

2. Early childhood teacher as a 'model' based on repetitive rhythmic life

Rhythmic life means living in harmony among the orders of humans, nature, and the universe through breathing based on interaction with the world. The basic units of rhythmic life are inhalation and exhalation, which are repeated. This refers to continuity of the same, but not same, repetitions. Young children like repetition. In early childhood education institutions, yearly, monthly, weekly, and daily routines are all continuity of repetitions. Repetitive rhythmic life allows young children to trust the world and makes their physical rhythm healthy. In the rhythmic life, which is repeated every day, young children become aware of the order in the stream of time and

make life rhythms inherent in their consciousness while experiencing the stream of time. They experience weekly rhythms through different activities on a weekly basis. What they have experienced repetitively are internalized and they memorize even its details. What happens is repeated through repetitive experiences and is expressed in continuous rhythms.

Teachers also repeat rhythmic life each moment together with young children. In a stable daily rhythmic life, young children learn about the world by imitating and modeling teachers, who indicate a direction as a model for the children. Early childhood teachers became aware of the roles and meanings of a teacher as a model in living with children by practicing Waldorf education.

“I observed children during free play time. They imitated their parents at home and teachers at the nursery. So I came to check if I did something wrong all of a sudden. What the children see and learn.. Children's playing mom tells how their parents live, and I worried how parents thought of teachers while observing them play. But after I repeated a stable daily rhythmic life steadily with children, I could find them follow the teacher's serious attitude.”

(One-to-one interview with Teacher A, May 10, 2017)

“I think that teachers need to pay attention to their movements and tones of voice because they become a model for young children all the time. Because teachers' roles can strongly affect young children's imagination, teachers need to be receptive to young children's imaginative world. I think it is better to give a suggestive answer to children in this period who are curious and ask lots of questions so that they can widen the space of imagination about questions.”

(One-to-one interview with Teacher B, May 17, 2017)

“At first, I didn't think that anyone could give Waldorf education. Because it was unfamiliar and hard to have a rhythmic life with children, taking into account even invisible parts.. But I made up my mind to become a Waldorf early childhood teacher and grow along with them in the 21st century so that they could make physical, inner, mental, and social growth healthily.”

(One-to-one interview with Teacher C, May 24, 2017)

3. Teacher's expertise as basic premise for parents' positive-active cooperation

Early childhood teachers practicing Waldorf education were realizing that they could obtain positive and active cooperation from parents when they made efforts to establish themselves as Waldorf education professionals. The factor having the strongest impact in early childhood is parents. Teachers need to provide knowledge and information about good parenting to parents, who have the strongest effects on young children, in pursuit of their healthy and sound growth and development (Korea Parent Education Association, 2007). In particular, Waldorf early childhood education institutions need to make effective preparation and efforts related to what Waldorf

education is, how daily rhythmic life is led, and how cooperation with parents is realized. This is because parent education based on Waldorf education needs to be preceded by changes in teachers' awareness.

“While I received Waldorf education, I wanted to give up sometimes because it was poorly recognized in society and required a long course and long instruction. But I was willing to receive it because an early childhood teacher was selected in an inevitable course. I can give correct knowledge and information about Waldorf education to parents and cooperate well with them only when I have knowledge about Waldorf education.. This is very important... When I have hard times, I recollect each of the children and find myself smile and cheer up. I made a shout sometimes because children refused to listen to me, but their cute expressions help me release my anger immediately. I think cooperation based on parent education is helpful in daily living for all of teachers, parents, and children.”

(One-to-one interview with Teacher A, May 10, 2017)

“Waldorf teachers need to be open. To be open means to be likable and to be empathic, not to be antipathic. Children are open themselves, but we need to recognize and respect their individuality. In other words, openness based on empathy is needed. The most significant problem in practice is to be open to parents. Waldorf parent education has helped both parents and teachers be open and respect each other to reach an agreement in relation to children and reduced educational confusions.”

(One-to-one interview with Teacher B, May 17, 2017)

(Observation of wet water painting).. “In an art class, they used three natural colors—red, yellow, and blue—to paint freely on wet paper. They did it with a teacher in the morning every Wednesday. The children made a natural brush creatively and had fun. (...) Although it was not a picture with a theme, I could find them paint red, dilute the color in water, drain water with a towel, and use another color to repeat painting attentively. I found that young children could make even more creative and various expressions than adults through simple repetition. This work is regularly performed through parent education and is very effective. I came to understand children's traits and became receptive to their behaviors. So I've got positive attitude toward them.”

(Interview with Teacher C, May 24, 2017)

It was confirmed that teachers could be understood and supported by parents through parent education about Waldorf education and there was changed awareness that teachers' expertise in educational theory and practice was very important.

4. Chances for reflection on 'true' early childhood teacher

While practicing Waldorf education, early childhood teachers asked such questions as 'What being is a young child?', 'What being should an early childhood teacher be?', 'What is true education?', and 'What being am I?' and experienced inner changes accordingly. This experience suggested that teachers need to make constant self-growth so that they could help children grow and teach them properly on the basis of love of children through Waldorf education.

I can clearly recall the time when I started working at ○○ Nursery with two children and recollect hard times with a smile. After starting to study Waldorf education, small changes occurred in my mind. Although I had to receive training related to Waldorf education all day long until Sunday, the contents of the training began to make small changes in my mind. In seven sessions of the whole life, which involved 'ideas about my life,' 'everything has a good point of time,' 'so is children's development,' 'the course is important than the result of anything,' and 'the course, which is really performed truly, is more excellent than the result, Waldorf theory strongly helped me look back on and plan my life. Now Waldorf ideology of education is still of great help to my personal life and gives power of a will. All of these were realized through Waldorf education. So Waldorf education is very special to me and I want to make more development in order to make my life richer.

(Teacher A, e-mail, May 31, 2017)

While I studied Waldorf education, I spent some time in adapting myself to a new system but it gave me lots of changes over time. At first, I felt awkward about laughing... I was a person of few words and introverted, so I failed to speak to a stranger.. Then, I thought that 'my character has been changed a lot,' finding myself try to smile a lot, be talkative, and speak to a stranger friendly as Waldorf education gave me inner power. It was true that the rhythmic life with children in Waldorf education gave me lots of changes. My once schoolmates said to me, "I think you've been changed." I can't explain it clearly, but I examined myself. Lighting an inner kindle and seeing it become larger and larger and light up my inner world. It is still not so large, but I want to make efforts to make more growth with Waldorf and make myself shine.

(Teacher B, e-mail, May 31, 2017)

Waldorf education gave me teaching methods and understanding of children; I think the greatest gift is that I communicate with children and listen to their inner stories while performing it. While Waldorf involves lots of activities, including singing, hand play, and Reigen, its essential element is that it deals with life profoundly in human formation and life in terms of anthroposophy. I've felt 'myself', treating the contents for a long time. I came to devise a plan about my dream and I felt embarrassed to know that I was strongly

affecting someone's life, whether it was revealed clearly or not. I lack inner power..

I want to continue to study in order to get a better understanding of these children and

Cultivate my inner power.

(Teacher C, e-mail, May 31, 2017)

VI. CONCLUSION

It was confirmed that early childhood teachers saw their awareness of educational activity changed while practicing Waldorf education. While interest in a new theory makes early childhood teachers continue with practical behaviors, love and efforts related to early childhood education may allow them to take interest in a new educational theory and give a chance to change themselves. Still, thorough analysis was not performed to determine what property specific to Waldorf education changed early childhood teachers' awareness.

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The Cognitive in the Separation Technique of the Chemistry Laboratory By Using the Sample of *Morinda Citrifolia* For Application in the Herbal Soaps

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ABSTRACT

The column chromatography was the method for the separations techniques. It was useful for isolated the pure compounds. The glass column contained the stationary phase by using silica gel and the eluents were organic solvent as mobile phase. The leaves of *Morinda citrifolia* (*M. citrifolia*) were the plant in this experiment for the isolation of the chemical constituents. *M. citrifolia* is the herbal that has coumarinoids which have bioactivities of anti-inflammation, invigorate the blood, speeds the healing of wounds and strengthens bones, expels parasites and fungus. The undergrad students in the second year separated the components and detected under ultra-violet spectrometer. For the understanding of students, the coumarinoids components from *M. citrifolia* were applied to ingredients of the cosmetics soaps. The herbal soaps have the natural compounds and have the bioactivities of antioxidant anti-ageing and inflammatory. The students have knowledge for investigation the components in *M. citrifolia*. The pre-lab and post-lab questions were tested for the undergraduate students in the second year for the activities to learn in organic chemistry laboratory, understanding, interesting and application of this laboratory.

Keywords: chromatography, cognitive, separation, *Morinda citrifolia*.

INTRODUCTION

Chromatography is a widely used experiment technique for the separation of the mixture of compounds into its individual components. Many kinds of chromatographic techniques for the organic chemistry for the basic of the laboratory the second year graduate students were learn the about Thin layer and column chromatography (TLC). TLC is a very commonly used technique for examined the compounds chemistry or identifying compounds, determining their purity and it only requires small quantities of the compound (~ng) and is much faster as well. It also permits the optimization of the solvent system for a given separation. Column chromatography (CC) is a solid - liquid technique in which the stationary phase is a solid and liquid is mobile phase. CC is one of the most useful methods for the separation and purification of both solids and liquids (Mohrig, 2014). The adsorbent is adsorption of substance and, is based on differential the adsorbents employed in column chromatography as Alumina (Al_2O_3), silica gel cellulose gel (sephadex), RP18(reverse phase) and the general absorbent often are silica No.7734 (60-200 μ m). The mobile phases are often use organic solvents as hexane, methylene chloride, ethyl acetate, acetone, ethanol and methanol (Solomons, 2006).

Morinda citrifolia (MC), commonly known as “noni”, belongs to the Rubiaceae family. This plant is native from South-East Asia. MC is grown wide in Thailand, leaves are cooking for curry, fruits mixed in the salad. Reported, MC is one of the most popular medicinal plants used for against various diseases such as scabies, gonorrhoea, malaria, amoebiasis, haemorrhoids and worms (Wang, 2016, p.13). MC is known for its many anthraquinone constituents (Nguyen, 2017, p.40), quercetin and kaempferol 3-rutinosides, acacetin 7-glucopyranoside and apigenin 5,7- dimethylether 4'-galactoside were isolated from the leaves and flowers of MC. (Cimaga, 1995, p.1301)

Experiments

Plant Material

Noni leaves bought 2 kg. from the local market in Bangkok, Thailand and dried them in the hot oven at 40°C gave the dried noni leaves (200 g) and powdered in an electric blender. The powder was extracted suspended in 1,000 ml

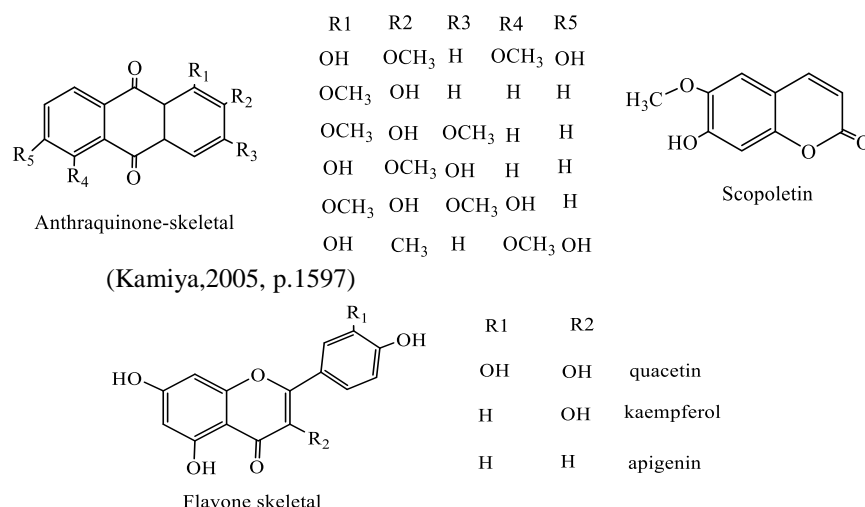


Figure1: The chemical constituents isolated from *Morinda citrifolia*

of ethanol for 72 h at room temperature. The crude ethanol extracted remove the solvent by rotary evaporator and gave 100 g. Partition the crude ethanol extracted with chloroform and water (2:1: 300ml:150ml). Dried crude chloroform 60 g was fractionated by column chromatography used stationary phase by silica gel Merck 7734(60-200 μ m) and ingredient organic solvent with hexane, ethyl acetate and methanol gave 5 fractions (F1-FV). TLC: pre-coated Kieselgel 60 F₂₅₄(Merck). NP/PEG or NEU- spray reagent was detected for flavonoids and coumarinoids compounds, FeCl₃ was detected for phenolic compounds and 10% H₂SO₄-ethanol was universal spray reagent.

Thin-layer chromatography

Each crude extract of ethanol and crude chloroform and fractinaotion of F1-F5 were dissolved in appropriate solvent, applied to silica gel plates (Merck, Darmstadt, Germany), and developed using solvent systems: CHCl₃/MeOH/water (80:9:1, v/v/v). Scopoletin were detected by spraying with NP/PEG reagent (flavornoids, phenolic acids) and with vanillin-sulphuric acid (VS), reagent (saponins and sterols) (Wagner & Bladt, 1996), 10% H₂SO₄/ethanol (universal reagents) (Harborne,1973). The DPPH test, performed directly on TLC plates (0.2% DPPH in MeOH (w/v) used as spray reagent), revealed contributions to the antioxidant activity of different compounds separately (Cuendet, Hostettmann, & Potterat, 1997).

DPPH radical assay

Each extracted of crude ethanol was diluted in concentration of 500, 100,10,1 μ g/ml with methanol.Pipetted 2 ml of each concentration and mixed with 1 ml of 0.5 mM 2,2-diphenyl-1-picrylhydrazyl radical (DPPH) in MeOH. Mixtures were virgously shaken and left for 30 min in the dark. Absorbance was measured at 515 nm using MeOH as blank. 1 ml of 0.5 mM DPPH diluted in 4 ml of MeOH was used as control. Neutralisation of DPPH radical was calculated using the equation: $S(\%) = 100 \times (A_0 - A_s)/A_0$, where A_0 is the absorbance of the control(containing all reagents except the test compound).As is the absorbance of the tested sample. The IC₅₀ value represented the concentration of the extract that caused 50% of neutralisation (Cuendet et al., 1997). Results were compared with the activity of L-ascorbic acid. Repeated were crude chloroform and F1-F5.

Apply the antioxidant component in glycerin soap

Glycerin 2 kg bought in the Hong Huat Co.Ltd in Bangkok. Herbal soap 1 piece contained 100 g and had ingredient of glycerin soap 95%, propylene glycol 1.0%, perfume 0.5 %, collagen 1.0%, and anti-oxidant compounds which calculated from the IC₅₀ of percentage of radical scavenging of scopoletin. Set A is Glycerin soap 400 g for four students and boil them on the hot plate at 80-90°C. Set B mixed the collagen 1.0%, propylene glycol 1.0%, and scopoletin. Set B was poured in set A and stirred until the glycerin soap were homogeneous reduce the temperature to 45°C poured perfume 0.5 %. Pour the liquid herbal soaps in the plastic molds. For 2 h, the herbal soaps were set solid in the room temperature.

Pre-lab and Post-lab questions of the knowledge in the separation technique of chromatography

In the table time of organic laboratory were in 9.00-10.00 on Fridays, 20 students are divided into five groups for the laboratory experiments. Only in the separation technique by column chromatography experiments, students must add three days Monday-Wednesday in the time of 15.00-17.00 pm for preparing noni leaves for experiments in 9.00-10.00 on Fridays. The pre-lab questions tested for 30 minutes before the students worked in the laboratory. For three weeks on Fridays that the instructors were summarized after that the post-lab questions were tested in 30 minutes. The pre-lab has 20 questions each question has 3 scores were 1 2 and 3, the best answer is 3 scores. The cognitive of the second years' undergraduate were understood in the separation technique of organic chemistry laboratory showed in Table 1.

Table 1: The score of understanding in the separation technique in the organic chemistry laboratory of second year undergraduate.

The cognitive for the second years undergraduate were understand in the separation technique of organic chemistry laboratory	Amount of undergraduate received the scores					
	Pre-lab			Post-lab		
	1	2	3	1	2	3
1.Students are ordered priority of organic solvent in the experiment.	5	12	3	3	5	12
2.The stationary phase used in this study and known others stationary phase.	5	12	3	3	5	12
3. TLC detected the components in the first step for chromatography and used a microgram sample.	5	12	3	2	6	12
4. TLC showed absorbance in UV 254, 366 nm and used for fractionations	5	12	3	2	6	12
5. TLC showed Rf value of the polarity components.	5	12	3	1	3	16
6. UV 366 absorbed the scopoletin compounds gave a blue light sport as the predominant of this compound.	9	10	1	1	3	16
7. Column chromatography separated the scopoletin compounds for apply ingredient of soap.	9	10	1	3	3	14
8.Calulated the percentage yield of the scopoletin compound.	12	6	2	1	3	16
9. Prepared the DPPH assay is the first check for bioactivity.	12	6	2	1	3	16
10.Calculated the percentage of the scopoletin used in soaps.	12	6	2	1	3	16

RESULTS AND DISCUSSION

Extraction and chromatography

Dried powder of the leaves of *Morinda citrifolia* 2 kg extracted by ethanol gave crude 100 g. The crude ethanol partition with chloroform and water gave dried crude chloroform 60 g. For the purified by column chromatography with gradient of hexane: ethyl acetate and ethyl acetate: methanol was giving F1-F5 fractions which were summarized the percent yield showed in Table 2.

Table 2: The weight and the percent yield of crude fraction and fractionated fraction F1-F5

Fraction	Crude ethanol	Crude chloroform	F1	F2	F3	F4	F5
Weight (g)	100	60	9	13	12	3	19
Percentage from 2kg of fresh leaves	5	3	0.45	0.65	0.6	0.15	0.19

TLC monitoring of the crude fraction and fractionated fraction F1-F5 showed the components in MC plants detected by sprayed reagent. The retention factors (R_f) values is defined as the ratio of the distance of spot moved by solute and the distance the solvent front moved above the base line origin. It can be calculated using the formula $R_f = \text{distance spot moved} / \text{distance solvent moved}$. Spray reagent and UV 255, 366 nm were detected the components compounds were summarized in Table3.

Table 3: The R_f value and the chemical sprayed reagent showed the components on the TLC

	Predominant of chemical constituents	R_f value	UV 255 nm	UV 366 nm
Crude ethanol	red color spot indicates the presence of triterpenes by VS reagent	0.9	X*	X*
Crude chloroform	flavonoids	0	X*	yellow light
Fraction 1	Blue color spot indicates the presence of essential oils by VS reagent	0.95	violet	violet light
Fraction 2	violet color spot indicates the presence of stigmasterol by 10% H ₂ SO ₄ /ethanol reagent	0.78	X*	X*
Fraction 3	Blue light spot indicates the presence of coumarin by NP/PEG reagent	0.7	violet	Blue light
Fraction 4	Blue light spot indicates the presence of scopoletin by NP/PEG reagent	0.6	violet	Blue light
Fraction 5	yellow light spot indicates the presence of scopoletin by NP/PEG reagent	0.1	violet	yellow light

X* = components were not detected.

DPPH radical assay

Due to the purification by column chromatography gave F1-F5 which had the most active anti-oxidant was took to apply ingredient in glycerin soap. F1-F5 were showed the IC₅₀ 220.54, 119.32, 132.67, 46.02 and 128.76 µg/ml, respectively. The graph of IC₅₀ showed in Figure 2 and the most anti-oxidant in F2.

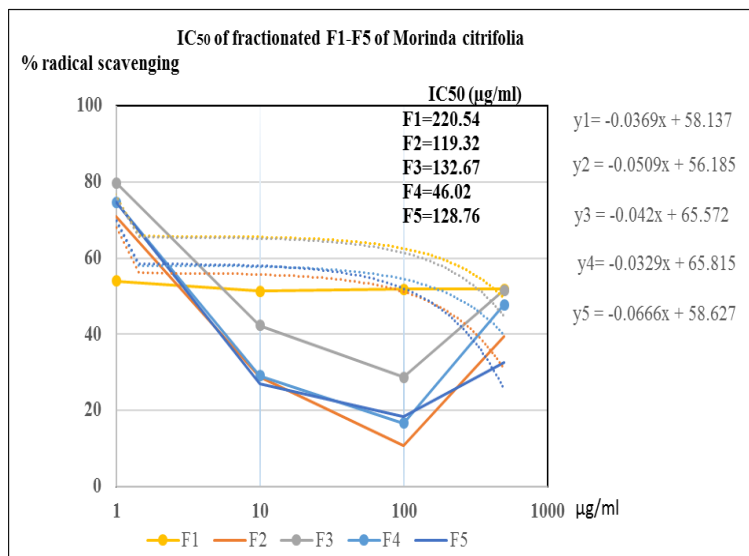


Figure 2: IC₅₀ of F1-F5 of the leaves of *Morinda citrifolia*.

Pre-lab and Post-lap questions of the knowledge in the separation technique of column chromatograph

Pre-lab showed the scores 1, 2 and 3 were 36, 44.7 and 10.7%, respectively but the post-lab showed the scores 1,2 and 3 were 8.3, 18.4 and 64.8%, respectively. The studied showed the second year students were understood in the cognitive of separation techniques with the scores 3 added from 10.7 to 64.8% which summarized in Table 4.

Table 4: Percentage of scores 1-3 for pre-lab and post-lab questions for the understanding in the concept of chromatography.

cognitive in Table 1	pre-lab questions			post-lab questions		
	percentage of scores (1-3)			percentage of scores (1-3)		
	1	2	3	1	2	3
1	25	60	15	15	25	60
2	25	60	15	15	25	60
3	25	60	15	10	30	60
4	25	60	15	10	30	60
5	25	60	15	5	15	80
6	45	50	5	5	15	80
7	45	50	5	15	15	70
8	60	30	10	5	15	80
9	60	30	10	5	15	80
10	60	30	10	5	15	80
average	36	44.7	10.7	8.3	18.4	64.8

Apply the antioxidant of scopoletin in herbal soap

The anti-oxidant of F4 was 46.02 µg/ml, and glycerin soap 400 g were approximated 400 ml. Therefore scopoletin were $46.02 \times 400 = 18,408 \mu\text{g} = 18.408 \text{ mg}$ which was activated for anti-oxidant.

CONCLUSION

MC commonly known as noni, has a long history of widespread use as a food in tropical regions and it is used as an herbal remedy for multiple diseases. It has been found that has antioxidant potential equivalent or similar to that of synthetic antioxidants, have no side effects. Thus the chemicals constituents of MC were studied for the cosmetics. Therefore, MC was separated compounds by extracted, partition and column chromatography which have many steps and used times to experiments. Purification the components of MC were assessed and apply for ingredient herbal soaps. Further, the graduate students used the separation technique for the senior project that were understood.

CONFLICTS OF INTEREST

The authors declare that they do not have conflict of interest.

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The Cognitive Components of Self-Regulated Learning: Their Effects on Academic Procrastination

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ABSTRACT

“The biggest problem in education today”, as Pychyl defined procrastination, is one of the most studied topic due to its negative effects on students’ academic paths. Assuming that procrastination is a self-regulation failure of performance in stressful situations and in cognitive load conditions, the construct has been analyzed also from the self-regulated learning perspective referring to the application of models of regulation and self-regulation to learning processes. In order to further establish the role played by the self-regulated learning strategies in predicting academic procrastination, this study intended to analyze to what extent the cognitive components of self-regulated learning, that is, metacognitive self-regulation and critical thinking, explain a statistically significant amount of variance in procrastination after accounting for time management. To this purpose, a sample of 352 students from universities of Southern Italy filled out a battery composed by the Tuckman Procrastination Scale, the Time Management subscale of the Learning and Study Strategies Inventory, the Metacognitive Self-Regulation and Critical Thinking subscales of the Motivated Strategies for Learning Questionnaire. Results showed that the most predictive factor was the difficulty in time management, followed by the difficulty in metacognitive self-regulation.

Keywords: Academic procrastination, Metacognitive self-regulation, Time management, Critical thinking

INTRODUCTION

In 1994 Ferrari opened one of his works on procrastination by reporting a comment of Ellis and Knaus (1977), according to which such a construct would be “one of the least understood minor human miseries affecting about a quarter of the adult population” (Ferrari, 1994, p. 673). This is why a large body of psychological research has been focused on procrastination generally considered as a trait or behavioral disposition to postpone, delay, and thereby avoid performing tasks or making decisions (Milgram & Tenne, 2000, p. 141). The phenomenon, even though there is no agreement in the literature on its exact definition (Corkin, Yu, & Lindt, 2011; Steel, 2010), can be termed as *functional* when it is occasional and useful for obtaining additional information to maximize the likelihood of task success, and as *dysfunctional* when it becomes chronic, i.e., it is not an effective technique for life success and may be a maladaptive personality tendency (Ferrari, 1991a, b, 1994).

More recent studies have examined procrastination with regard to specific life-domains, such as academic, work, everyday routines, health, leisure, family, and social contacts (e.g., Kliengsieck, 2013). Among these domains academic procrastination has received considerable attention in literature because it has been seen as a risk factor influencing students’ academic satisfaction and success, as well as their mood and psychological well-being (Moon & Illingworth, 2005; Pychyl, Morin, & Salmon, 2000; Steel, 2007; Wolters, 2003). Associations between procrastination and lower levels of self-efficacy and self-esteem, and higher levels of anxiety, stress, and discomfort (e.g., de Palo, Limone, & Monacis, 2016; de Palo, Monacis, Miceli, Sinatra, & Di Nuovo, 2017; Rabin, Fogel, & Nutter-Upham, 2011; Strunk, Cho, Steele, & Bridges, 2013). Following the assumption that procrastination is a self-regulation failure of performance in stressful situations and in cognitive load conditions (Ferrari, 2001), the construct has been analyzed also from the self-regulated learning perspective referring to the application of models of regulation and self-regulation to issues of learning in classroom contexts. The existing models of self-regulated learning that propose different conceptualizations of the construct (Boekaerts & Niemivirta, 2000; Zimmerman, 2000) are generally based on four shared assumptions: (1) an active, constructive assumption arising from a cognitive approach; (2) a potential for control assumption; (3) a goal, criterion, or standard assumption (Miller, Galanter, & Pribram, 1960); (4) a mediating assumption according to which

self-regulatory activities mediate between personal and contextual characteristics and actual achievement or performance (Pintrich, 2000).

It follows from these assumptions that self-regulated learning could be defined as an “active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment” (Pintrich, 2000, p. 453). Accordingly, learning strategies, that is, mental processes recruited by students to learn new concepts, are of great importance for self-regulated learning and procrastination. These strategies are frequently operationalized in terms of organization (if a methodical approach has been adopted during the learning phase), of deep vs. surface processing (whether new knowledge is merely rehearsed and memorized or carefully evaluated and integrated) (Entwistle & Ramsden, 1983), or of usage of various cognitive (rehearsal and elaboration) and metacognitive (planning and regulating) strategies (Pintrich, Smith, Garcia, & McKeachie, 1993).

Within the self-regulated learning framework, previous research highlighted how the cognitive factors of self-regulation are centrally important to the explanation of procrastination, since academic procrastination was found to be associated with a reduced use of cognitive and metacognitive self-regulated learning strategies (Corkin, Shirley, & Lindt, 2011; Howell & Watson, 2007; Wolters, 2003).

Among self-regulated learning strategies, time management is a further factor that determines procrastination. Its role has been highlighted by some empirical studies on the individual differences in self-regulation (Mannetti *et al.*, 2009; Phillips, Jory, & Mogford, 2007; Pierro, Giacomantonio, Pica, Kruglanski, & Higgins, 2011).

To further establish the role played by these self-regulated learning strategies in predicting academic procrastination, this study aimed at examining whether and to what extent the cognitive components of self-regulated learning, that is, metacognitive self-regulation and critical thinking, explain a statistically significant amount of variance in procrastination after accounting for time management.

METHOD

Participants and procedure

The sample size consisted of 352 undergraduates at the Universities of Southern Italy (134 men and 218 females) who participated in the study on a voluntary basis. Their mean age was 21.05 years ($SD = 2.35$).

Data collection took place from January to March 2017. The respondents were voluntarily invited to participate in the research by completing individually a battery of anonymous self report questionnaires in approximately 20 min during an ordinary 50-min classroom lesson. Respondents provided written informed consent. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki for conducting research with human participants. The instruments were back-translated from English into Italian.

Instruments

The *Tuckman Procrastination Scale* (TPS; Tuckman, 1991) is a 16-item instrument that assesses the tendencies to delay task initiation or completion, as well as toward poor time management in the completion of tasks. Items are rated on a 7-point Likert scale (from 1 = *strongly disagree* to 7 = *strongly agree*). Sample items are: “I postpone starting in on things I don’t like to do”, “I am an incurable time waster”. A total score is obtained by adding the responses from all items and higher scores indicate greater procrastination. The internal consistency of the scale was good (Cronbach’s $\alpha = .82$).

The *Time Management* (TM) subscale of the *Learning and Study Strategies Inventory* (LASSI - II ed.; Weinstein, Palmer, Shulte, 2002) was used to measure the degree to which students apply time management principles to academic situations. The subscale is composed of 8 items rated in a 5-point Likert scale (from 1 = *at all typical of me* to 5 = *Very much typical of me*). Sample item is “I put off studying more than I should”. Low scores indicate difficulty in the use of time management techniques. The internal consistency was found to be satisfactory (Cronbach’s $\alpha = .65$).

The *Metacognitive Self-Regulation* (MSR) and *Critical Thinking* (CT) subscales of the *Motivated Strategies for Learning Questionnaire* (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1993) assess strategies that students use to control and regulate their own cognition and to apply previous knowledge to new situations or make critical evaluations of ideas. The MSR is composed of 12 items and the CT of 5 items rated on a 5-point Likert scale (from 1 = *not at all true of me* to 5 = *very true of me*). Sample items are “When reading for this course, I make up questions to help focus my reading” for MSR and “I often find myself questioning things I hear or read in this course to decide if I find them convincing” for CT. The total score for each scale was obtained by averaging the responses to the items. The internal consistency of the scales were acceptable to good (Cronbach’s $\alpha = .63$ for CT and $.75$ for MSR).

RESULTS

Preliminary data analyses included screening for missing data and outliers, as well as for assessing for normality. The univariate normality of the scores was checked through skewness and kurtosis values. The univariate outliers were identified using the graphic approach (inspection of Boxplot), whereas the Mahalanobis Distance analysis and the critical value based on the chi-square distribution values were used to identify multivariate outliers.

Descriptive statistics (Maximum, Minimum, Mean, Standard deviation) for the total sample and for gender groups are displayed in Table 1. Zero-order correlation coefficients are presented in Table 2. Findings demonstrated that procrastination was negatively associated with time management, metacognitive self-regulation and critical thinking, although the correlation with the last variable was weaker than the correlations with the other two variables. Moreover, the positive correlation of time management with metacognitive self-regulation was found to be stronger than the correlation with critical thinking. Finally, metacognitive self-regulation was positively associated with critical thinking.

Table 1 – Descriptive statistics (minimum, maximum, mean, standard deviation)

	Total sample (N = 352)		Males (N = 134)		Females (N = 218)	
	Min-Max	Mean (SD)	Min-Max	Mean (SD)	Min-Max	Mean (SD)
Procrastination	16 – 63	33.10 (8.87)	16 – 53	33.28 (8.47)	16 – 63	32.98 (9.13)
Time management	15 – 40	29.74 (3.93)	15 – 40	28.53 (4.03)	15 – 38	30.52 (3.67)
Metacognitive self-regulation	1.58 – 4.92	3.81 (0.54)	1.58 – 4.92	3.69 (0.55)	1.67 – 4.92	3.89 (0.52)
Critical thinking	1.20 – 5.00	3.42 (0.63)	1.80 – 5.00	3.45 (0.65)	1.20 – 5.00	3.40 (0.62)

Table 2 – Bivariate correlations

	Time management	Metacognitive self-regulation	Critical thinking
Metacognitive self-regulation	.556**	-	
Critical thinking	.234**	.590**	-
Procrastination	-.586**	-.516**	-.298**

** $p < 0.01$

A forward stepwise regression was used in order to investigate whether and to what extent learning strategies would have determined lower procrastinatory tendencies. The variables were entered in the regression model on the basis of the above mentioned correlations. Thus, time management was entered in Step 1, metacognitive self-regulation in Step 2, and critical thinking in Step 3. The final model (Model 2) explained the 39.2% of the variance in procrastination (R^2 corrected = .392) and R^2 change was significant at each step (R^2 change = .052, $p < .001$). Both time management and metacognitive self-regulation negatively predicted procrastination. Critical thinking was removed from the last model as it became nonsignificant. The standardized coefficients are shown in Table 3.

Table 3 – Stepwise regression

Model	B	t	Sig.
1 Time management	-.586	-13.887	.000
2 Time management	-.433	-8.880	.000
Metacognitive self-regulation	-.275	-5.639	.000

Dependent variable: procrastination

DISCUSSION

This research aimed at analysing whether and to what extent self-regulated learning strategies referring to metacognitive self-regulation, to critical thinking and to time management predicted the tendency of university students to procrastinate. The preliminary data emerging from correlations showed that all the learning strategies were negatively associated with procrastination and that, of the three strategies, critical thinking had the lowest correlation coefficient. In other words, the continued postponing of academic tasks was strongly associated with an inability to organize and

plan studies, to control and regulate cognitive strategies, and to critically elaborate information and new knowledge. Associations of this type were partially confirmed by the regression models which highlighted how the primary determining factor is difficulty in time management, while the second most important factor is metacognitive self-regulation. The results that emerged were in line with the assumption that the construct of procrastination is closely connected to an individual's predisposition to fail to meet deadlines in a given period of time (Díaz-Morales & Ferrari, 2015; Ferrari & Pychyl, 2000; Vodanovich & Seib, 1997), and with previous research showing that chronic procrastinators underestimate the time needed to complete a task (McCown, Johnson, & Petzel, 1987), devote less time to seeking out necessary information (Ferrari & Dovidio, 2000), and begin academic tasks at the last minute (Pychyl, Morin, & Salmon, 2000).

The role of metacognitive self-regulation in negatively predicting the tendency to postpone tasks provides further empirical evidence of the fact that procrastination is caused not only by problems with time management but also by complex series of factors of a cognitive-behavioral nature (Díaz-Morales & Ferrari, 2015). The ability of the student to establish and organize objectives to monitor the actual process of understanding and to adapt his learning strategies to the task would significantly reduce the probability of his pointlessly postponing academic tasks.

Finally, critical thinking did not emerge as a significant predictor of procrastination, although there was a correlation. The nature of this association needs to be further investigated in order to ascertain to what extent this learning strategy, which involves specific processes of cognitive elaboration of information, can help to explain the phenomenon of procrastination in the sense of a failure of self-regulation.

The results of this research open up interesting possibilities for the planning and implementation of psychological and educational measures aimed at reducing procrastination in university students. Various studies in this field have for example demonstrated that training in the principles and techniques of time management contribute significantly to decreasing the tendency to postpone academic tasks. Similarly, interventions designed to develop self-regulation skills that enable the student to exert metacognitive control of the learning process and to effectively activate the personal resources needed to complete the tasks, might prevent the phenomenon of procrastination.

Some limitations are related to the use of self-report measures and to the unequal distribution of gender.

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The Common European Framework and the European Language Portfolio: Involving Learners' Judgments in the Assessment Process

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ABSTRACT

Self-assessment as an alternative technique for traditional assessment has come into prominence in order to provide additional insight into foreign language learning and teaching due to the European Language Portfolio which uses the Common European Framework as a criterion for the language competence. The European Language Portfolio is a document which puts the standards for this aspect of education and files individual information in terms of learners' language experience and knowledge. Accordingly, this study aims to scrutinize to what extent elementary level learners' self-assessment concerning listening/speaking comprehension skills carried out within the scope of Common European Framework of Reference for Languages is congruent with their listening/speaking actual performance. Therefore, a prep school was selected as the scope of research, since it has started to adapt the English language teaching curriculum, syllabuses, instruction methods and assessment in line with the Common European Framework for the teaching of English as a foreign language. Fifty preparatory school students who enrolled at Elementary English preparatory class at the School of Foreign Languages in Uludag University were administered The Self-Assessment Checklist of Common European Language Portfolio with 24 "can-do" statements related to listening and speaking skills. The quantitative data obtained from the checklist with a Cronbach's alpha score of $\alpha = .87$ were analyzed through descriptive statistics such as mean and frequency results and the Pearson's correlation coefficient was used to find out whether there was a significant correlation between learners' self-assessment of their listening and speaking skills and their academic success in these skills. The results revealed that there is a strong positive relationship between the participants' listening proficiency scores and their speaking proficiency scores and also there is a strong positive relationship between participants' listening proficiency scores and spoken interaction component. The findings were discussed via the interview results obtained from the teacher interview to triangulate the result of the quantitative data.

Key Words: European Language Portfolio, Common European Framework, Listening & Speaking Proficiency, authentic assessment

INTRODUCTION

Knowing at least one foreign language has become a major factor today due to globalization which postulates the interaction among a variety of cultures and societies. Foreign language policies need to be revised in such a way that foreign language learners communicate effectively and appropriately. Because of this fact, there appears a need for having a common basis so as to describe and discuss stages of language development and the skills needed to reach different levels of language proficiency. To that end, the Council of Europe has presented The Common European Framework Reference for Languages: Learning, Teaching, and Assessment (CEFR). The CEFR describes language proficiency in reading, writing, speaking, and listening on a 6-level scale, clustered in three bands: A1–A2 (Basic User), B1–B2 (Independent User), and C1–C2 (Proficient User).

The recent publication of the CEFR and the increasingly widespread espousal of its guide, the European Language Portfolio (ELP) resume the challenge to evolve a culture of assessment that both promotes and takes full account of learner self-assessment (Little, 2005).

The potential contribution of the CEFR and ELP to the development of self assessment in second and foreign language learning must be appreciated (Council of Europe, 2001). The ELP is in favor of reflective learning in which goal setting and self-assessment perform an important role. However, since self-assessment in the ELP is

based on the common reference levels of the CEFR, self-assessment, teacher assessment and external assessment can all adjust themselves to the same behavioral descriptions. Up to now, there is not any published affirmation that test users will receive self-assessment in high-stakes frameworks; but then, there is some experimental affirmation to propose that when learners are involved in self-assessment, it can yield precise results (Ross, 1998). Among them, the CEFR and the ELP conceivably might add to the development of an assessment culture in which self-assessment can facilitate to take the learning process into a closer and more productive association to tests and examinations than it has been traditional case. (Little, 2005)

THE COMMON EUROPEAN FRAMEWORK OF REFERENCE FOR LANGUAGES AND THE EUROPEAN LANGUAGE PORTFOLIO

In an examination of procedures for linking language tests, North (2000a: 566) defines ‘social moderation’ as ‘the process whereby a group of raters establish a common understanding of a set of standards by discussion and training’. One possible role of the CEFR is to help this process. At its center, there are scales that describe second language (L2) proficiency in three wide bands (in ascending order: A, B, C), each of these bands is subdivided to generate six levels (A1, A2; B1, B2; C1, C2). A global scale defines overall communicative proficiency at each level (Council of Europe, 2001: 24); overall proficiency is then resumed in relation to five communicative skills – Listening, Reading, Spoken Interaction, Spoken Production, and Writing (pp. 26–27); and, finally, these activity-based summaries are enlarged in 34 illustrative scales.

The CEFR does not pinpoint entirely on the behavioral dimension of L2 proficiency. It also provides a scaled summary of what it calls ‘qualitative aspects of spoken language use’ – range, accuracy, fluency, interaction, and coherence (Council of Europe, 2001: 28–29) and scaled descriptions of general linguistic range, vocabulary range, vocabulary control, grammatical accuracy, phonological control, orthographic control, sociolinguistic appropriateness, flexibility, turn-taking, thematic development, coherence and cohesion, spoken fluency, and propositional precision (Council of Europe, 2001: 110–29).

The CEFR scales do not allege to model progression in second language acquisition, rather, they present a hierarchy of communicative tasks whose successful performance relies on fundamental linguistic competence. To illustrate, If one can perform the spoken interaction tasks specified for A2, it follows that one can also perform the spoken interaction tasks specified for A1. How well one can perform the A2 tasks will depend on the learner’s linguistic competence. Key features of linguistic competence are seized in the scales of vocabulary range and control, grammatical accuracy and phonological control. If the learner has not achieved A1 in these features, it is unlikely that he or she will advance far towards mastering the spoken interaction tasks specified for A2.

In addition to supplying a means of associating language tests, the CEFR is proposed as a device for devising both L2 curricula and individual learning programmes. This demonstrates the Council of Europe’s sustained dedication to learner autonomy as a prerequisite for efficient lifelong learning (Holec, 1979). Within the principles of Council of Europe, learners too should be drawn into the procedures of ‘social moderation’, and through its practical means, the European Language Portfolio (ELP) can achieve this goal. Elaborated in line with the CEFR (Council for Cultural Cooperation, 1997; Little, 2002), the ELP has three compulsory components:

- a language passport, which resumes the owner’s linguistic identity by succinctly recording what is learnt in L2, achieved formal language qualifications, important L2 usage experience, and the owner’s assessment of his or her current proficiency in the L2;
- a language biography, which is employed to establish language learning targets, supervise advancement, organize the development of language learning skills, and record and reflect on specially crucial language learning and intercultural experiences;
- a dossier, which incorporates a collection of work which best represents the owner’s L2 capacities and achievement according to his or her own judgment.

The ELP serves supplementary pedagogical and reporting functions. On one hand it reinforces the progress of learner autonomy through goal setting and self-assessment; on the other hand the individual ELP owner is liable for keeping an up-to-date self-report, accordingly self-assessment, of his or her own L2 learning achievements and intercultural experience. Both functions are backed up by the common reference levels of the CEFR. (Council of Europe, 2001)

The ELP postulates two types of self-assessment: summary and summative in the language passport, of which the so-called self-assessment grid (Council of Europe, 2001: 26–27) is a chief component in models devised for adults and adolescents; formative in the language biography, which employs goal-setting and self-assessment checklists obtained from the CEFR's illustrative scales, and in the dossier, which holds the language samples (perhaps in audio and video as well as in writing) that confirm the determinations recorded in the biography.

PILOT PROJECTS INVOLVING THE EUROPEAN LANGUAGE PORTFOLIO (ELP)

Little and Perclova (2001) reports that in the pilot projects carried out in Europe in 1998-2000, different versions of the ELP were piloted in the fifteen member states of the Council of Europe. The pilot projects were carried out at every level; primary, lower secondary, upper secondary, vocational, university and adult.

Generally speaking, positive feedback was received mostly from the pilot projects. According to the official report (Little, 2002b), the ELP provided the teachers and learners the opportunity to reflect on the reasons for language learning, the language learning process, and the criteria by which learning might be assessed. To illustrate, sixty-eight percent of learners stated that the time they spent for the ELP was time “well spent”. Seventy percent of the teachers believed that the ELP was a beneficial tool for learners, and 78% of the teachers considered that it was a useful tool for teachers. In addition, the learners were motivated with the idea of self-assessment in the ELP according to the common reference levels of the CEFR. Seventy percent of the learners stated that the ELP helped them to assess their own language proficiency, and 70% of the learners pointed out that they found it useful to compare their teacher's assessment with their own. Sixty-two percent of the teachers stated that their learners were able to assess their own language proficiency (Little, 2002a).

Virtually every project involving the ELP yielded positive results. Little (2003) states that based on the reports of the pilot projects in Europe such as in the Czech Republic, the Finnish ELP pilot project, the feedback for the utilization of the ELP was generally positive. The learners found it stimulating to be involved in such a project, young learners found the ELP enjoyable, and so they were motivated. Teachers also reported positive feelings towards the ELP as well although the ELP demanded a lot from them (Little, 2003). One teacher from the Czech Republic stated that ELP helped them to make their job easier: “I was helped by the portfolio's clear statement about the aims of teaching and the transparency of teaching and learning results. The descriptors encouraged me to reflect more deeply on my objectives as a teacher” (as cited in Little & Perclova, 2001; p. 17).

The ELP was also piloted at universities apart from elementary or secondary level schools. One of the pilot projects took place in an Italian university. As Evangelisti reports it was employed in the University of Calabria between 1998 and 2001. Bilotto (2006) reports that the project was carried out with students taking a combination of two or three of the foreign languages taught in the unit of the Faculty of Economics. The aim of the project was to enquire what kind of support the students and teachers need in order to work with the ELP, to assess the effect of the ELP on the language learning process at university context, and to find out whether the employment of the ELP in learning experience is making learners more aware of themselves as language learners in terms of objectives, strategies, strengths and needs. The data was gathered through questionnaires, structured student and teacher interviews and through assessment to ascertain the utilization of the ELP in classifying skills required for assessment and into its effectiveness as a pedagogical instrument towards learner autonomy (Bilotto, 2006). The number of the participants was not over 100 initially, but later it increased to 1000.

According to the result of the pilot project at Calabria University, pedagogically, the students learnt how to use their linguistic knowledge, improve their self-assessment skills, set their objectives, and obtain insight into their own strategies. As, the students' self-awareness increased, they reacted positively towards the ELP. However,

the data revealed that the students needed guidance with regard to developing their self-assessment skills since it was clear that they were affected by their previous learning experience and expectations. Moreover, it was obvious that it was difficult to deal with such a high number of students concerning guidance for self-assessment (Evangelisti, 2002).

To sum up, the ELP can be employed as an instrument to motivate learners to make them aware of their own language learning process with the self-assessment and reflection components of the ELP. Thus, the ELP can stimulate the learners to develop their autonomy and lifelong learning.

ELP IN TURKEY

The ELP is a newly introduced learning tool in Turkey. The validation of the ELP Turkish model was authorized in 2003 by the Validation Committee of ELP (Demirel, 2005). An ELP project launched in Turkey in 2001 with the chief role of the Education of Ministry. Demirel (2005) reports that the project was planned first to be piloted in the private schools, Anatolian High Schools and High School with one year English teaching program, later the project was going to be extended to other schools. Initially, the ELP was piloted in 20 state schools and 4 private schools in Ankara and Antalya. In 2004, the piloted cities augmented to 30. It was intended to conduct pilot projects of the ELP gradually in an expanded way in whole Turkey in 2005 and later. Moreover, Mirici reports that learner autonomy and ELP were piloted in Turkey in 2002, and seminars were organized for the teachers (Mirici, 2008). It can be said that both ELP and the term learner autonomy are new concepts in the Turkish Education system.

The ELP projects were launched in secondary schools. Demirel (2005) stated that the target group for Turkish ELP Project was chosen from secondary schools. The learners were not complete beginners. They had sufficient knowledge of language to perceive and adapt to the philosophy of the ELP. He adds that a survey was carried out to the teachers and learners by the Ministry of Education, and there was a consensus that the ELP led to positive contribution to the language learning process, and it also motivated most of the students so that most of them got some degree of learner autonomy (Demirel, 2005).

In addition to the pilot projects, the ELP is employed by a language school and some private language courses. TÖMER is the first language school in adult education which utilizes the ELP in Turkey. The use of (Ankara University) TÖMER, Turkish and Foreign Languages Research and Application Centre, to the European Council for the employment of ELP was permitted by the European Validity Committee in 2004. Therefore, TÖMER has become the first language school that provides its students with language passports in the field of teaching adults foreign languages. With the enterprise of TÖMER and the Ministry of Education, the ELP was submitted to the Council of Europe and it has been approved.

In university context, no pilot projects have been conducted but one study related to the ELP was carried out. The study took place in preparatory school at Mugla University and it took for six months and carried out by Glover, Mirici, and Aksu (2005). Fifty students and six teachers collaborated with the ELP. The findings of the study revealed that the teachers and students yielded positive attitudes towards the ELP. The field notes indicated that the students favored the ELP, and most students improved their autonomy through ELP. In addition, the instructors reported that the motivation of the students who employed the ELP was higher than the ones who did not employ it. Another result stated by the teachers was that students' attendance to classes increased compared with the previous years (Glover et al., 2005).

All in all, both the term "learner autonomy" and the European Language Portfolio have recently been introduced to educational contexts in Turkey. By the start of the curriculum renewal projects of the Ministry of Education to be in harmony with the education system in the European Union, the Turkish education system is taking a further step from the teacher-centered classes to the learner-centered classes.

Reaching the proficiency level determined by CEFR becomes the main aim of most language teaching programs. It is crucial to measure learners' proficiency in speaking and listening from the perspectives of both the learners and the instructors. Therefore, this study aims to investigate to what extent elementary level learners' self-

assessment regarding listening/speaking comprehension skills conducted within the scope of Common European Framework of Reference for Languages is congruent with their listening/speaking actual performance. The study aimed to investigate the following research questions:

RQ1. How do learners assess themselves with regard to their listening and speaking skills within the scope of Common European Language Portfolio?

RQ2. To what extent is learners' self –assessment of their speaking and listening skills congruent with their proficiency scores?

METHOD

The study followed mainly quantitative method in order to answer the above research questions. In addition, qualitative method via a semi-structured interview was also included to triangulate the results emerged from the quantitative part.

Setting

In the first year, there are three kinds of foreign language education classes for the students in different programs in the preparatory department. The first type optional preparatory classes for the students who are enrolled in Faculty of Engineering and Architecture, Faculty of Agriculture, etc., the second type is compulsory preparatory classes (%30 and above) for the students who are enrolled in Faculty of Medicine, Industrial Engineering Program, Faculty of Veterinary Medicine, etc., the third class type is again compulsory preparatory classes (%30 and below) for the students who are enrolled in the programs of Textile Engineering, Environmental Engineering, Food Engineering, etc. At the end of the spring semester, the students who could obtain average grade (70) from the quizzes and two mid-term exams are entitled to enter the Proficiency Exam. The ones who pass the Proficiency Exam become eligible to proceed with their undergraduate programs.

Participants

The participants in this study consisted of 50 elementary level prep school students enrolled in Uludağ University, School of Foreign Languages. Most of them have been learning English for more than eight years. Since they come from different types of high schools, their English level varies. Therefore, the classes might be referred to as mixed-ability classes.

Firstly, the demographic feature of participants based on their gender was investigated through descriptive statistics. Regarding gender, there were 50 participants 37 of whom were female (74.0%) and 13 of whom were male (26.0%) in this study. The first Elementary level class consists of 26 students 17 of whom were female (65.4%) and 9 of whom were male (34.6%) whereas the second Elementary class consists of 24 students 20 of whom were female (83.3%) and 4 of whom were male (16.7%).

Data Collection Instruments

In this study, The Self-Assessment Checklist of Common European Language Portfolio was used for prep school language learners' self-assessing their speaking and listening skills within the scope of Common European Language Portfolio (See Appendix A). CEFRL is comprised of two skills; namely, listening, and speaking. Speaking has two sub-components: spoken interaction, spoken production. This scale consists of 24 items, of which 6 items (items 1, 2, 3, 4, 5, 6) are related to listening skill, 18 items (items 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 to spoken introduction; items 19, 20, 21, 22, 23, 24 to spoken production) to speaking skill. Due to the participants' low level of English, the Turkish version of the aforementioned survey adapted from Ataç (2008) was administered to the participants (See Appendix B). They were asked to respond on a three-point Likert scale ranging from 3 (Quite good) to 1 (Hardly ever). Cronbach's alpha coefficient of .90 was reported for The Self-Assessment Checklist of Common European Language Portfolio (1986) and the reliability of the adapted scale revealed a Cronbach's alpha score of $\alpha = .87$ over 24 items by the researcher. This score indicated high reliability for the survey to be used in the study. Moreover, to measure the learners' listening and speaking proficiency regarding the criteria of reaching the A2 level based on European Language Portfolio (ELP), at the end of the 2016-17 Fall Term, speaking and listening final exam results of the participants were used with regard to the target subjects in the course book "Cambridge English Skills: Real Listening & Speaking".

Data Analysis

The data obtained from the quantitative data through the scale were analyzed via the SPSS program version 20 by using descriptive statistics to answer the first research question regarding how learners assess themselves with regard to their speaking and listening skills within the scope of Common European Language Portfolio. Moreover, Pearson's correlation coefficient was used to find out whether there was a significant correlation between learners' self-assessment of their listening and speaking skills and their academic success from these skills. Finally, content analysis was used to analyze the answers of the interview.

FINDINGS AND DISCUSSION

RQ1: How do learners assess themselves with regard to their speaking and listening skills within the scope of Common European Language Portfolio?

Table 1 Descriptive Statistics of the mostly acquired five listening/speaking skills items of Participants

	f	\bar{X}	SD
S2 Identifying the discussion topic when spoken slowly	40	2.84	.422
S16 Being able to say one's likes and dislikes	50	2.84	.422
S1 Being able to understand what is said if it is repeated	50	2.82	.388
S15 Being able to make and accept apologies	50	2.80	.452
S19 Being able to describe oneself, one's family and others	50	2.78	.418

The results presented in table 1 reveal that the first two most acquired language skills with the highest equal mean scores ($M = 2.84$) were about listening skill (item 2), which means that majority of the participants (86%) in this study generally identify the topic of discussion around themselves when people speak slowly and clearly and were about spoken interaction component (item 16) which means that 86% of the participants can say what they like and dislike. The third mostly acquired language skill ($M = 2.82$) was related to listening skill (item 1). 82% of the participants can understand what is said clearly and directly to themselves in simple everyday conversation if the speaker can take the trouble of repeating what he/she said slowly. The explanations of the teacher can shed light on the reasons for the above findings. The teacher of the aforementioned classes state that: *"I give importance to pre-listening activities to enable my students to understand what they are listening to more easily. Moreover, I prefer skipping uninteresting topics of conversation. Instead, I sometimes bring different topics to practice the same target structure. Therefore, they can comprehend easily what is said."*

The results also indicated that the fourth mostly acquired language skill ($M = 2.80$) was about spoken interaction (item 15) that 82% of the participants can make and accept apologies. Lastly, the fifth mostly acquired language skill was ($M = 2.78$) about spoken production (item 19), which means that 78% of the participants in this study can describe themselves, their family and other people. This shows that these participants were able to improve their listening and speaking skills pretty good relating the above-mentioned items.

With regard to the least acquired five listening/speaking language skills, descriptive statistics were used and table 2 indicates the items with the lowest mean scores.

Table 2 Descriptive Statistics of the least acquired five target language skill items of Participants

	N	\bar{X}	SD
S17 Discussing with other people what to do, where to go	50	1.98	.589
S12 Asking for or giving directions by referring to a map or plan	50	2.08	.634
S18 Asking and answering questions about what a person do at work and in his/her free time	50	2.28	.536
S7 Making simple transactions in shops, post offices, or banks	50	2.34	.519
S21 Giving short, basic descriptions of events	50	2.42	.575

The results shown in table 2 indicated that the first least acquired language skill was about spoken interaction component which means that 66% of the participants can't discuss with other people what to do, where to go, and make arrangements to meet (S17; $M = 1.98$). The second least acquired language skill with the mean score ($M = 2.08$) was about again speaking skill (item 12), which means that 60% of the participants in this study can't ask for and give directions by referring to a map or plan. The third least acquired language skill ($M = 2.28$) was concerning spoken interaction (item 18), which means that 64% of the participants can't ask and answer questions about what they do at work and in their free time. Moreover, it can be inferred from the findings that the fourth least acquired skill ($M = 2.34$) was about spoken interaction (item 7) in that 62% of the participants

can't make simple transactions in shops, post offices or banks. With regard to the reasons for the most and the least managed language use, the teacher stated the below reasons:

"When the topics are about the students themselves, their own lives and experiences, they seem to speak more. On the other hand when they need to practice functional expressions related to other people, they have difficulty in speaking."

Finally, the fifth least acquired skill ($M = 2.42$) was regarding spoken production (item 21) which means that 50% of the participants can't give short, basic description of events. The teacher's statements are also in line with this result. She says:

"Students could produce spoken language at the sentence level; however, they seem to fail in the organization of their speech beyond the sentence level."

Therefore, the results revealed that the participants are aware of their own learning and do self-assessment successfully.

RQ2: To what extent is learners' self –assessment of their speaking and listening skills congruent with their proficiency scores?

Table 3 shows the correlation values of the participants' proficiency scores and their listening and speaking skills.

Table 3 Correlation of proficiency scores, listening and speaking skills components (N = 50)

		Listening Score	Speaking Score	Listening	Spoken Interaction	Spoken Production
Listening Score	Pearson's r P (2 tailed)	1	.814** .000	.195 .175	.458** .001	.334* .018
Speaking Score	Pearson's r P (2 tailed)	.814** .000	1	.106 .466	.231 .106	.165 .253
Listening	Pearson's r P (2 tailed)	.195 .175	.106 .466	1	.422** .002	.212 .139
Spoken Interaction	Pearson's r P (2 tailed)	.458** .001				
Spoken Production	Pearson's r P (2 tailed)	.334* .018	.165 .253	.212 .139	.530** .000	1

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

* . Correlation is significant at the 0.05 level (2-tailed)

Table 3 clearly demonstrates that there is a strong positive relationship between the participants' listening proficiency score and their speaking proficiency score, $r(50) = .814, p < .001$. This value shows that as students get higher scores from their listening proficiency exam, they tend to get higher scores from their speaking proficiency exam too. Another considerable finding is that there is a strong positive relationship between participants' listening proficiency score and spoken interaction component, $r(50) = .458, p = .001$. It can be concluded from this finding that as participants get higher scores from their listening proficiency exam, they tend to interact with others more in the target language. Furthermore, there is also a positive but not strong relationship between participants' listening proficiency score and spoken production component, $r(50) = .334, p = .018$. It can be inferred from this finding that the scores they get from their listening proficiency exam encourages them to speak a bit more in the target language.

CONCLUSION

The positive correlation between the participants' listening proficiency score and their speaking proficiency score indicated that these two variables are interacted, and mutually developed. Thus, positive and significant effects of speaking scores can be considered together with students' listening scores. Furthermore, it was determined that students' English listening and speaking skills and proficiencies did not differ in terms of gender and the high school type variables.

When the CEFR and the ELP are fitted to a particular realm of language learning, they open up the prospect of developing an assessment culture in which language tests are much more closely related to teaching and learning

than has usually been the case. The ELP plays a crucial role in such a culture since it appoints a key role to self-assessment and the development of the individual language learner's reflective abilities. By developing learners' self-assessment skills, they obtain 'insider' admission to the processes of 'social moderation' which form a basis for the CEFR's common reference levels and to the interaction between curriculum and assessment that is underlying to any useful educational programme (North 2000b).

There aren't many studies about students' assessing their own listening and speaking proficiency of English based on Common European Framework Reference studied in the universities in Turkey. Notwithstanding this limitation, the findings in this study bear crucial implications for useful practices in teaching learning policies of listening and speaking skills. It is vital that language learners be aware of and can assess their own learning process. The results in this study indicate that the students seem to be able to identify how to assess themselves so efficiently. To put it differently, they have the capacity for self-assessment in monitoring their own language learning process.

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The Complete of Senior Project by Studied the Chemical Constituents and Bioactivities Test of *Lepisanthes Fruitcosa* (roxb.) Leenh

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ABSTRACT

The senior project of the fourth-year undergraduate students are important that they used the total knowledge of chemistry from course syllabus. The students were studied the natural products by using the technique of extraction, isolation by chromatography and using the spectroscopy for proved the structures of compounds. The goal of the senior project were apply the herbs for cosmetic, pharmacognocny which the bioactivities were tested by antioxidant and anti-acetylcholinesterase. *Lepisanthes fruticosa* (Roxb.) Leenh (*L. fruticosa*) is studied, it is a Sapindaceae family, that is used as medicinal plants, antipyretic, antidiarrheal. The previous study for cosmetic tests, *L. fruticosa* isolated the glycosphingolipid which using for anti-ageing and phenolic compounds for anti-tyrosinases. The phytochemical study and pharmacological activity of this plant are scarcely found. The researched includes the extraction of dried leaves powder of *L. fruticosa* by maceration using MeOH, MeOH: H₂O in ratios 4:1, 1:4 were C1, C2 and C3, respectively. TLC screening test using the solvent system CHCl₃: MeOH: H₂O (8: 2: 1) and sprayed with 10% H₂SO₄/ethanol on C1, C2 and C3 showed chemical constituents of terpenoids, phytosterylglucoside and glycosphingolipid. C1-C3 showed an IC₅₀ values of antioxidant by radical scavenging of DPPH (2,2-diphenyl-1-picrylhydrazyl) are 149.5, 224.8 and 160.9 µg/ml, respectively. Antiacetyl cholinesterase used Ellman's method showed IC₅₀ of C1, C2 and C3 are 11.1, 137.8 and 160.9 µg/ml, respectively. The bioactivities were guided C1 was fractionated by column chromatography (CC) using silica gel No.7734, and solvent system were using ethyl acetate and methanol gave 5 fractions (F1-F5). TLC screening test of F1-F5 used the solvent system CHCl₃: MeOH: H₂O (90: 10: 1) under UV-spectrophotometer 366 nm showed scopoletin and spray reagent with 10% H₂SO₄/ethanol detected friedelin, stigmasterol, phytosterylglucoside and glycosphingolipid. F1-F5 showed an IC₅₀ of radical scavenging of DPPH were 44.4, 32.8, 35.2, 43.1 and 55.3 µg/ml, respectively and an IC₅₀ of anti-acetylcholinesterase were 85.5, 47.12, 18.21, 11.26 and 16.96 µg/ml, respectively.

Key words: anti-acetylcholinesterase, Ellman's method, glycosphingolipid, hyaluronic acid.

INTRODUCTION

L. fruticosa (Roxb.) Leenh is the plant in Sapindaceae family Shrub or small tree, up to 5-8 m high. This plant found in the central and southern of Thailand (Samitinand, 2001). *L. fruticosa* used a tea infusion of the root regularly against rheumatism or impotence and drank to relive to backache against (Leenhouts, 1969). The medicinal used for antipyretic antidiarrhea (leaves and twigs)(Jansen et al., 1991). The phytochemistry of Sapindaceae family found triterpenes (Spitzer, 1996), flavonoids (Bradley et al., 2011), phytosterylglucosides (Saburi, 1999) and sphingolipid (Alabdul, 2005). Hyaluronic acids (HA) and glycosphingolipid are the same functional group of amide. HA is finding in the cell of bacterial (Sugahara et al., 1979.) but glycosphingolipid is isolating from plants (Perveen et al, 2015). Reported, glycosphingolipid was used for anticancer (Menaldino et al, 2003) and in the cosmetic used antiaging (Sacket et al, 2009.). The study is predominant for glycosphingolipid compounds which have activities of antiacetylcholinesterase (anti-AChE) by using Ellman's method (Bulaj et al, 1998). The causative of Alzheimer disease (AD) is mainly characterized by the pre-synaptic decrease of acetylcholine (ACh) due to damage of cholinergic neurons in some especial parts of the brain or ACh was inhibited of acetylcholinesterase (AChE). AD is suggestive of memory loss, cognition defect and behavioral impairment (Asadipour et al, 2013). Four anti-AD drugs approved by the FDA namely, tacrine, donepezil, galanthamine, and rivastigmine were synthesized drugs and have side effect (Sugimoto et al. 2000). Previously, many plants drugs have been observed for evaluation for AChE inhibitors in essential oils(Zarrad et al, 2015), coumarins (Anand et al, 2012), phenolic compounds(Ouattara, 2013) and steroids(Cortesa et al, 2015). The study of crude methanol of *L. fruticosa* was active in anti-AChE with an IC₅₀ value of 11.1 µg/ml. Interesting to discovery the new compounds for inhibition of AChE from this plant.

MATERIAL AND METHODS

Phytochemistry

General ^1H and ^{13}C NMR spectra data recorded on Bruker DPX-300 and 75 MHz, respectively, with CDCl_3 as solvent and TMS reference. APCIMS, Perkin Elmer. IR spectra were recorded in CHCl_3 by Perkin-Elmer. UV spectra were recorded in MeOH using Hitachi, U 320 spectrophotometer. Melting point measured Digital Electromol 9100. Separation by CC were carried out using silica gel (15-40 μm , Merck 7731), TLC: pre-coated Kieselgel 60 F₂₅₄ (Merck). NP/PEG or NEU- spray reagent was detected for flavonoids and coumarinoids compounds, FeCl_3 was detected for phenolic compounds and 10% H_2SO_4 -ethanol was universal spray reagent.

Plant materials

The leaves and twigs of *L. fruticosa* were collected in Bangkok Thailand in January 2015. The plant was identified by taxonomist and deposited at Forest Herbarium with the voucher specimen number of BKF No. 098164, Royal Forestry Department Ministry of Agriculture and Cooperatives, Bangkok, Thailand

Extraction and isolation

The dried powdered of leaves and twigs 720g were percolated ethanol (2L), ethanol: H_2O in ratio(2L) and H_2O in (2L) gave C1, C2 and C3, respectively. C1, C2 and C3 gave dried crude extracted 92, 84 and 70 g, respectively. The dried crude methanol 92 g was fractionated by column chromatography(CC) applied on silica gel (si gel) (60-200 μm , Merck 7734) in column size 6 cm i.d., 50 cm length, eluted with gradient system hexane-ethyl acetate, ethyl acetate-methanol and the final eluted with methanol, gave 5 fractions (F1-F5). F1 (12g, hexane-EtOAc, 9:1, 1L) appeared as oily liquids, F2 (8 g, hexane-EtOAc, 1:1; 1L) appeared as green gum, and recrystallized with Et_2O appeared as white needles gave **1** (9mg) and filtrate dried with rotary evaporate gave dried crude, recrystallized with methanol appeared as transparent crystal gave **2** (12mg). F3 (20 g, hexane-EtOAc, 3:7; 1L) appeared as brown gum, and recrystallized with chloroform:methanol (99:1) appeared as yellow crystal gave **3** (7mg). F4 (18 g, EtOAc: methanol, 9:1; 1.5L) appeared as green gum, and recrystallized with ethyl acetate appeared as amorphous powdered gave **4** (6mg). F5 (15g, EtOAc: methanol, 7:3; 2L) gave green gum, and recrystallized with chloroform: methanol: H_2O (8.5: 1.0: 0.5) appeared as amorphous powdered gave **5** (2mg). F1-F5 were removed solvent on rotary evaporator (RE). Compounds **1** **2** **3** **4** and **5** were isolated from *L. fruticosa* were classified for 4 groups. Compounds **1**(friedilin) (Alam,1996) and **2** (stigmaterol) (Mahato et al.,1994), **3**(scopoletin) (Sangsuwon, 2013), **4** was phytosteryl glycoside (Mahato et al., 1994) were compared with literature, and **5** (sphingolipid). **1-5** elucidated by UV IR ^1H , ^{13}C -NMR and mass spectrometer.

Compound **1**: white needles (diethylether). mp 258-260°C. UV (EtOH) λ_{max} 220 nm. IR (CHCl_3) ν_{max} 2980, 2927, 2870 (CH), 1706 (C=O), 1462, 1389 (CH) cm^{-1} . APCI-MS 427.4156 $[\text{M}+\text{H}]^+$ (calc. $\text{C}_{30}\text{H}_{50}\text{O}$ 426.7244). ^1H NMR (CDCl_3 , 300 MHz) δ 0.75 (3H, s, H-24), 0.90 (3H, s, H-23), 0.98 (3H, s, H-25), 1.04 (3H, s, H-29) 1.04 (3H, s, H-30), 1.04 (3H, s, H-26), 1.07 (3H, s, H-27), 1.20 (3H, s, H-28), 1.3-1.4 (18H, complex m, H-6, 7, 11, 12, 15, 16, 19, 21, 22), 1.4-1.6 (3H, complex m, H-8, 10, 18), 1.74 (2H, dd, J 5.5, 3.0 Hz, H-1a, H-1b), 2.2 (1H, m, H-4), 2.34 (1H, m, H-2b), 2.40 (1H, m, H-2a). ^{13}C NMR (CDCl_3 , 75 MHz) δ 213.1(C3), 59.4 (C10), 58.2 (C4), 53.1(C8), 42.8 (C18), 42.0 (C5), 41.5 (C6), 41.5 (C2), 39.7 (C13), 39.2 (C22), 38.3 (C14), 37.4 (C9), 36.0 (C16), 35.6 (C11), 35.3 (C19), 35.0 (C29), 32.8 (C21), 32.4 (C15), 32.1 (C28), 31.8 (C30), 30.5 (C12), 30.0 (C17), 28.1 (C20), 22.2 (C1), 20.2 (C26), 18.6 (C27), 18.2 (C7), 17.9 (C25), 14.6 (C24), 6.8 (C23). TLC chromatogram with MeOH: ethylacetate:hexane (1:80:2) as a mobile phase revealed at R_f 0.65 and gave violet color with 10% H_2SO_4 spray reagent.

Compound **2**: (mixture composed of two phytosterols i.e. stigmaterol and β -sitosterol) white needles (MeOH). mp 165-166 °C. UV (MeOH) λ_{max} 221 nm. IR(CHCl_3) ν_{max} 3200 - 3656 (OH), 2958, 2870 (CH), 1667(C=C) cm^{-1} . APCI MS 412.1256 $[\text{M}]^+$ ($\text{C}_{29}\text{H}_{48}\text{O}$), 414.1256 $[\text{M}]^+$ ($\text{C}_{29}\text{H}_{50}\text{O}$). ^1H NMR (CDCl_3 , 300 MHz) δ 0.70 (3H, s, H-18), 0.80 (1H, d, J 7 Hz, H-27), 0.83 (3H, d, J 6.4 Hz, H-29), 0.86 (3H, d, J 7.1 Hz, H-26), 1.02 (3H, d, J 6.8, H-21), 1.03 (3H, s, H-19), 1.4-1.6 (15H, m, H-8-H-9, H-11-H-12, H-14-H-17, H-25, H-28), 1.85 (1H, m, H-1), 1.9 (3H, s, H-20), 2.04 (2H, m, H-4, H-7), 2.2 (1H, m, H-24), 2.29-2.31 (2H, m, H-2), 3.54 (m, H-3), 5.2 (1H, dd, J 8.3, 15.3 Hz, H-22), 5.38 (1H, dd, J 5, 11 Hz, H-6), 5.5 (1H, dd, J 15.3, 8.3 Hz, H-23). ^{13}C NMR (CDCl_3 , 75 MHz) δ 140.2 (C5), 138.0 (C22), 129.2 (C23), 121.7(C6), 71.8 (C3), 56.8 (C24), 56.6 (C20), 56 (C14), 55.9 (C17), 51.1 (C8), 50.1 (C9), 42.5 (C13), 41.5 (C4), 39.6 (C12), 39.4 (C11), 37.1 (C1), 36.7 (C10), 33.6 (C25), 31.7(C7), 31.6 (C2), 28.6 (C16), 25.4 (C28), 24.0 (C15), 21.5 (C21), 19.3 (C27), 19.0 (C26), 16.2 (C19), 12.0 (C29), 11.6 (C18). TLC chromatogram with MeOH : ethyl acetate (5:95) as a mobile phase revealed at R_f 0.55 and gave blue color with 10% H_2SO_4 -ethanol spray reagent.

Compound 3: (6-methoxy-7-hydroxy-coumarin or scopoletin): pale yellow needles (CHCl₃:MeOH; 9.5 : 0.5). mp 203-204 °C. UV (MeOH) λ_{\max} 254, 366 nm. IR (CHCl₃) ν_{\max} 3400-3550 (OH), 1685 (C=O), 2998, 2938, 2856(CH), 1589, 1511 (C=C) cm⁻¹. APCI-MS 192.2008 [M]⁺(calc. C₁₀H₈O₄192.1708). ¹H NMR (CDCl₃, 300 MHz) δ 7.61 (1H, d, *J* 9.5 Hz, H-4), 6.90 (1H, s, H-5), 6.85 (1H, s, H-8), 6.28 (1H, d, *J* 9.5 Hz, H-3) and 3.85 (3H, s, 6-OCH₃). ¹³C NMR (CDCl₃, 75 MHz) δ 161.5 (C2), 150.2 (C6), 149.7 (C7), 144.0 (C8a), 143.4 (C4), 113.4 (C3), 111.5 (C4a), 107.5 (C5), 103.2 (C8), 56.4 (OCH₃). TLC chromatogram with MeOH: dichloromethane (5:95) as a mobile phase revealed at R_f 0.50 and gave blue fluorescence under UV 366nm.

Compound 4: (stigmaterol-3-O- β -D-glucopyranoside): appeared as amorphous powdered (ethylacetate), mp 258-260 °C. UV (MeOH) λ_{\max} 220 nm. IR (CHCl₃) ν_{\max} 3200-3450 (OH), 1685 (C=O), 2980, 2927, 2870(CH), 1560 (C=C) cm⁻¹. APCI-MS 576.11 [M]⁺(calc. C₃₅H₆₀O₆576), and showed the molecular ion [M-180]⁺ at 397.4002. ¹H NMR (CDCl₃, 300 MHz) δ 0.59 (s, H-18), δ 0.91 (s, H-19), δ 1.12 (d, *J* = 7 Hz, H-21), δ 0.92 (d, *J* = 7.3 Hz, H-26), δ 0.85 (d, *J* = 7.3 Hz, H-27), δ 0.90 (t, *J* = 6.5 Hz, H-29). The signals of methylene protons appeared at δ 1.74 (m, H-2a), at δ 2.18 (m, H2b) and methine protons at δ 5.31 (d, *J* = 4.6 Hz, H-6) and δ 3.32-3.28 (m, H-1', H-2', H-3', H-4', H-5', H-6'). ¹³C NMR (CDCl₃, 75 MHz) δ ¹³C NMR (CDCl₃+CD₃OD, 75 MHz): 140.1 (C5), 138.3 (C22), 129.3 (C23), 121.9 (C6), 100.9 (C1'), 79.0 (C3, C3'), 76.2 (C5'), 75.7 (C2') 73.4 (C4'), 61.8 (C6'), 56.6 (C20), 55.9 (C17, C24), 50.0 (C9), 45.6 (C8), 42.1 (C13), 40.0 (C12), 39.9 (C4), 37.5 (C1), 36.5 (C10), 33.8 (C7, C22), 31.7 (C14), 29.8 (C2), 29.4 (C16), 29 (C25), 28 (C23), 24.1 (C15), 23 (C28), 22.9 (C11), 22.9 (C21), 20.9 (C26), 19.5 (C27), 19 (C19), 11.7 (C29), 11.6 (C18). TLC chromatogram with methanol: chloroform: water (15:85:2) as a mobile phase revealed at R_f 0.30 and gave violet color with 10% H₂SO₄-ethanol spray reagent.

Compound 5: (glycosphingolipid): white amorphous powder (CHCl₃:MeOH, 3:97). mp 252-254 °C (MeOH), UV (EtOH) λ_{\max} : 236nm, IR (KBr) ν_{\max} : at 3230-3450 (OH), 3384(NH), 2998, 2935, 2851(CH), 1642(C=O), 1540, 1537, (N-H) and (CH₂)_n at 721. APCI-MS *m/z* 931.5689 [M]⁺(calc. for C₅₀H₉₃NO₁₄ = 931.28). ¹H NMR (pyr-d₅, 300 MHz) δ 4.24 (1H, dd, *J* 10.5, 5.5 Hz, H-1a), 4.66 (1H, *J* 10.5, 5.5 Hz, H-1b), 4.75 (2H, dd, *J* 10.0, 5.0 Hz, H-2, H-3), 5.51 (1H, d, *J* 6.6 Hz, H-4), 5.34 (1H, m, H-5), 0.85 (2H, t, *J* 7.2 Hz, H-18, H-20), 4.05-4.58 (12H, m, H-1'', H-2'', H-3'', H-4'', H-5'', H-6'', H-1''', H-2''', H-3''', H-4''', H-5''', H-6'''). ¹³C NMR (pyr-d₅, 75 MHz): 175.7 (C1'), 130.9 (C4), 130.7 (C6'), 123.8 (C5), 122 (C7'), 105.6 (C1''), 102.7 (C3'''), 78.6 (C3''), 78.5 (C3'''), 78.4 (C5''), 78.2 (C5'''), 75.4 (C2'') 75.2 (C2'''), 72.5 (C3), 71.8 (C2', C4''), 71.5 (C4''') 70.5 (C1) 63.0 (C6'), 62.7 (C6'') 57.7 (C2), 34.3 (C6), 33.3 (C8'), 33.0 (C5'), 32.3 (C4'), 32.1 (C16), 30.3 (C3'), 29.6 (C7-C15), 29.6 (C9-C17), 22.9 (C17), 21.4 (C19), 14.3 (C18), 14.1 (C20). TLC chromatogram with methanol: chloroform: water (15: 85: 2) as a mobile phase revealed C11 at R_f 0.25 and gave violet color with 10% H₂SO₄-ethanol spray reagent.

DPPH radical assay

Prepared 0.2 mM of DPPH in MeOH. Crude fraction of C1 of *L. fruticosa* was prepared of serial concentration as 15.25, 31.25, 62.5, 125, 250, 500, 1000 ppm. Pipettes 100 μ l each of concentration of sample and added 100 μ l of DPPH to each well. Mixtures were variously shaken and left for 30 min in the dark. Absorbance was measured at 516 nm using MeOH as blank. Percentage of radical scavenging was calculated using the equation: $S(\%) = (A_0 - A_s) / A_0 \times 100$, which A_0 is the absorbance of the control (0.2mM of DPPH, 2 ml), A_s is the absorbance of the tested sample and L-ascorbic acid was positive control. The half maximal inhibitory concentration (IC₅₀) value represented the concentration of the samples which have the antioxidant activity. This experiment was repeated with C2-C3 and F1-F5.

Acetylcholinesterase Inhibition assay

Acetylcholinesterase (AChE from *Electrophorus electricus* (electric eel), Type V-S, lyophilized powder from 518 unit/mg, Sigma) is enzymatic activity was measured according to Ellman's method. The buffers used in the assay were prepared as follows: buffer I is Tris-HCl (50 mM Sigma) pH 8.0; buffer II is Tris-HCl (pH 8.0; 50 mM), containing 0.1% bovine serum albumin (Sigma); buffer III is Tris-HCl (pH 8.0; 50 mM), containing 0.1 M NaCl and 0.02 M MgCl₂·2H₂O. 5, 5-dithiobis-2-nitrobenzoic acid (DTNB, Aldrich) (125 μ l, 3 mM) in buffer III. acetylthiocholine iodide (ATCI, 15 mM, Fluka), AChE 0.22U/ml in buffer II. C1-C3 and F1-F5 fractions were serial dilutions 15.25, 31.25, 62.5, 125, 250, 500 and 1000 μ g/mL using 10% methanol and 10% DMSO in buffer I dissolved the sample, and then 25 μ l of each solution was added to a 96-well microplate. The formula $A_{\text{real}} = [(A-B) - (C-D)]$; A = absorbance of control, B = absorbance of blank of control, C = absorbance of sample and D = absorbance of blank of sample. Added reagents in each well of A B C and D are showed in Table 1.

Table.1: Prepared reagents of A, B, C and D for absorbance under UV-spectrometer λ_{\max} 405 nm

A(control)	B(blank of control)	C(sample)	D(blank of sample)
15mM/L ATCI in 25 μ l			
3mM/L DTNB in buffer III in 125 μ l			
buffer II in 50 μ l			
10%MeOH in buffer I in 25 μ l	10%MeOH in buffer I in 25 μ l	Sample in 25 μ l	10% MeOH+10%DMSO in buffer I in 25 μ l
0.22 Units/mlAChE in 25 μ l	buffer II in 25 μ l	0.22 Units/ml AChE in 25 μ l	buffer II in 25 μ l

Statistical analysis

The experiments were performed in triplicate with three independent experiments. Data were expressed as the mean \pm standard deviation. The R-square equation was used to calculate the IC₅₀ and EC₅₀value. A p-value less than 0.05 was considered statistically significance.

RESULTS AND DISCUSSION

Phytochemistry

Leaves and twigs 720 g of *L.fruiticosa* is extracted using ethanol, ethanol: H₂O and H₂O gave C1, C2 and C3, respectively. The dried crude of C1-C3 were 92, 84 and 70g, respectively. C1-C3 shown antioxidant activity by DPPH in IC₅₀ were 80.5, 120.5 and 140.5 μ g/ml, respectively. C1 was predominant of antioxidant and isolated using by CC on si gel by solvent system of hexane- ethyl acetate and ethyl acetate-methanol gave 5 fractions (F1-F5). F1-F5 were detected the chemical constituents on TLC and showed terpenoids, phytosteryl glycoside and sphingolipids by spray with 10%H₂SO₄-ethanol, coumarinoids under UV 366. F1-F5 were 12, 8, 20, 18 and 15 g, respectively. F1 was oily liquid, F2 isolated 1(9mg,friedilin) and 2 (12mg, stigmasterol), F3 was isolated 3 (7mg, scopoletin), F4 was isolated 4 (6mg, phytosteryl glycoside) and F5 was isolated 5 (2mg, glycosphingolipid). Compounds 1-5 was elucidated by UV, IR, NMR (¹H, ¹³C) MS spectrometer , structure showed in Figure 1.

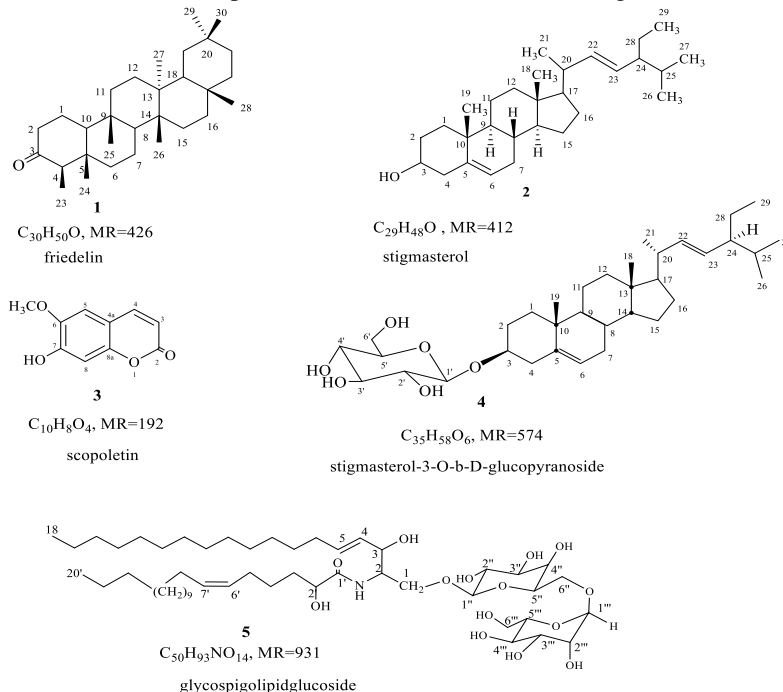


Figure 1: Structure of compounds 1-5.

Antioxidant and anti-acetylcholinesterase activities

The reduction ability of DPPH radicals formation was determined by the decrease in its absorbanceat 517 nm induced by antioxidants. DPPH is a stable free radical and accepts an electron or hydrogen radical to become a stable

diamagnetic molecule. This activity of DPPH can be attributed to the presence of the phenolic compounds and other components in plant for studying the bioactivities in plant. *L. fruticosa* (Roxb.) Leenh is medicinal plant in Sapindaceae family and used a tea infusion, for antipyretic antidiarrhea (leaves and twigs). The crude fractions of ethanol, methanol and water were showed percentage of radical scavengers against DPPH in IC₅₀ were 80.5, 120.5 and 140.5 µg/ml, respectively (Figure 2). The most active fraction was crude ethanol fraction. Consequently, the crude ethanol was fractionated by CC on si gel gave F1-F5 and isolated compounds **1-5**. F1-F5 showed the antioxidant by DPPH were 88.5, 65.5, 52.2, 32.2 and 26.9 µg/ml, respectively compared with VitaminC was 5.2 µg/ml. The antioxidant were guidance for separated the components which were activities for anti-acetylcholinesterase. Acetylcholine (ACh) is one of the major compounds by which nerve impulses are transmitted from nerve cell to nerve cell or involuntary muscles. At the cholinergic synapses, acetylcholinesterase (AChE) rapidly breakdowns ACh into choline and acetate. AChE therefore regulates nerve impulse transmission across cholinergic synapse. Inhibition of AChE has been considered as a promising strategy for the treatment of neurological disorders such as Alzheimer's disease, senile dementia, ataxia and myasthenia gravis, in which a deficit in cholinergic neurotransmission is involved. Potential AChE inhibitors isolated from plant sources have been studied, including glycospingolipidglycoside. The isolation of F5 gave compound **5** that has anti-acetylcholinesterase in IC₅₀ was 9 µg/ml compared with the Alzheimer drug of Donepezil was 0.381 µg/ml. The antioxidant by DPPH and anti-acetylcholinesterase were summarized in Figure 2.

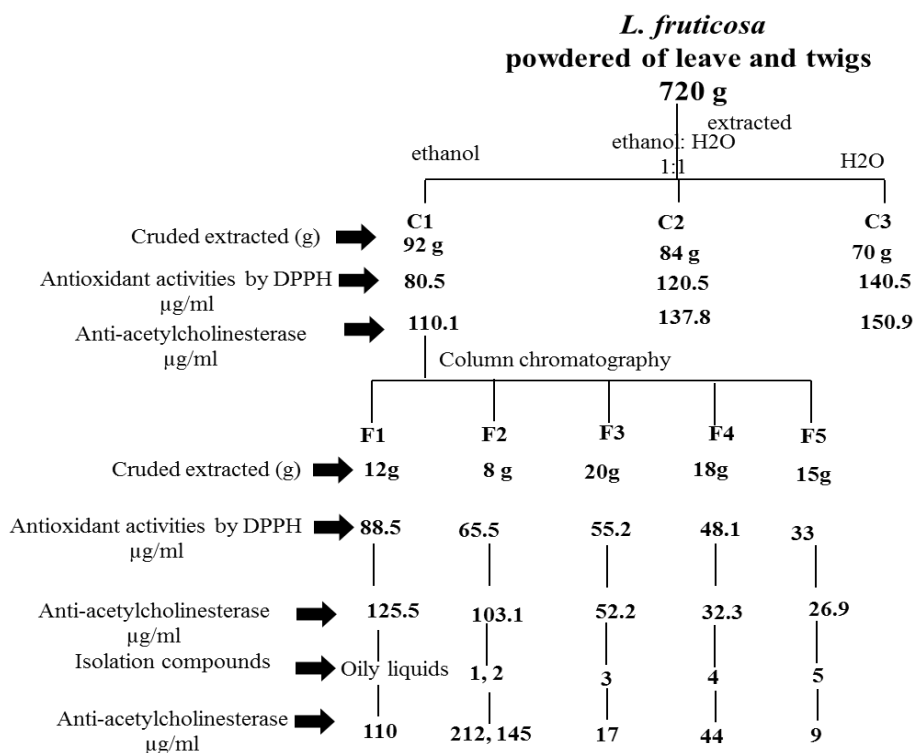


Figure 2: Antioxidant, anti-acetylcholinesterase and isolation of compounds 1-5 from *L. fruticosa*.

CONCLUSION

This research had many steps of experiments, the graduate students educated the knowledge of the medicinal plants, extraction, isolation and the chemical constituents of *L. fruticosa* were elucidated the structure by ¹H, ¹³C of Nuclear Magnetic Resonance (NMR), 2-dimension of NMR, Mass spectrometer, and IR spectrometer which are the instruments use in the laboratory of chemistry. Students expanded the chemistry subject by applied to bioactivities tests which showed the useful for the medicinal in plants. *L. fruticosa* will further to study and the chemical constituents will be isolate for inhibitors of AChE. The isolation of scopoletin, phytosteryl glycoside and glycospingolipidglycoside were anti-acetylcholinesterase and showed in IC₅₀ 17, 44 and 9 µg/ml, respectively. These data were useful for search the new drugs from plant and eaten the fresh plants are prevent AD disease. The research project of the fourth-year undergraduate students accomplished and valuable.

CONFLICTS OF INTEREST

The authors declare that they do not have conflict of interest.

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THE CONFORMITY OF COMPUTER SCIENCE STUDENTS AND SATISFACTION OF ENTREPRENEURS

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ABSTRACT

The purposes of this research was to examine the levels of employer's satisfaction for students from the Computer Science program, Suan Sunandha Rajabhat University, in moral and ethics knowledge, intelligence skills, interpersonal skills and responsibility, numerical analysis skills, communication and information technology. The data were collected from the review of documents and semi-structured interviews and a survey questionnaire was used in this study. The results shown that the levels of employers satisfaction for computer science students in overall were high and the highest were intelligence skills the development of interpersonal and responsibility however employers were looking for graduates with a wide range of knowledge and skills like analytical thinking , collaboration and communication skills, self-responsibility and foreign language and new technology.

INTRODUCTION

Internship is an important process of learning to practice thinking skill, management skill, problem solving and apply theories learned in the classroom to specific experiences in real life situations. It is an opportunity for students to make decisions about the direction of future studies or employment. The internship is considered to provide "the practice of gaining supervised, practical experience" (Coco, 2000). Student internship program is an important process to enhance skills and experience of students to understand practical work and have the good opportunity to familiar with business and culture in organizations. Internship can practice student to have good working relationships and make a sense of good faith to the profession. Also, internships have been approved in popularity as an effective program to enhance student's employability and career development (Ghaith M. Jaradat (2017)).

The satisfaction of internship program is among the most explored concepts in employee and organizational research (Gupta et al. (2010); Bao and Fang (2008); Klee, 2011)). According to D'Abate et al. (2009), there were three significant factors affected on the satisfaction of interns including job characteristics, organizational environment, and contextual factors. The professional development of hospitality and tourism management students was analyzed through the internship by using job characteristics model and the findings shown that dimensions of work undertaken during the internship contribute significantly to an individual's satisfaction and intrinsic motivation (Stansbie et al (2013)). Internships act as a vehicle for identifying both the development of management competencies and conversely is used to ascertain potential deficiencies in students' development and marketability (Kristen et al (2017)).

Nowadays, universities and educational institutes play an important role to prepare the students to cope with the challenges and demands of work. Currently, Suan Sunandha Rajabhat University has realized the importance of internship program to provide the process of practice learning skills based on real experiences of students by co-organized with Entrepreneurs and set up the establishment of the curriculum and professional training courses. Therefore, to achieve the requirements of enterprises, this project studies and conduct research the opinion of entrepreneurs about the levels of employer's satisfaction and the results of this research will bring to improve the curriculum, student activities, and educational management in both theory and practice of computer science program.

OBJECTIVES

This research aims to examine the levels of employer's satisfaction for students from the Computer Science program, Suan Sunandha Rajabhat University, as following: moral and ethics' knowledge, intelligence skills, interpersonal skills and responsibility, numerical analysis skills and communication and information technology.

RESEARCH METHODOLOGIES

In the preliminary stage, the literature of this subject was examined and a deductive approach was applied with a quantitative method. The survey technique was used for this research and the data could be collected in a short amount of time with on line survey.

Sample

Participants in this study were 25 entrepreneurs in which students were taken internship program and they were participant with the online survey. Participants were instructed how to access the online survey via email and

received access to the survey for two weeks. Furthermore, semi-structured interview was used to collect the participants' descriptions of their experience with previous intern's student. Information Technology companies were the majority of participants and human resources Management and accounting or marketing were the remaining participants.

Measurement

The research is focused on the computer science internship program, which is included in the Suan Sunandha Rajabhat University's curriculum. The data was collected using standardized questionnaire and a Likert's scale of 5 options was used for each of the items. The survey instrument is consisted of three main parts: assessment of independent variables, assessment of dependent variables and other descriptive data. The analysis of the data was obtained from the questionnaire distributed to respondents. The statistical data is a medium to attain the needed information. The mean and standard deviation were used for data analysis. A preliminary study was conducted to identify what important variables to be included in this research as shown in figure 1.

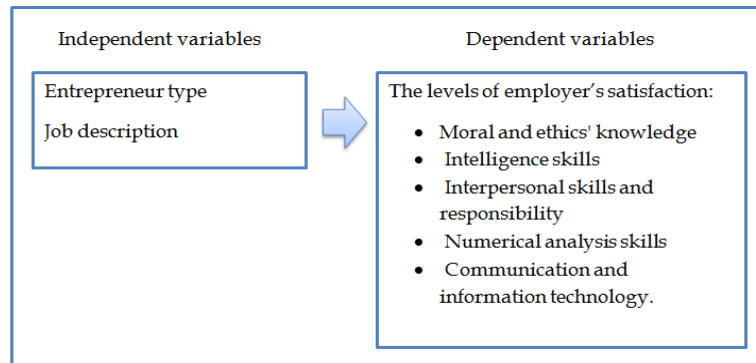


Fig.1 Conceptual Framework of Factors entrepreneur's Satisfaction

EMPIRICAL STUDY AND RESULTS

The results of this study are presented in three parts including demographic background, the level of satisfaction in the intern's student, and overall comments/suggestions on internship program. This research collected data from 25 companies and government organizations as shown in table 1.

Table 1 the results of entrepreneur type

Entrepreneur type	Number
Government	5
State-owned company	2
Company	17
Multinational company	1

The majority of respondents are company (68%), government for 20% of the sample, while the rest are state-owned company (8%) and multinational company (4%). It is found that students were interested in internships with company firstly and followed by government respectively.

Table 2 the results of internship type

Type of internship	number
Software development and testing	4
Web development	4
Mobile Application	4
Database management section	4
Networking and Information Security	1
Graphical design	1
IT Service	7

Students have been trained in the relevant areas by following: IT service was the most of internship program (28%) and the same rate were software development and testing, web development, and mobile application (16%). The rest of interns were database management section, networking and information security, and

graphical design (4%) as presented in table 2. Table 3 was shown the results of the levels of employer's satisfaction in morals and ethics skill. The respondents were satisfied the student demonstrated the ability of punctuality in performing tasks and appointments with 4.55 and the student was able to be discipline in the work in respectively.

Table 3 the results of the levels of employer's satisfaction in morals and ethics skill

The levels of employer's satisfaction in morals and ethics skill	\bar{x}	S.D.
The student demonstrated the ability of punctuality in performing tasks and appointments.	4.55	0.704
The student was able to be discipline in the work.	4.49	0.716
The student was able to responsibility for his/her jobs.	4.41	0.747
The student demonstrated the ability of diligence and hard working.	4.37	0.737
The student respected for the rights and duties of the co-workers.	4.31	0.737

The results of the levels of employer's satisfaction in intelligence skill were presented in table 4 and the means of an ability of creativity thinking and creativity thinking were the same score (4.44).

Table 4 the results of the levels of employer's satisfaction in intelligence skill

The levels of employer's satisfaction in intelligence skill	\bar{x}	S.D.
The student was capable of adapting knowledge to solve problems in each situation.	4.43	0.763
The student demonstrated an ability to put knowledge into practice in this internship.	4.42	0.713
The student demonstrated an ability of creativity thinking.	4.44	0.733
The student was able to work Initiatives.	4.44	0.741
The student was able to understand his/her professional.	4.42	0.71

Table 5 was described the results of the levels of employer's satisfaction in interpersonal and responsibility skills and the student demonstrated an ability to recognize the need for, and to engage in lifelong learning was the highest score (4.41).

Table 5 the results of the levels of employer's satisfaction in interpersonal and responsibility skills

The levels of employer's satisfaction in interpersonal and responsibility skills	\bar{x}	S.D.
The student performed his/her function effectively in teams.	4.34	0.53
The student was able to communicate effectively with teams.	3.92	0.971
The student formed good working relationships with colleagues.	3.99	0.915
The student demonstrated an ability to recognize the need for, and to engage in lifelong learning.	4.41	0.735
The student was able to understand his/her professional.	3.9	0.888

The results of the levels of employer's satisfaction in numerical analysis skill were explained in table 6 and the student demonstrated the ability to analyze a problem, and identify and define the computing requirements appropriate to its solution was 4.5 and the second was the student applied him/herself to the assigned tasks.

Table 6 the results of the levels of employer's satisfaction in numerical analysis skill

The levels of employer's satisfaction in numerical analysis skill	\bar{x}	S.D.
The student applied him/herself to the assigned tasks.	4.45	0.66
The student possessed the necessary skills and knowledge to successfully complete assigned tasks.	4.37	0.566
The student demonstrated the ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	4.5	0.659
The student was able to be clear progress in his/her skills and knowledge.	4.23	0.733

Table 7 the results of the levels of employer's satisfaction in communication and information technology skills

The levels of employer's satisfaction in communication and information technology skills	\bar{x}	S.D.
The student applied him/herself to the assigned tasks.	4.44	0.733
The student possessed the necessary skills and knowledge to successfully complete assigned tasks.	3.9	0.88
The student demonstrated the ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	4.42	0.71
The student was able to be clear progress in his/her skills and knowledge.	3.92	0.971

Table 8 was presented the overall results of the levels of employer's satisfaction and moral and ethics skill was the highest mean (4.43) and Intelligence skills was 4.42. The rest skills were 4.38, 4.17 and 4.12 respectively as shown in figure 2.

Table 8 the results of the levels of employer's satisfaction

The levels of employer's satisfaction	\bar{x}	S.D.
Moral and ethics	4.43	0.72
Intelligence skills	4.42	0.73
Interpersonal skills and responsibility	4.12	0.8
Numerical analysis skills	4.38	0.65
Communication and information technology	4.17	0.76

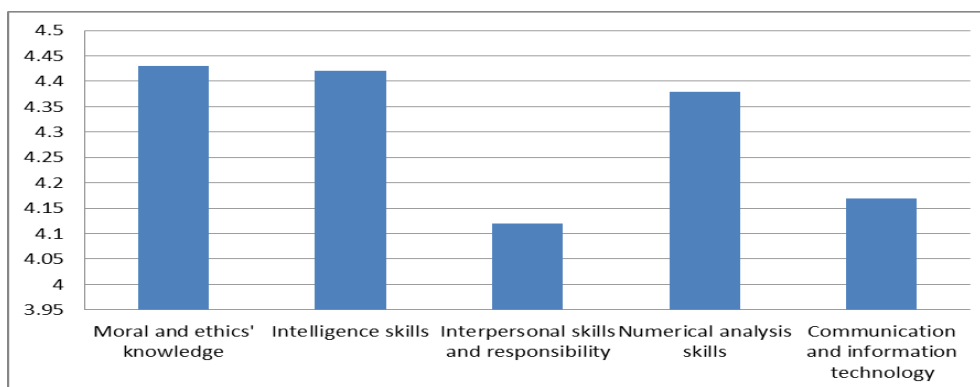


Fig.2 the levels of entrepreneur's Satisfaction

The results of the comments and suggestions in an open-ended questionnaire found that students should take academic programs, like communication, writing and software development, before internship program. The responses are pleasure to assist computer science program to review academic courses related to programming, and software development. Also, student needs to take courses of English language practice skill. The result is as important factor for faculty to improve student's skill to meet the needs of entrepreneur in the future.

CONCLUSIONS AND FUTURE WORKS

In this work, the results of this study were shown the perceptions of the entrepreneurs for the evaluation of learning from the real experience of student's internship and internship program helped students to have a better understanding of professional team-working and to share their knowledge and skills related to practice. Also, entrepreneurs suggest that student should have good language especially English language. Hence, the results were used to improve the quality of the curriculum in order to meet the requirements of enterprises.

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The Design Skill of Teacher: The Analysis of the *Project Works*

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ABSTRACT

Designing is a complex competence (Snelbeker, 1987; Freiberg, 2002; Loughran, 2006) involved in the teaching function itself (Laurillard, 2012), which derives into a planning capability and a real authentic “pre-vision” capability (Zingale, 2015).

How to train the teacher for this complex and 'hybrid' (Davey, 2013) competence therefore? What tools facilitate the acquisition of mental patterns useful to the inexperienced teachers in order to practise a design skill (Nikolaeva, 2012)?

In the first part of this contribution, the training experience for the design competence carried out in the training courses for the special education teaching certification (d.m. 249/2010, d.m. 81/2013) at University of Bari is described.

In the second part, the structure and the first outcomes of an exploratory study aimed at knowing how the trainee teachers develop design models are illustrated.

The study carried out at the above-mentioned training course in 2014-15, involved about 240 trainee teachers and was performed through the comparative analysis (Fereday & Muir-Cochrane, 2006; Snow & Cress, 2000) of the *project works*. It found that the trainee teachers already possess 'personal' design models at the beginning of their training but also are able to modify them in more formalized structures.

INTRODUCION

Designing the didactic actions will be always more one of the main competences of the teacher, since it is a prerequisite contributing to make real the “curricula autonomy” and “organizational flexibility” required by the school today (L. 13/07/2015, n. 107; European Commission, 2013).

Designing - involved in the teaching function itself (Laurillard, 2012) – leads the teachers to open sceneries, to meet common and specific student needs, to provide educational offers compliant with the indications of the System of Education and Training and meeting the territorial needs (cfr. Curricular and extracurricular projects - Capperucci, 2008).

What does *designing* mean in educational context? How specific is it, compared to designing in other contexts? And, above all, what does the teacher design skill consist in?

Design

According to a “minimum ontology” (Rossi & Toppano, 2009) and independently from the application field, design can be considered an activity producing *in output* the description (a project, indeed) of an artefact including sufficient information to build/create and meeting specifications given *in input* (such as aims, objectives, limitations to be respected) (p. 57).

In other words, designing is “a mental and/or material representation of an object/activity (i.e.: a didactic action), aiming at its building/creation” (p. 11).

From a multidimensional point of view and in perspective of the complexity it is possible to describe the design as a “situated and collaborative activity of production, elaboration and transformation of models” (p. 16), both mental and/or material.

According to the well-known reflexive and situated paradigm (Schön, 1983; Brown, Collins, Duguid, 1989; Gero & Kannengiesser, 2002), the designers would possess a sort of “toolbox” made of mental models, symbolic representations, conceptual contents and representation languages more or less specific (Rossi e Toppano, 2009, p. 15); they would not be limited to follow mechanically a rule, an applicative procedure, but would rather be able to choose which “tool” to implement depending on circumstances and the phases of the design project. They would therefore follow a “guideline for the action and would communicate with it in a reflexive way” (p. 15) rather than a linear and prescriptive methodology – based on technical rationality.

Having clarified the design conditions, it is suitable to go deeper in the activated processes.

The designers, that are to say who build a model of an object/activity to be performed, carry out three sub-activities (Toppano, 2007): a. *internalization* – they create a mental image of the object/activity; b.

representation – they use a language of the representation and conceptual contents that give shape to the mental image; c. *externalization* – they use a notation system and a specific instrumental tool to communicate the representation. These sub-activities are integrated and simultaneous therefore the level of the thought and of the medium are mutually determined (Rossi & Toppano, 2009, pp. 42-43).

Apart from *building* the model, the designers also need to *share it socially* (Stahl, 2000). It is therefore essential that the individual knowledge of the designer and the shared culture are ‘aligned’.

This alignment takes place through a comparison of the experiences and the creation of a “tacit knowledge” (Polanyi, 1967; Fabbri, 2003), of a shared, explicit and formal conceptualization, that facilitates the sharing of a controlled *vocabulary*, a *glossary*, a *taxonomy* and a *thesaurus* (Rossi & Toppano, p. 53).

Having clarified the main elements of the design process – internalization, representation, externalization and socialization (see also, SECI - Nonaka & Takeuchi, 1995) – it is suitable to consider the second level, that is to say the training to the design process.

Training for the design

As already mentioned, the designers do not use planning rational procedures, but they rather interact with the context in specific situations. They do not merely apply preordained patterns to a certain area of reality (i.e.: the problem to be solved, the action to be performed), but instead activate a sort of continuous conversation – even though sometimes unaware – with that area. In other words, there should be a continuous link (Gero, 1990) among the concepts of function (F), behaviour (B) and structure (S) that they possess in:

- “expected word”, that is to say the conceptualizations/interpretations that they have of the external world - such as the idea that they have about how to solve a problem (cfr. the mental image of the *internalization*);
- “internal world”- that is to say the same conceptualizations/interpretations, yet formalized (cfr. the mental image of the *representation*);
- “external world” – to be meant as the cognitive artefacts taking place during the design activity – i.e.: schemes, formal models, demonstrative prototypes etc. (cfr. the mental image of the *externalization* to be communicated and shared).

If the design is always performed about a specific situation, the training of the future designer – based on the “situated” method (Gero & Kannengiesser, 2002; Masclet & Boujut, 2010) – must in theory facilitate the conversation (Schön, 1983) between the “expected” and “internal” world of the designer and the “external” one of the artefacts; in practice, it must be structured so that the designer initial knowledges meets the symbolic models/artefacts proper to the design and the practical experience in designing. Such aspects mutually influence each other and affect how the designer training takes place (Toppano, 2007; Sim & Duffy, 2000). This should therefore be performed so that it is:

- *retrospective*, offering the trainee some concrete examples of design projects;
- *in situ*, through concrete design activity, even though in a simulated form;
- *preventive*, through a gradual introduction to the vocabulary, the taxonomy, the thesaurus of the design - the so-called “toolbox”.

According to Gero, this demonstrates the inevitably active role of the designer in his/her training consisting in the capability, very often unaware, to modify/adapt/interpret the design internal and external models – meant as cognitive artefacts – since “he is the one who choose the variables where to focus, who give an order to the problematic situation (...), who give meaning” and is “basically free” (Rossi & Toppano, 2009. p. 99).

AN EXPERIENCE AT THE UNIVERSITY OF BARI

The last reformation law about initial teacher training (dm. 249/2010; dm. 30/2011; dm. 81/2013) provides a series of common guidelines that the teacher training courses need to comply with, in order to train to the design skill.

First, the qualifying teacher training courses in primary and secondary school are organized according to the model “induction” through a) alternating courses, school internship and reflexion/synthesis moments in the university internship; b) using connecting professional roles facilitating the construction of a professional knowledge on several levels – teachers, university supervisors, school tutors (Agrati & Gemma, 2015¹).

Secondly, among the disciplines, specific theoretical courses about design have been organized such as ‘*Planning and evaluation of the training processes*’, ‘*Design of the PDF, of the PEI - Life Project and Life Quality models: from designing to evaluation processes*’. These should provide those “external” models, those

“performance design knowledge” both theoretical and practical that is essential to give shape to the personal knowledge possessed by the trainee (Gauthier, 1997; Damiano, 2007).

Third, it will be possible to evaluate the design skill during the training through the analysis of a *project work* in which the trainee teacher needs to describe the didactic action performed during the school internship, elaborated during the university internship meetings and recorded in the final course report. Writing the *project work* would, this way, fulfil two functions: on the one hand, it represents the practical exercise of the design skill, on the other hand it reports the construction of the exercise itself.

It follows the experience gained during the two-year period 2013/14 and 2014/15 at the training courses for the special education teaching certification (*Corso di formazione per il conseguimento della specializzazione per le attività di sostegno didattico agli alunni con disabilità*) at University of Bari. The description of the university internship is focused. This could be consider as a “borderline” between practice and theory that leads the trainees to reflect *in fieri* and subsequently about the experienced carried out and about the theoretical knowledge gained with the university courses. For the description of the structure of the university internship, inspired to the dialogical-reflexive method, please refer to Agrati & Gemma (2015).

The model of process for the didactic design subtended to the meetings dedicated to the design skill was inspired by the training model in situation (Gero & Kannengiesser, 2002) and by a systemic, multidimensional and complex vision of the design (Rossi & Toppiano, 2009). It as well guarantees the trainee teacher that *retrospective*, *in situ* and *preventive* training useful to meet and compare the “expected”, “internal”, and “external” design models. On a curricular level, this would be possible through the orchestration of theoretical (theoretical course), practice (school internship) and reflexive training (university internship) – see the model in figure 1. On an operational level, this would be possible through a *project work* re-writing process – meant as “design artefact”- consisting in three moments, correspondent to the first, second and third draft.

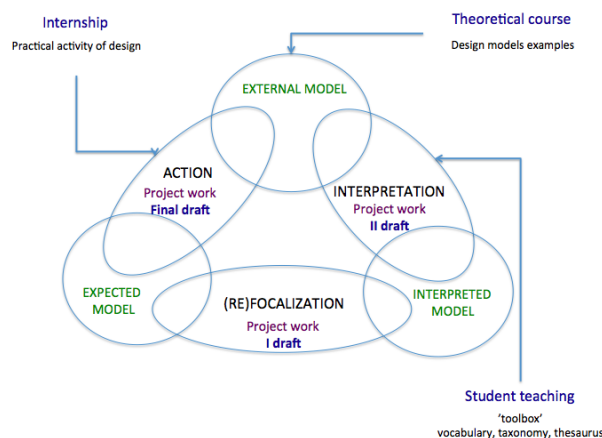


Figure 1 – The situated model of teachers training – adapted from Gero & Kannengiesser (2002).

Figure 1 is merely representative of the process for the didactic planning, of an aware reduction of the complex dynamics difficult to formalize. Nevertheless, it clarifies the *project work* drafting phases, as presented in the university internship meetings. Those meetings have to be considered as the place dedicated to the elaboration, *personal* at first, then *collective*, finally *formal*, of the *project work* - object of this study.

Meetings of the university internship and elaboration of the project work

Building the design skill is part of a pluralistic, multi-level process in which the trainee has experienced designing in first person and through the comparison of his experience with the experienced colleagues, has received and criticized theoretical designing models, has been followed through the elaboration process of his/her “toolbox”.

It follows the elaboration process of the *project work* within the university internship meetings and, at a later time, some aspects of the redrafting technique used.

The project work as design 'artefact'

A design model is a symbolic model, a particular type of “cognitive artefact”, belonging to what Popper (1979) defines as “World 3”. It can be defined as an “artificial tool (...) ensuring a representative function and affects the human activity” (Norman, 1991, in Rossi & Toppani, 2009, p. 25). The use itself of the artefact transforms the activity it was designed for. In particular, it modifies how the set target is meant to be reached. This is why the *project work* – meant as a “design artefact” (Agostinelli, 2007) elaborated during the university internship meetings – is a tool both *of* and *for* the design (Magnoler, 2008), a tool that has facilitated the trainee teacher in the preparing of the action (*of*) and in the reflection about the action itself (*for*).

It is constituted by a) a totality of *statements*; b) a *language* of representation; c) *conceptualizations* about the thing/action to be represented and it is reified in d) an instrumental *vehicle*. As a matter of fact, whoever drafts a *project work* is to respect conceptual and linguistic bindings such as:

- the *structure*, or the ‘form’. It helps to make explicit the process laying under the action to be performed, for example the model WBS - *Work Breakdown Structure* (Nepi, 2006) represents as a hierarchy the activities and sub-activities. Elaborating a *project work* in WBS leads to adapting the “internal” model to a particularly structured “external” model typology but still supporting the process socialization (see also, Seels & Glasgow, 1998);

- the *language*, that is to say the *vocabulary*, the *syntax*, the *semantic* specific to the design (Coyne et al., 1990). The designers of a didactic action use expressions such as “didactic activities”, “tools”, “learning contents”, “objectives”, “targets”; they aim at a balance between the personal language and the specific language of the designing to avoid committing linguistic mistakes (see Wittgenstein, 1953). Each participant to the course wrote three drafts of the *project work*. Each one of these drafts has been defined based on the formal organization that it has acquired (see Figure 2). The first draft is a *narration*. The trainees described in a narrative way how they meant to act to solve a certain problem without any reference structure and based only on personal experience, on the debate with the school tutor during the school internship. This draft aimed at facilitating the expression of the “expected” design model and at observing the so-called spontaneous configuration. The second draft is a *report*. The trainee activated a first comparison between the “expected” model expressed in the first draft and the different models deriving as well from the debate with the colleagues. This has not only promoted the sharing of the contents included in the first drafting, but it has, above all, promoted the reflection about the structure to be used to formalize the hypothetical action – comparison between “expected” and “internal” model. The third draft – *structure* – has been elaborated in a formal way. The structure of the planned action took place through the respect of the linguistic bindings – vocabulary, taxonomy etc. – of the model proposed by the university supervisor. This has facilitated the comparison between “internal” models, deriving from the debate with the colleagues and the “external” design model shared with the community of experts.

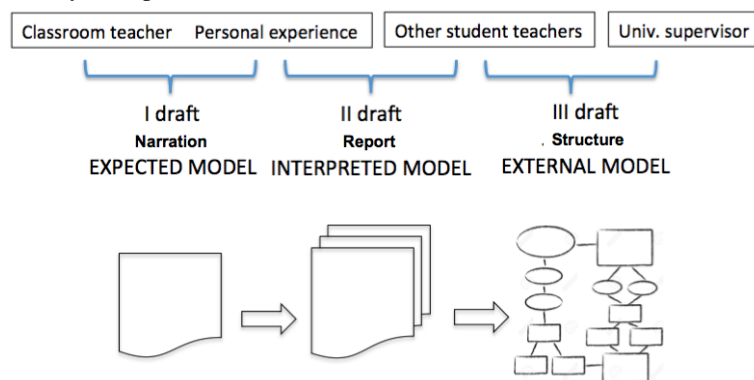


Figure 2 – The three *project works* drafts.

It is useful to refer to some aspects about the re-writing technique, often used in the didactic practice (Corno, 1999), in particular in the teacher professional training (Perla, 2012).

The re-writing technique used during the university internship meetings might be defined as a “cognitive” technique (Corno, 1999, p. 117) since it allows the writer to transform the basic text considering new points of view and/or a deeper analysis or reconfiguration of previously underlined elements, properly basing on the incentives received on the second step (cfr. the text transformation process that each participant could perform following the debate with the other participants and the school tutor). Re-writing techniques of this kind

require a complex and specific cognitive work as they stimulate the “strong” creativity (Corno, 1999) of the involved writer: first of all the activation of the memory, secondly the way knowledge (*principle of data accessibility*) is accumulated in the mind, the inevitable respect for the bindings or binding criteria to the creative act – for example the textual structure, the context aspects etc. (*principle of the bindings*); last but not least, the elaboration of something felt as new and original (*principle of the originality*).

This ‘new and original’ something is described by the cognitive sciences (Schank & Abelson, 1977; Russel & Norvig, 1995) as *script*, mental concept that let re-configure the elements of a knowledge (events, typical scenes, stable organizations in the memory) in a more and more complex and specific ways. Those *scripts* could be somehow associated, even if not properly, to those how have been defined “expected”, “internal” and “external” models of design, that represent the focus around which the project work analysis was carried out.

A STUDY ABOUT DESIGN MODELS

The exploratory study was carried out at the training courses for the special education teaching certification (*Corso di formazione per il conseguimento della specializzazione per le attività di sostegno didattico agli alunni con disabilità*) at University of Bari in 2014-15. It has involved about 240 participants in order to investigate how trainee teachers build design models and, in particular, how they transform the “expected”, personal models into “external” models elaborated by debating with the colleagues, the school tutors and the university supervisors.

This first phase of the study was carried out through the comparative analysis (Fereday & Muir-Cochrane, 2006; Snow & Cress, 2000) of the three drafts of the about 240 *project works* provided by the trainee teachers during the university internship meetings and focused the attention on the formal organization of the documents –defined *narration*, *report*, and *structure* (see above). A second phase of the study, still in progress, aims at analysing in depth the aspect of the *language* and of the *syntax* of the final *project works*.

Through the qualitative analysis of the data (Miles & Huberman 1994; Anderson, 2003) and following the comparative way, the material was read in a cross-reference way through the usual inductive phases of the a. classifying the files, b. codifying the significant aspects (*coding data*), c. identifying recurrent typologies (*structuring data*). A double-way matrix was used: it is worth reminding that this is the “*form on which particular characteristics of the multiple cases or utterances that the analyst need to take into consideration can be recorded*” (Miles & Huberman, 1994, pp. 93–95). On it, macroscopic characteristics of the formal documents organization have been reported.

Some “emerging categories” (Bryant & Charmaz, 2007) among the design models reported in the three drafts of the *project works* have been deducted from the comparison of the matrixes, . The drafts having no reference model have been coded as “informal”; those having some sort of linear structure in phases – linked to the most known example is the ADDIE meta-model, Analyse, Design, Develop, Implement, Evaluate (Seels & Glasgow, 1998) – have been coded as “ADDIE”; those referring to hierarchical models following a time logic have been coded as “WBS” – referring to the most known meta-model WBS (*Work Breakdown Structure*).

Analysis of the data and first evidences

The figure 3 represents the absolute values of the design model typologies (ADDIE, WBS, informal) found in the three drafts (Narration, Report, Structure) of the *project works*.

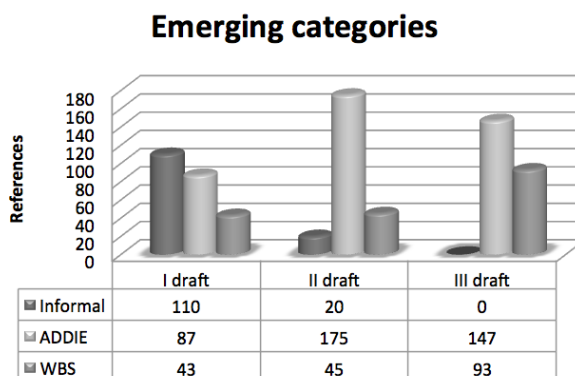


Figure 3 - Emerging categories in the three drafts of the *project work*.

Hereunder some aspects of the evidences are focused. In the first *project works* draft (Narration) the trainee teachers have used “external” models more or less formalized such as ADDIE (87) and WBS (43), even though in most cases they have not used any model. In the second draft (Report) the number of informal models has considerably decreased (from 110 to 20), whereas the use of model ADDIE has increased (175), following the debate with the course colleagues, as it is worth reminding. In the third draft, all the trainee teachers have used “external” design models such as ADDIE (147) and WBS (93) following the debate with the course colleagues and technical-practical indication received by the supervisor, as it is worth reminding.

As known, the model ADDIE represents a meta-model describing a linear process of action in phases (analysis, design, development, implementation and evaluation - Seels & Glasgow, 1998). The ADDIE models found in the three drafts of the *project works* were not hardly “canonical”: sometimes the *design* phase was elicited, sometimes the structure was roughly respected but the vocabulary used was different etc. Nevertheless, as previously mentioned, the models inspired to the ADDIE typology have been collected in the same “family”.

Looking at the figure 3, it is noted that the reference to the design ADDIE model are present in a consistent way (87) even in the first draft of the *project works* (Narration), increase further in the second draft (Report) (175) and then balance in the third draft (Structure) compare to the WBS model.

This is sufficient to consider the ADDIE model as an indicative expression of the “implicit” teacher knowledge (Perla, 2010) – on a design modelling level – that the teacher itself uses mostly not being aware of it. It is worth considering that the knowledge repertory used by the trainee teaches in the first draft is merely experiential, originated by the memory of the previous training experiences as well as by the debate with the school tutor during the school internship (Agrati & Gemma, 2015²). This prevailing design model seems to reinforce during the debate with the course colleagues –it has increased, in fact, from 87 to 175 from the first to the second draft – but then balances to the other “external” model proposed by the supervisor. It would be interesting to further investigate each of these inferences through a detailed analysis of the drafts but, as it has been clarified, this will be a task in the second phase of the study.

CONCLUSIONS AND FUTURE PERSPECTIVE

Reading the three drafts of the *project works*, it is possible to highlight that the trainee teachers already possess some design models at the beginning of their training. These models are 'personal' but can be easily modified in more formalized structures. More or less formal design models – inspired to ADDIE and WBS – are available since the first drafts of the *project works* and keep having a more defined structure through the debate with the course colleagues (second draft) and the formal models provided by the supervisor (third draft). From the point of view of the study about the teacher training, this suggests to focus more on the “personal knowledge” background of the future teachers that they possess at the beginning of their training.

The comparative analysis highlighted as well the advantages and the limits of the *project work* as professional teacher training “tool”. The writing activity generated an unquestionable advantage in terms of participants training, that is to say to make explicit, make 'visible' some knowledge that would have otherwise been kept implicit (Perla, 2010) and maybe unaware. The triple draft of the *project works* performed by the participants gave the opportunity to make explicit, to clarify and even to build a more “strategic” knowledge (Damiano, 2007) compared to a 'anecdotal' knowledge. This professional writing (Perla, 2012) is conditioned nevertheless by a. the chance to have a suitable space/time, independent from the practice and facilitating reflection; b. the motivation to “commit in paths (...) leading often to question the very same presuppositions of one’s own action, sometimes the very same identity” (p. 12). From this latter consideration, the main limit of this *project work* tool arises: that is to say the emotional and cognitive commitment from the participants. Several participants showed a certain reluctance towards elaborating a project work, towards the practice of writing itself.

Even through reading the material, some sort of avoiding the task has been detected, such as the use of some stereotyped writing expressions and quotations from pre-existent documents.

The re-writing technique – as a way to *produce* material – and the comparative analysis – as a way to *read* the material – allowed anyway to achieve some positive outcomes about the training efficacy of the university internship module. This made possible the comparison among the *pre* and *post* action knowledge in a direct way. In the university internship meetings, the debate with the colleagues and the incentives from the

supervisor turned into the chance for the participants to re-elaborate the design models arose in the first drafts of the *project works*, facilitating its restoration.

In the university internship meetings the internship tutor used very well-known design models (ADDIE and WBS). It would be interesting to observe what kind of impact more complex, multidimensional models – such as the FBS Gero & Kannengiesser, 2002) or the FVP (Rossi & Toppino, 2009) would have on the trainee designers.

It might be interesting as well analyse in depth the informal kind of models arose in the first drafts of the *project works* to be informed about the naïve, spurious representation forms that the future teachers possess and investigate about their origin.

Finally, it could be interesting analyse more in detail each of the models found in the drafts of the *project works* and relate them to the ADDIE and WBS to clarify their special features. This would lead to better clarify the process of transformation of the “internal” models in “external”, formal models.

As often mentioned in this study, these are matters needing further in-depth analysis and further investigations.

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The Development of Constructivist Simulation Learning Environment Model To Enhance Decision-Making For the Industrial Electrical Technology Students

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ABSTRACT

The purpose of this research was to synthesize theoretical framework and designing framework of Constructivist Simulation Learning Environment Model to Enhance Decision-Making for the Industrial Electrical Technology Students. Research design was Model research (Richey and Klein, 2007) This study was a part of research in Phase I (Model development). Research design was document analysis. The procedures were as follows: 1. Examining and analyzing principles, theories, selected research 2. Synthesizing the theoretical framework and the designing framework of Constructivist Simulation Learning Environment Model to Enhance Decision-Making for the Industrial Electrical Technology Students . The results revealed that: 1) The theoretical framework consists of 5 foundations: (1) Context base, (2) Psychological base (3) Pedagogical base, (4) Multimedia and Simulation and (5) Neuroscience base 2) The designing framework of Simulation Learning Environment Model to Enhancing Decision-Making. Consisted of 4 Processes 1) Encourage the creation of cognitive structures that promote decision-making 2) Support for cognitive equilibrium 3) Enlarging of cognitive structure and decision-making 4) Enhancing and supporting for knowledge creation and decision-making. This Constructivist Simulation Learning Environment Model comprised of 8 components as following: (1) Problem Base 2) Resources 3) Cognitive Tools 4) Decision-Making room 5) Collaboration room 6) Coaching room 7) Related Case and 8) Scaffolding

Keyword: Simulation learning environment, Constructivist, Decision-Making

INTRODUCTION

From the past to the present, there have been changed about technology, economy, and society by using the knowledge to perform the tasks.

These changes affect many aspects. In addition, it is directly affected on society and has many problems occur in society. Moreover, there are the complex problems.

It is necessary to develop people for having the cognitive style, analytical thinking, reasoning, knowledge acquisition, and decision-making those are important with the living now. For each day, the people have to face many problems around them. Therefore, it needs to have the decision-making for each problem since they have been got up. For example, choosing clothes, shoes, traveling, and etc. For these reasons, it needs to study the concreated decision-making guidelines that are having the pattern, method, and step of decision-making to find the conclusion for decision-making.

For developing the people to have more knowledge and skills that need for living now, the government has set the study plan which has focused on the learners for having learned-behavior by setting the National Development Plan and a National Education Act.

To prepare the contents and activities be consistent with the learners' attentions and skills by regarding to the difference of each person.

However, the teaching and learning are still be a lecture which it makes the learners could remember only information, but they could not emphasis on an advanced-thinking method. Then they could not make understanding and finding knowledge as much as it could be. It is difficult to understand, so it needs to change the teaching method for making the learners to have a characteristic that is suitable for the 21st century. The teaching method will consist with the Constructivist Theory which emphasis on the learners to make knowledge by practicing through themselves, thinking method, and connecting the old knowledge with the new knowledge together after that they could expand the cognitive structure.

According to The teaching and learning in the industrial electrical technology , it will emphasis on an action by practicing about the *electrical circuit connection*, there is the complexity dealing with the *circuit connection*, materials and equipment's selection methods, and technique of the *Electrical circuit connection*. Each selection method may be fail and dangerous for doing the *Electrical circuit connection*. Therefore, it needs to bring the decision-making method to use accurately and to protect the mistake.

At present, the learners still practice to do the real electrical *circuit connection*. If the learners lack of skills, experience, and proficiency skills in decision-making, it may be dangerous because an electric current has flown all the time. From the problem above, there is the model to use with the learners for practicing and revising skills from the computer program dealing with an electrical *circuit connection by making them to have more proficiency skills before doing the real electrical circuit connection and avoiding the dangerous situation*.

The environmental learning model has been designed to assume the situation following the Constructivist Theory that supports the decision-making. To practice about decision-making on an electrical *circuit connection* and the material and equipment's selections. To increase the proficiency skills and decrease the dangerous situation meanwhile they are working dealing with an electric current.

The Teaching Integration and Neuroscience could help to understand the protocol or thing that occur in the human's brain meanwhile they are facing the problems and making decision which it is the study of brainwave meanwhile there is the decision-making. To bring it be the evidence-based results that be occurred in the cognitive process.

The purpose of this study

To synthesize the designing framework of constructivist simulation learning environment model to enhance decision making

Research design

Document analysis and survey research were employed in this study

Target Group

The target groups of this study consisted of 3 experts to assess the designing framework of the constructivist simulation learning environment model to enhance decision making

Research instruments

The instruments in this study consisted of 2 instruments as following:

- 1) The 3 experts assessed the quality of the designing framework and recorded in the designing framework assessing form.
- 2) The recording form for synthesis of the designing framework of the Simulation enhance decision-making

Data collecting and analysis

The procedure of gathering and analysis data were as follows:

- 1) Synthesis of theoretical framework of Constructivist Simulation learning environment model to enhance Decision-Making. The data were collected by using the recording form for synthesis of the theoretical framework. Summarization, interpretation and analytical description were used to analyze the data.
- 2) Synthesis of Designing Framework of Cognitive Simulation Learning Environment Model to Enhance Decision-Making. The data were collected by using the recording form for synthesis of the designing framework. Summarization, Interpretation and analytical description were used to analyze the data.

RESEARCH RESULTS

A. Theoretical framework

Based on a review of literature related to design model Development of Constructivist Simulation Learning Environment Model to enhance Decision-Making for the Industrial Electrical Technology Students Which consists of 1. Contextual context, objective philosophy, curriculum Industrial Electrical Technology Scope of content About 1-phase AC and 3-phase AC motors 2.

Fundamentals of Learning Psychology Based on the basic psychology of learning in constructivist theories, Cognitive Constructivism. Social Constructivist and Cognitive Theory includes information processing theory and Mental model and Decision-Making 3. Teaching basics By adopting the principles of Open Learning Environments, Constructivist Learning Environments, Situated Learning Environments, Designing Instruction for Constructivist Learning model and Cognitive Apprenticeship 4. Environmental learning, multimedia and simulation. 5. Neuroscience

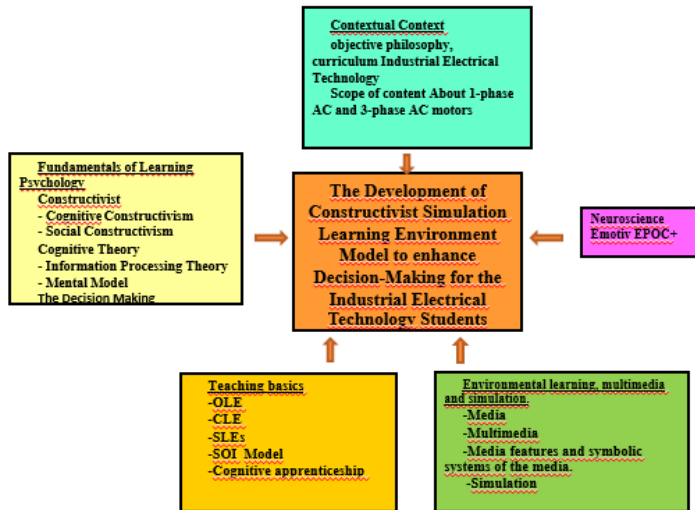


Figure 1. The Theoretical framework: The Development of Constructivist Simulation Learning Environment Model to enhance Decision-Making for the Industrial Electrical Technology Students

B. The Designing framework

According to this study, the findings of synthesis of the designing framework of the learning environments model to promote Decision-Making found 4 crucial bases as the following details:

1. Activating cognitive structure and promoting Decision-Making

The first crucial process of the designing framework was activating cognitive structure and promoting Decision-Making. the activating cognitive structure were as follows: cognitive constructivism (Piaget, 1964); cognitive conflict, Situated learning (Brown, Collins and Duguid,1989) Authentic context and Authentic activities, Simulation and Decision Making)Fred C. Lunenburg 2010 & Allen and Plunkett and Attner, 2013). Design is a problematic place that promotes decision-making. shown in figure 2

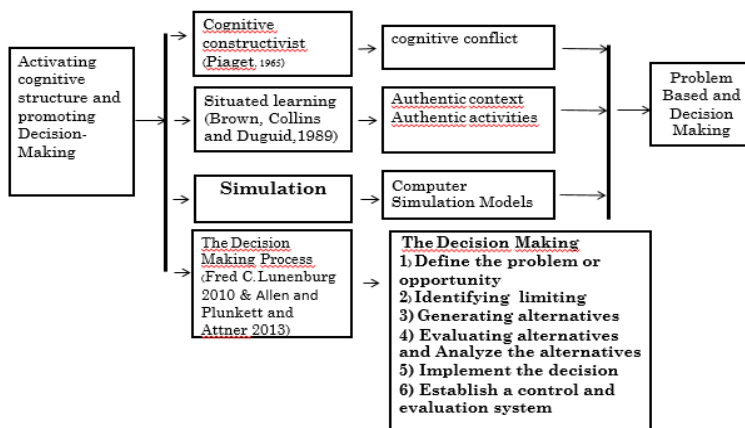


Figure 2. The designing framework: Activating cognitive structure and promoting Decision Making

2. Supporting for adjusting of cognitive equilibrium

The second crucial process of the designing framework was supporting for adjusting of cognitive equilibrium, it illustrated the theories used in design the component called "Learning Resources" and "Cognitive tools" of the learning environments to promote Decision Making. The theories used for supporting for adjusting of cognitive equilibrium were as follows: information processing theory (Klausmeier, 1985); sensory register, short-term memory, long-term memory: mental model theory; conceptual model, SOI model (Mayer, 1996) selection, organizing, integrating; and Simulation. These theories were transformed into practice as learning resources in order to provide information for the learners to construct the knowledge. This may help the learners processing information effectively and understand easily and CLEs (Jonassen,1999) Cognitive tools to seek knowledge of the learners themselves as shown in Figure 3

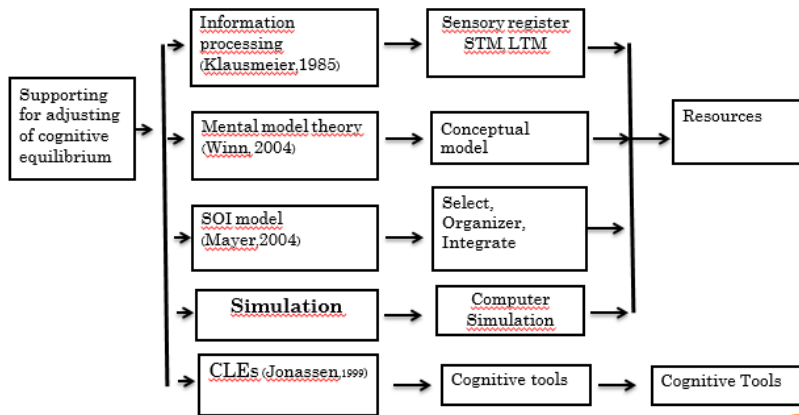


Figure 3. The designing framework Supporting for adjusting of cognitive equilibrium

3. Supporting for enlarging cognitive structure and Decision Making

The third crucial bases of the designing framework was Supporting for enlarging cognitive structure, it illustrated the theories used in design the component called "Social Collaboration Center" of the learning environments to promote Decision Making : Social constructivism (Vygotsky,196 language, culture and society. These help support learners to share experiences, multiple perspectives, and adjust misconception and Simulation Designed to be. "Knowledge exchange room" CLEs (Jonassen,1999) Problem, Question or Project and Related Cases and Simulation. Designed as a "case study" The Decision Making (Fred C. Lunenburg 2010 & Allen and Plunkett and Attner, 2013) The design is "Room to promote knowledge creation and decision-making" shown in figure 4.

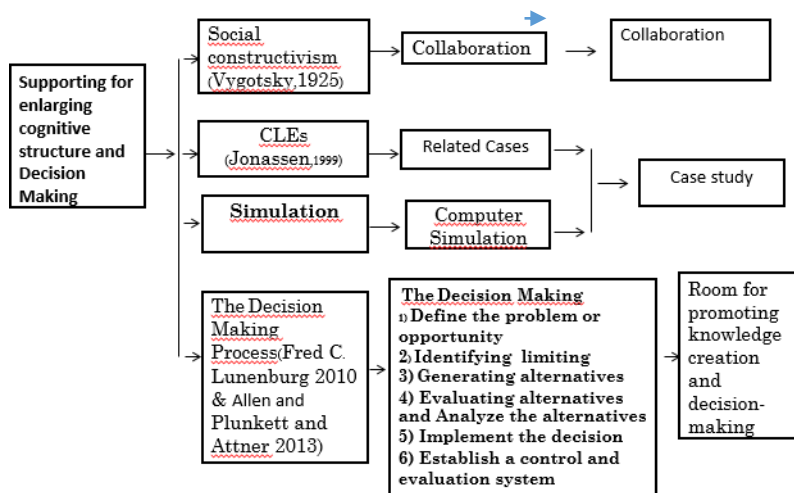


Figure 4. The designing framework supporting for enlarging cognitive structure and Decision Making

4. Supporting and encouraging knowledge construction and Decision Making

The fifth crucial bases of the designing framework was supporting and encouraging knowledge construction, theories used in design the component called “Scaffolding center” of the learning environments to for promote Decision making. The theories used for supporting and encouraging knowledge construction were as follows: Social Constructivism (Vygotsky, 1978) Zone of Proximal Development; 4 scaffolding (Hannafin, 1999): conceptual scaffolding, metacognitive scaffolding, procedural scaffolding, strategic scaffolding, and cognitive apprenticeship; coaching. These theories were transformed into practice as scaffolding center in order to guide and support learning efforts of learners. This may support and encourage the learners to construction knowledge. As shown in Figure 5

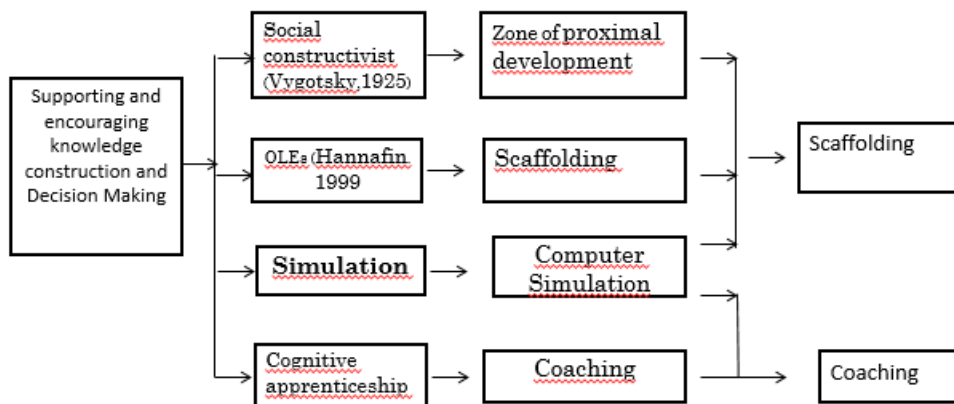


Figure 5. The designing framework supporting and encouraging knowledge construction

C. Assessment of the designing framework of the Constructivist Simulation Learning Environment Model to enhance Decision-Making for the Industrial Electrical Technology Students by experts found the congruence between the theories and the design.

CONCLUSION AND DISCUSSION

The designing framework of the Constructivist Simulation Learning Environment Model to enhance Decision-Making for the Industrial Electrical Technology Students comprised of crucial bases as following: 1) Activating cognitive structure and promoting Decision-Making 2) Supporting for adjusting of cognitive equilibrium, 3) Supporting for enlarging cognitive structure and Decision Making, 4) Supporting and encouraging knowledge construction and Decision Making. According to above 4 bases of the designing framework were transformed into practice as 8 elements the Constructivist Simulation Learning Environment Model to enhance Decision-Making for the Industrial Electrical Technology Students as following: 1) Problem base, 2) Resource, 3) Cognitive Tools, 4) Knowledge exchange room, 5) Room to promote knowledge creation and decision-making, 6) case study 7) Coaching and 8) Scaffolding

As for this research finding may be the result of Instructional design Theory (ID Theory) that used underlined theories especially the Decision Making theory ((Fred C. Lunenburg 2010 and Allen, Plunkatt, Attner, 2013) ; 1) Define the problem or opportunity 2) Identifying limiting 3) Generating alternatives 4) Evaluating alternatives and Analyze the alternatives 5) Implement the decision 6) Establish a control and evaluation system, This may help learners to foster Decision Making. In addition, the theoretical validity of the designing framework of the Constructivist simulation learning environment model was found from assessment by experts. As mentioned findings can be supported the designing framework of the Constructivist simulation learning environment model to enhance Decision Making.

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The Development of An Online Test to Measure the Interpretation of Implied Meanings as A Major Constituent of Pragmatic Competence*

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ABSTRACT

Pragmatic competence is among the explicitly acknowledged sub-competences that make the communicative competence in any language (Bachman & Palmer, 1996; Council of Europe, 2001). Within the notion of pragmatic competence itself, “implicature (implied meanings)” comes to the fore as one of the five main areas there (Levinson, 1983). In this regard, the present study developed an online multiple-choice discourse completion test (MDCT) to specifically measure the interpretation of formulaic, thus teachable implied meanings in English. After the initial version produced with the help of a native speaker colleague, the test was piloted rigorously with different comparison groups. At the end of the process, 112 EFL Teacher Trainees, 33 native speakers of English, 37 EFL learners at a university School of Foreign Languages and 11 high school EFL students had taken the test as the comparison subgroups with varying proficiency levels. Moreover, seven ELT professional native speakers had been interviewed about each test item to have their direct feedback on wording and all the revision/improvement alternatives. Consequently, significant performance differences were detected between particular pairs of subgroups, which is a strength of the test as it did reflect the performance variability between the participants from different proficiency levels. The outcome was a MDCT that the native speaker takers reached a good compromise on and is usable both in computerized and pen-and-paper format, which can be used in any ELT or ELT teacher training program concerned to diagnose the students’ performance in a major area of pragmatic competence to later take informed instructional decisions.

Keywords: English Language Teaching, Pragmatic Competence, Implicature (Implied Meanings), Testing, Teacher Training

INTRODUCTION

“Pragmatic competence (the ability to process and use language in context)” is an essential constituent of having an overall communicative competence. On the other hand, it is a construct relatively hard to develop in EFL contexts like in Turkey, where teaching practices could be grammar-oriented and chances of processing sufficient authentic input are minimal. This all is worthy of more note as interlocutors have been reported to tend to evaluate pragmatic flaws more severely than grammatical ones (Thomas, 1983; Bardovi-Harlig, 1998; Economidou-Kogetsidis; 2015).

When the focus is shifted onto the research agenda within pragmatics, one can see the reports that the domains other than “speech acts” have been studied to a lesser extent. They cover also “implicatures” though they are likely to prove troublesome for learners to interpret even after prolonged exposure to the target language.

In light of the abovementioned considerations, the aim of this study is to develop an online multiple-choice discourse completion test (MDCT) to investigate specifically the interpretation of implicatures (implied meanings) in English, which add up to an essential constituent of pragmatics (Levinson, 1983). In this regard, the following research questions were formulated to guide the study:

* This article is based on the first author’s PhD dissertation titled “The effects of explicit film-based instruction on English as a foreign language teacher trainees’ interpretation of implied meanings”.

- 1) Do NSs of English reach a good compromise with their interpretations of the test items?
- 2) Are the performance differences between particular pairs of test-taker groups attributable to their proficiency differences?

LITERATURE REVIEW

In terms of the historical continuum of competences that an efficient language user would need to have (Chomsky, 1965; Hymes, 1972; Canale & Swain, 1981; Canale, 1983; Bachman & Palmer, 1996; Council of Europe, 2001), years saw the inclusion of pragmatic competence as one of the basic components of overall language ability (Bachman & Palmer, 1996; Council of Europe, 2001, p. 33). In this context, pragmatic assessment is important. The argument is supported in reference to EFL environments like the one in Turkey, about which the related literature reports grammar-oriented language teaching practices, materials and assessment (Özmen, 2012; Uztosun, 2013; Erkmen, 2014). The concern here is that even if such a learning context works in the best way possible, it is still open to question whether pragmatic competence can develop jointly with grammatical competence (Bardovi-Harlig, 1996; Jianda, 2006). In light of the reports like Yu's (2006), which suggests that that language learners may need to better understand pragmatic aspects of the target culture so that they can interpret appropriately what they hear and interact effectively with members of that culture, pragmatic assessment proves to be certainly worth considering.

Pragmatic flaws and communication

In view of the abovementioned points, one could voice doubts about learners' probable communication problems in encounters especially with native speakers (NSs). Like Thomas (1983), Bardovi-Harlig and Dörnyei (1998) and Crandall and Basturkmen (2004), Economidou-Kogetsidis (2015, p. 1-2) appreciates the probable gravity of such problems by noting that a NS could attribute a grammatically competent and fluent non-native speaker's pragmatic failure to impoliteness. Accordingly, she states that when EFL learners move to the target language community, sophisticated pragmatic competence becomes essential since pragmatically inappropriate language can cause pragmatic failure by unintentionally violating social appropriateness.

Pragmatics and Implied Meanings

Within the framework set above, "implied meanings (implicature)" were addressed as the focal point of this study. Besides the significance of pragmatic competence in overall language ability, the principal reason for this choice is the fact that, among its five main areas including "implicature" (Levinson, 1983), the study of pragmatics has focused on speech acts (Aijmer, 2011; Eslami & Mirzaei, 2012; Roever, 2013; Bardovi-Harlig & Shin, 2014; Bella, 2014) and to a lesser extent on implicatures (Roever, 2006; Bardovi-Harlig & Shin, 2014). This would acquire an additional dimension when we consider the fact that implicature is an "unremarkable and ordinary" conversational strategy (Green, 1989, p. 92) used frequently and extensively in daily conversation (Pichastor, 1998; Matsuda, 1999; McTear, 2004). What is more, in terms of pragmatic testing, implicature was made a major constituent of the first pragmatic competence test developed in the field of Applied Linguistics (Roever, 2005).

In this regard, it is considered worthwhile here to touch on the blanket term "implicature" and several related points.

Implicature

It was Grice (1975) who introduced the notion of "implicature" to denote cases in which what is meant is distinct from what is uttered (Davis, 2007). He also categorized the concept into "conventional" and "conversational" implicatures, the latter of which originates from his well-known Principle of Cooperation (Grice, 1975, 1981) and Maxims (quality, quantity, relevance, manner). When an interlocutor deliberately disregards one or more of these maxims, that could well be to go beyond the extent of what s/he utters with the intention of expressing his/her aims indirectly but more effectively that way though. This played a historically important role in pragmatics (Hadi, 2013). It has led to new developments in people's understanding of conversation, in the light of which Bouton (1988, 1994, 1999) was the first researcher to study implicatures in specific relation to pragmatic assessment of comprehension. In conformity with the scholars postulating that it is often difficult for L2 learners to notice how people in a given culture express meaning indirectly (Wolfson, 1989) as they show an inclination for taking utterances at face value (Kasper, 1997), Bouton discovered that the ability of nonnative speakers (NNSs) to interpret implicatures is highly questionable. This later kept being confirmed in studies like Kubota (1995), Lee (2002), Taguchi (2005), Roever (2005) and Rızaoglu and Yavuz (2017).

Using his research findings as base, Bouton (1994) divided implicatures into two sets: idiosyncratic and formulaic. While the comprehension of the former relies mainly on a shared perception of the context, the latter is based on a formula of some sort, which would be structural, semantic, or pragmatic and crucial to a person's effective

interpretation. Bouton's key finding on formulaic implicatures was that they might prove considerably difficult for NNSs and they are less susceptible to even prolonged exposure effects. Nevertheless, they were very much teachable, which provided the direct inspiration for the implied meanings to be included in this study. To make it a basis for further "interventionist studies" where the effect of a particular instructional treatment on students' acquisition of the targeted pragmatic feature is examined (Kasper, 1999), the idea was to develop a test that could investigate as a pretest, posttest and/or delayed posttest the interpretation of such teachable implied meanings by EFL/ESL learners and teacher trainees, who are supposed to help future EFL/ESL learners to have pragmatic competence besides other language ability areas. In this regard, the following section provides the introduction and discussion of each implied meaning type included in the test.

Implied meanings covered in the present study

To start with, the list below gives the implied meanings included in the instructional phase of this study:

- * Pope Questions
- * Indirect Criticism
- * (Verbal) Irony
- * Indirect Refusals
- * Topic Change
- * Disclosures
- * Indirect Requests (Requestive Hints)
- * Indirect Advice

It should be mentioned that Pope Questions, Indirect Criticism, Irony, Topic Change, Disclosures and Indirect Refusals had already been included in several other studies (Bouton, 1994, Roever, 2005; Taguchi, 2005). Indirect requests and indirect advice have not been bunched together with the abovementioned implied meanings in any test before. They were included in this study on the basis of a consideration like Verschueren's (2009, p. 9), who observes that Grice's (1975) account of implicatures and Searle's (1975) definition of indirect speech acts are very similar, or Birner's (2013, p. 195), who posits that indirect speech acts are a subtype of conversational implicature.

Considering the aforementioned fact that formulaic implicatures are highly convenient to test and teach, it is also worth emphasizing here that some of the implied meanings included in this study are ones that were reported earlier as formulaic in the related literature. For the rest, which have not been overtly declared as formulaic, the researchers' claim is that some of their variations can be deemed formulaic, or tentatively formulaic at least, thus worth being included in the instructional program and tested in terms of teachability. This was both a novelty and a risk for the present study, but one that is worth taking as the intention was to respond to Bouton's (1994, p. 106) call that we should be alert to implicature types of which we are not fully aware *with an eye to including them in instruction programs*.

What follows is the discussion of the abovementioned points with a focus on each implied meaning covered in the present study:

Pope Questions

Pope Questions are reported to be clearly formulaic (Bouton, 1994; Bouton, 1999) as they always tend to work according to the following pattern:

- * One is asked a question.
- * S/he thinks that the answer is an obvious "Yes" or "No".
- * To answer that question with an indirect but emphasized "Yes" or "No", s/he asks a new question to which the answer is a clear "Yes" or "No".

The following is an example:

A mother and her daughter Jenny have been discussing the upcoming weekend. Jenny's parents are leaving town and this is the first time Jenny has been left at home alone.

Mother: Are you sure you can take care of yourself this weekend?

Jenny: Can a duck swim, Mother? (Bouton, 1988, p. 193)

As the answer to Jenny's question is an obvious "Yes", she is telling her mother indirectly that she will of course be able to take care of herself okay (Bouton, 1988, p. 193).

Indirect criticism

Like Pope Questions, utterances that contain Indirect Criticism (also called “Understated Negative Evaluation” or “Damning with Faint Praise”) are reported to be formulaic (Bouton, 1994, 1999). It happens when we are asked what we think of something or someone that we, in fact, do not like - but we don’t want to say so explicitly. Instead, we reply indirectly, commenting about features of the thing that are not central to its evaluation in any way (Bouton, 1988, p. 193). See the following example:

George and Sheila are looking for a house to buy. Sheila just went to look at a house in their price range and is reporting back to George.

George: So, what did you think of the house?

Sheila: Well, it had a nice mailbox. (Broersma, 1994, p. 3)

As Sheila responds with a praising comment on just a subsidiary feature of the house (the mailbox), she could be interpreted to imply that some more important aspects of the house merit considerable criticism. By praising the house in such a weak way, she makes it obvious that she does not really admire the features that are central to the evaluation she has been asked to make. In other words, she criticizes the whole through a slight compliment to a part.

(Verbal) Irony

Ironic utterances are a type of implied meanings that are considered in the same category with formulaic implicatures (Bouton, 1994, p. 105), thus eligible to be the focus of pragmatic instruction. Especially verbal irony, which is of interest to the present study, can be deemed as based on a particular semantic pattern. That is, an ironic statement must be contrary to the true state of affairs to be interpreted correctly. There must be some discrepancy between the reality and the utterance, and the listener must recognize this discrepancy in order to interpret the utterance (Kreuz & Roberts, 1995, p. 22). To put it differently, the speaker uses words that mean the opposite of what s/he really thinks. This is exemplified below:

Joan and Anne are classmates. Joan has some problems reading his paper and he is asking Anne for help.

Joan: Hi, Anne.

Anne: Hi Joan. What’s up?

Joan: I was wondering if I could ask a small favor of you. Would you read my Linguistics 441 paper?

Anne: Gosh, John, I wish I could, but I promised Jack I’d go bowling with him tonight.

Joan: Yeah. Well, thanks for the help. (Bouton, 1994, p. 101)

We see that after being refused by Anne, Joan’s latest remark suggests that he is thankful for the response. However, on second thought if necessary, one could see that the statement is contrary to the true state of affairs and there is a discrepancy between the reality and the utterance. That is, Joan feels dissatisfied with Anne’s response and he means to express it with a sarcastic remark.

Indirect refusals

Indirect refusals can be viewed as another type of formulaic implied meanings in the light of the pertinent literature. They are defined as routinized expressions reflecting relatively fixed patterns of discourse exchange (e.g., giving an excuse when refusing) (Taguchi, 2007, p. 329). What is more, they are cited as notably appropriate for classroom instruction of pragmatic comprehension with their abovementioned conventional features (Taguchi, 2007, p. 331). See the following example:

Mary: Hey, John, what’re you doing?

John: I’m working on my paper for the English class.

Mary: You’ve been working on that paper for a week. Why don’t you take a break? Let’s go to the movies tonight.

John: I have to finish my paper by eight in the morning. (Taguchi, 2007, p. 322)

It is seen that John does not refuse Mary’s offer with explicit linguistic markers of refusals such as “I can’t”, “No”, or “I don’t want to”, which were identified as direct refusal expressions by Beebe, Takahashi, and Uliss-Weltz (1990) (as cited in Taguchi, 2007, p. 321). Instead, he provides his reason/excuse for not accepting the offer.

Topic change

Topic Change (Change Subject) is another type of implied meanings which has been reported to be formulaic (Roever, 2011, p. 466). In terms of the relevant body of research (Bouton, 1988, p. 190; Roever, 2005), it happens when a person feels that a current line of discussion is really inappropriate and leaps into another topic. In other words, it occurs when one comes up with an irrelevant, unexpected utterance as s/he does not like what has just been said or asked. The purpose can be considered to be making the inappropriateness perceptible to the interlocutor(s). See the following example from “The Prince of Tides (1991)”, a romantic drama film based on the 1986 novel of the same name by Pat Conroy:

Susan, a psychiatrist in New York, is questioning Tom, a football coach from South Carolina burdened with many details of his dysfunctional family's secrets. Susan decides to discuss the topic of his sister Savannah's last suicide attempt after their brother Luke's death. This is one of the initial meetings between Susan and Tom. Therefore, Tom is reluctant to disclose some certain facts about his family.

Susan: Savannah's last suicide attempt was right after his death, correct?

Tom: Yeah, she had a few bad days over it.

Susan: Were there other times?

Tom: I don't know. There might have been another time when we were young, but I'm not sure . . .

How are you getting paid?

Susan: Why change the subject?

As is seen, Tom does not seem to like the turn that the conversation takes. Instead of satisfactorily answering Susan's query, he chooses to ask an irrelevant question at that moment of the talk. We also see that Susan does not fail to understand Tom's attempt to change the subject, which is uncomfortable from his own viewpoint.

Disclosures

Another type of implied meanings covered in the study is Disclosures, which are defined as indirect replies used to avoid disclosing embarrassing information (Taguchi, 2002, p. 157). To the best of the researcher's knowledge, the implied meaning type of Disclosures has not yet been openly reported as formulaic, routinized, homogeneous or predictable. Nevertheless, the researcher still thought that they could be teachable, thus suitable for being included in the study. The rationale was that the definitions and examples in the relevant studies (Taguchi, 2002; Taguchi, 2005) can be considered to contain some semantic clues that point to a tentatively identifiable pattern: When one is questioned about the reality of something and when the answer would urge him/her to give embarrassing or disturbing information from his/her own viewpoint, s/he might not make a full confession. Instead, s/he might just give the reason(s) why the consequence (to be mentioned in a direct answer of confession) really arose or not. Doing that, s/he could produce an indirect answer of revelation, confirmation or negation about the reality that is being questioned. See the following example:

Jim: Hi Mom, I'm home.

Mom: Hi Jim. Didn't you get the report card today? How were your grades this semester?

Jim: You know mom, I don't think the teacher grades fairly. (Taguchi, 2002, p. 171)

We see that Jim does not respond to his mother's question with a direct answer of confession that his grades were poor, which appears to be an item of too embarrassing information for Jim to disclose directly. Instead, he just gives the reason in his opinion (the fact that the teacher does not grade fairly) why the grades in the report card were low. In that way, he indirectly makes the revelation that the reality is his poor grades. It can be thought that the answer is intended to function also as a call for understanding and empathy.

Another example of Disclosures provided below is from the American sitcom “Friends (1994)”:

Monica, the mother hen in her group of friends and a chef known for her perfectionist, bossy and competitive nature (Retrieved on July 21, 2016 from <http://en.wikipedia.org/wiki/Friends#Characters>), is trying to organize a big special dinner. She is in search of a waitress for it. Rachel, Monica's best friend from childhood and a waitress herself, infers from Monica's telephone conversation that she has arranged for another waitress to serve in the organization.

[Phone rings. Monica answers it.]

Monica: [on phone] Hello? Oh, hi Wendy! Yeah, eight o'clock. What did we say? Ten dollars an hour?... OK, great. All right, I'll see you then. Bye. [hangs up]

Rachel: Ten dollars an hour for what?

Monica: Oh, I asked one of the waitresses at work if she'd help me out.

Rachel: [hurt] Waitressing?

Joey: Uh-oh.

Monica: Well... of course I thought of you! But... but...

Rachel: But, but?

Monica: But, you see, it's just... this night has to go just perfect, you know? And, well, Wendy's more of a... professional waitress.

Rachel: Oh! I see...

As we see, Rachel questions Monica so that she states the obvious fact for Rachel that she was not hired as the waitress to help Monica out. Instead of a direct response in the affirmative or negative, Monica just gives the reason (the fact that the hired waitress is more professional than Rachel is) why she did not pick Rachel. In that way, Monica indirectly makes the confirmation that she did choose another waitress, which seems to be an item of embarrassing information hard for Monica to disclose directly. It can be thought that her reply is also an attempt to justify her decision and a call for understanding.

Indirect requests (Requestive hints)

Another type of implied meanings included in this study is Indirect Requests, which were labeled as Requestive Hints (Rinnert & Kobayashi, 1999; Weizman, 1985, 1989, 1993) in the pertinent literature.

Considering the pursuit in this study of some formulaic implied meanings with several clues that point to a particular pattern, the fact must be acknowledged here that Requestive Hints have never been reported to be formulaic, routinized or homogeneous. They represent a heterogeneous category which includes various sub-strategies (Weizman, 2007, p. 144). According to the model that Weizman (1985, 1989, 1993) posits, requestive hints should be considered in two dimensions, which are the propositional and illocutionary meaning of the request.

The first dimension, 'propositional content' of the request, contains 3 categories: (1) *zero* (no reference to the hearer, the act or any of its components, e.g., 'There's a problem'), (2) *component* (reference to some component of the requested act, e.g. 'Are there any batteries?'), and (3) *act* (reference to the requested act, including some or all of its components, e.g. 'The sign to change the master [for the duplicating machine] came on but ...').

The second dimension, 'illocutionary device', contains 4 categories: (1) *zero* (no statement of illocutionary intent, e.g., 'Here's the mail' as a request to take the mail to the mailroom); (2) *stating potential grounder* (giving a reason why the request is necessary, e.g., 'The printer is running out of ink'); (3) *questioning feasibility* (asking about some prerequisite for the request to be granted, e.g., 'Do you have any chalk? '); and (4) *other* (illocutionary device not falling into one of the three preceding categories, e.g., 'I'm going to borrow this pen'). (Rinnert & Kobayashi, 1999, p. 1188)

In the heterogeneity of implied requests as itemized above, it was out of question for this study to be aimed at measuring the comprehension of and teaching about all the reported categories. However, considering the facts that speech acts have commanded a good deal of attention in pragmatics research (Cohen, 2012a, p. 33) and requesting is one of the especially popular speech acts (Cohen, 2012b, p. 280) in terms of instructed pragmatics as well (Taguchi, 2015, p. 5), the researcher had the intention to include the requests in the study since the very beginning.

In that regard, the decision to be made was which category of the aforementioned indirect requests would be integrated into the data collection instrument and instruction program of this study. The choice was the ones that are based on "stating potential grounder (giving a reason why the request is necessary)". The primary basis for that decision was the fact that they were found to be the most frequent English hints on the illocutionary scale (47.2%) in the naturally occurring data in Rinnert and Kobayashi (1999, p. 1189). What is more, when the analyses of the occurrences on the propositional and illocutionary scales were combined, English speakers' most frequent strategy was "potential grounder" added "component" (30.6%) (Rinnert & Kobayashi, 1999, p. 1189).

Besides the research findings on their frequency as mentioned above, the other basis for the inclusion of "requestive hints by stating potential grounder" was the fact that the way they are reported to occur sounds fairly clear: giving a reason why the request is necessary (Rinnert & Kobayashi, 1999, p. 1188). This was thought to be compatible with the present study's principle of including formulaic, routinized or predictable, thus teachable

implied meanings. For an example of the requestive hints mentioned so far and integrated into the study, see the situation and dialogue below taken from the sitcom “Friends (1994)”:

Monica, a chef, is trying to finish the job of preparing enough food for a special meeting. She has figured out that it will not be possible for her to complete the preparation in time as she did not schedule things properly. While cooking, she is talking about the situation to her housemate Rachel.

Monica: Anyway, see, I planned everything really well. I planned and I planned and I planned. It just turns out, I don't think I planned enough time to actually do it...

Rachel: Hey, Mon, you want some help?

Monica: If you want.

As is seen, Monica does not use a direct statement of request like “(Could/Can you) please help me finish cooking. (?)” Instead, while cooking hastily at the same time, she just indicates the problem (Taguchi, 2005, p. 549), which is the reason why a request for help is necessary. In that way, she makes the requestive hint that her housemate Rachel cooks with her so that she can finish the job in time. Considering Rachel's offer of help that follows Monica's words, we also see that it does not take long at all for Rachel to get the hint. Monica jumping at the offer confirms the fact that her initial words were meant to function as an implied request (requestive hint) for Rachel's help.

Indirect advice

The last type of implied meanings included in this study is Indirect Advice (Matsumura, 2001; 2007), which is explained as “indirect comments with no advice” (Matsumura, 2001, p. 646) where the speaker's intentions are not made explicit (Brown & Levinson, 1987; Levinson, 1983). As is the case with Disclosures and Indirect Requests, to the best of the researcher's knowledge, indirect pieces of advice have not yet been openly reported as formulaic, routinized, homogeneous or predictable. Nevertheless, examining the advice-giving scenarios and options in Matsumura's (2001, p. 676; 2007, p. 187) multiple-choice questionnaire adapted from Hinkel (1997), the researcher believed that at least a certain way of indirect advice-giving could be teachable, thus suitable for being included in this study. The rationale was that the advice-giving way in question can be considered to contain some semantic clues that point to a tentatively identifiable pattern: Without using forms like “should (not), had better (not) etc”, one offers the advice indirectly by just giving a/the reason why the hearer should or should not do the thing which is the subject of the advice. See the following example modified and adapted from Matsumura (2001, p. 679; 2007, p. 190), which was not used in the data collection instrument or instruction program of this study as it would require knowledge about the Canadian cities Banff and Vancouver, especially the distance between them:

You have just heard from your supervisor that s/he is considering a trip to Banff from Vancouver in a car which breaks down frequently. You think it would be appropriate to say:
“Taking such a long trip in this car may be risky.”

As shown here, without employing some well-known advice-giving patterns like “should (not), had better (not) etc”, the speaker offers his/her advice by just giving the reason why the hearer should not take the car for such a long trip and that reason is the fact that doing it might be risky. The logic here could be likened to what is typically done by people who work as financial advisors. As is known, they often set forth a good number of reasons to buy or sell some particular financial instruments. However, with the concern that their statements could be interpreted as sound advice likely to burden them with responsibility for any loss of addressees, they use warning notices like the following:

This document is for information and illustrative purposes only and does not purport to show actual results. It is not, and should not be regarded as investment advice or as a recommendation regarding any particular security or course of action (Retrieved on July 7, 2016 from <http://www.nisa.com/psrx-disclaimer/>).

The strategy described above can be claimed to be one of the advice-giving options in most of the scenarios in Matsumura's (2001, p. 676; 2007, p. 187) multiple-choice questionnaire. The only exception can be considered to be the scenario about a broken vending machine from which people cannot get a pop or the money back (Matsumura, 2001, p. 677; 2007, p. 188).

Besides viewing it as formulaic and teachable because it contains some semantic clues that point to a particular pattern, there were two more reasons why the above-discussed advice giving way was included in this study as modified from Matsumura's (2001, 2007) scenarios.

First, Matsumura (2001) reported that offering indirect advice was a strategy favored to a considerable extent by his native speaker participants. When we exclude that "broken vending machine" item from his four-option multiple-choice questionnaire, for the three scenarios where advice is to be offered to a higher status person, "Indirect" was the native speakers' most frequent choice in one of the scenarios and the second most in the other two. For the three scenarios where advice is to be offered to an equal status person, "Indirect" was the native speakers' most frequent choice in again one of the scenarios and the second and third most in the other two. For the three scenarios where advice is to be offered to a lower status person, "Indirect" was the native speakers' most frequent choice in two of the scenarios and the third most in the other one.

It is worth noting here that the lower status hearers were 1st-year university students addressed by higher-year university students, about which Matsumura (2001, p. 645; 2007, p. 172) asserts that it is a part of an existing Japanese hierarchical system where 2nd- and 3rd-year students are considered to be *senpai*, that is, to be in a higher status than 1st-year students, and according to this hierarchy, 1st-year students normally use polite expressions when talking to *senpai*. Considering the status relationships from the viewpoint of the 1st- and higher-year university students in Turkey, where it is impossible under normal conditions to talk about such a hierarchy and titles like "senpai", the higher status speaker-lower status hearer interactions in Matsumura (2001, 2007) were adapted to this study as scenarios where individuals of relatively equal statuses interact.

The second reason why indirect advice was included in this study as modified from Matsumura (2001, 2007) concerns the consideration given in the ending of the preceding paragraph. For the data collection instrument of this study, all the test items were based on either conversations that take place between people of relatively equal statuses or utterances that speakers make to themselves. Similar to what Roever (2005) did for the speech acts section of his pragmatic assessment battery, the aim was to keep the social distance and power differential relatively low so that the participants' comprehension performance of implied meanings would be measured under as controlled contextual parameters as possible. In this regard, the higher status speaker-lower status hearer interactions in Matsumura (2001, 2007) were included in the data collection instrument of this study as scenarios where people of relatively equal statuses interact.

Fillers

Like in Taguchi (2005), in addition to the item types described so far, a certain number of filler items that tested literal comprehension were included in the test. They dealt with basic, direct interpretation. They were excluded from the analyses.

The filler items were meant to deflect the participants' attention from the true purpose of the test, which is to investigate how test takers comprehend the nonliteral meanings. If the test had been composed of only implied meaning items, participants who discover it after answering some initial questions could stop examining the rest and continue by just searching for the response options that give indirect interpretation.

DEVELOPMENT AND DESIGN OF THE TEST

To the best of the researchers' knowledge, no study has so far attempted to measure specifically the interpretation of formulaic and thus teachable implied meanings. For this purpose, the previous studies on pragmatic interpretation (Bouton, 1988, 1992, 1999; Roever, 2005; Taguchi, 2002, 2005; Rızaoğlu & Yavuz, 2017) were all examined. On their basis, an online MDCT was decided to be developed following the steps detailed below.

Theoretical background to the data collection instrument

First of all, a certain number of scenarios (situations) that contain the target implied meanings had to be determined. Those scenarios were supposed to provide the basis on which the test's questions and response options would be built. To that end, all of the related studies providing appropriate scenarios were examined to be adapted to this study. The table below shows the final numbers of the test items in each group of target implied meanings and the studies from which they were adapted.

Table 1: *The Numbers of the Test Items in Each Group of Implied Meanings and their Sources*

Implied Meaning	Number of Test Items	Source
Pope Questions	5	(Bouton, 1994)
Indirect Criticism	4	(Bouton, 1994; Kubota, 1995)
Indirect Advice	4	(Matsumura, 2001; 2007)
Topic Change	4	(Roever, 2005)
Disclosure	3	(Taguchi, 2005)
Irony	3	(Colston & O'Brien, 2000)
Indirect Refusals	3	(Taguchi, 2005)
Indirect Requests	2	(Rinnert and Kobayashi, 1999)
Filler Items	5	(Taguchi, 2005)

Modification of the language in the test items

After deciding on the initial versions of the scenarios and ensuing talks in the test items, a (British) native speaker of English, who is a colleague with 25 years' experience in foreign language teaching and EFL teacher training, was asked to proofread them all. This step was seen strictly necessary as the researcher had tried to shorten and/or simplify the language of all the scenarios and utterances. The aim was to minimize the effect of language proficiency nuances between participants so that the validity of the test could be enhanced to primarily measure the construct of implied meaning comprehension.

This simplification and modification procedure was inspired by the way Roever (2005, p. 46) standardized, shortened and simplified the items he had adapted from Bouton's (1988, 1994, 1999) test. The procedure employed in this study will be described later in detail. Taguchi (2005, p. 550) as well tried to reduce the effect of some construct-irrelevant factors in the implied meaning comprehension measurement to be done by her test. In order to minimize the variance from her learners' difference in vocabulary knowledge for example, all vocabulary in her items was drawn from Longman's 2,000-word defining vocabulary list (Longman, 1995). The 2,000 words in question are identified as common and basic English words, which makes them the ones chosen to write all the word definitions in the Longman dictionary. Accordingly, the 2,000-word-level vocabulary items were considered to be relatively attainable by her L2 participants. Besides that, Taguchi (2005, p. 550) took great care to keep the lengths of all of the conversations in her test approximately the same. Her aim was to control the burden on short-term memory. Moreover, she used equal number of words in her question and option sentences across item categories so that the effect of some irrelevant variables like reading time could be lessened.

After the abovementioned colleague proofread the initial versions of this study's test items, a meeting was held with him to discuss the alteration and revision suggestions that he had come up with. In that meeting, almost all the items were refined to varying extents in terms of grammar and some word choices. With the refined versions of the test items at hand, the next step was writing response options for each item so that the instrument could serve as a multiple-choice test.

Writing the response options for the test items

Appointing the correct answers in the multiple-choice test developed for this study was fairly easy. The favored responses in the studies that the items had been adapted from were already self-evident.

Selecting some of the incorrect responses was made through adoption with no or minor change(s) from the studies that the items had been borrowed from. For the rest, the present study drew on a synthesis of three methods employed in the related literature to write response options for multiple-choice tests designed to investigate implied meanings comprehension. As mentioned above, there were a certain number of test items adapted already with some ready-made response choices. In this regard, the synthesis of the methods in question served also as a step to converting the other borrowed items (originally with no response options) into multiple-choice test items.

Bouton's (1988) method was the first to be manipulated for that synthesis. It called for having nonnative speakers of English respond to the item stems and then using their responses different from the favored ones as distractors. To that end, the first step was dividing the total number of the test items into three even groups. After that, they were printed on three separate handout forms and administered to three different EFL teacher trainee groups of 60 people. They were students who had enrolled in the summer school courses of Uludag University ELT Department, and they did not participate in any further phase of the study. They were asked to respond to each item, which

consisted of a brief description of the situation, the utterance(s) and an open ended question that reads: “*What does (the last speaker’s name) probably mean?*” Below is an example:

Maria and Frank are working on a class project together but they won't be able to finish it by the deadline.

Maria: “*Do you think Dr. Gibson is going to lower our grade if we hand it in late?*”

Frank: “*Do fish swim?*”

What does Frank probably mean?

As explicated before in the section devoted to “Pope Questions” in the Literature Review, the favored interpretation for the item above would be something like “he (Dr. Gibson) will of course lower our grade if we do that.” Accordingly, the teacher trainees’ responses that differed from such an interpretation were all recorded as the distractor alternatives for the item. An example to the erroneous interpretations was interestingly in reference to a well-known saying in Turkish where the central figure is a fish: “Battı balık yan gider.” Within the context of the item above, it can be interpreted to mean something like “As we do not seem to have any other chance, let’s just take the risk and hand in the project late to face the consequences.” This procedure was followed for each item, and the first group of distractor alternatives was thereby obtained. Like in many other ways possible to write good multiple-choice items, this was also a response to the calls like Haladyna and Downing’s (1989) for common errors of students to be incorporated in distractors.

For the second group of distractor alternatives, Taguchi’s (2005, p. 550) principles for distractor writing were considered. They are as follows:

- * **Principle 1:** The option contains a meaning that is the opposite of the implied meaning.
- * **Principle 2:** The option contains words taken from the last part of the dialogue.
- * **Principle 3:** The option is related to the overall conversation.

For each item, the researcher tried to apply all the above-mentioned principles. However, just as the impossibility that Taguchi (2005, p. 560) encountered herself, it was not possible to follow all the three distractor principles for all the items. An example reason is the fact that, when the last utterance in a dialogue was extremely short containing only a few words, it was difficult to write a distractor following the second principle, “taking words from the last utterance” (Taguchi, 2005, p. 560). Nonetheless, the procedure did contribute to the pool of distractor alternatives for almost all the items in the present study. For example, two of the distractors in the item below were provided by this procedure:

Roger is thinking of taking his car to a repair shop in the city centre. His friend Melanie knows that the shop is known for doing careless work.

Melanie: “I don’t usually take my car there. It has a really bad reputation.”

What does Melanie probably mean?

- ☐ Roger should take his car there for only small repairs.
- ☐ She advises Roger not to take his car to that repair shop. (the favored response)
- ☐ The reputation of a place is important. (the one based on principle 2)
- ☐ Roger can take his car there. (the one based on principle 1)

As mentioned before, this study drew on a synthesis of three methods to develop the response options to be counted as the distractors. Accordingly, for the third group of distractor alternatives, Roever’s (2005) viewpoint was employed. Despite finding it intuitively appealing, Roever viewed Bouton’s aforementioned procedure for item design as questionable. His postulation was that incorrect response choices produced by nonnative speakers do not guarantee unambiguous, good distractors (Roever, 2005, p. 46), which is reported by Hudson, Detmer and Brown (1995) as well. In this regard, exercising his own judgment, Roever built new distractors wherever he found the ones borrowed from Bouton ambiguous. This procedure was followed in this study too when the distractors developed with the two aforementioned methods were considered quantitatively or qualitatively inadequate. Below is an item to exemplify how it was done. In it, all the three distractors were written with the researcher’s own judgment as the ones produced with the two other procedures had not been considered unambiguous or challenging enough:

Susan and Tom, friends, are talking about what is going on in their lives. Susan knows Tom had a job interview recently.

Susan: 'So how was your interview? Did you get the job you applied for?'

Tom: 'Um . . . I think I need to improve my interview skills.'

What does Tom probably mean?

- ☐ He did not get the job. (*the favored response*)
- ☐ He wants help from Susan to improve his interview skills.
- ☐ He will have the interview when he feels his interview skills are good enough.
- ☐ They gave him the job with the advice that he should improve his interview skills.

Conversion of the data collection instrument into a web-based test

After developing the initial version of the test items with the principles and procedures described above, the next step was to create a web-based MDCT out of it. The following two sections give some fundamental aspects of that web-based MDCT.

Technical aspects of the test

First of all, a professional computer programmer was paid to cooperate. Keeping in close touch with the researcher before and during the development of the system, he designed the test as a web-based one that should run on any common web browser. He wrote the codes in a way that the system would control item delivery, scoring, data storage and all other functionality.

Content aspects of the test

Each test item had the same format and elicited what a character in the item stem probably means with his or her utterance. What a test taker would say or mean in the situation was not elicited in any way, which is common in pragmatics research instruments (Roever, 2005, p. 45). The idea was to investigate test takers' interpretation of the included implied meanings rather than their favor or disfavor of particular conversational strategies.

In a similar way to Roever's (2005) test on implicatures, all the items were standardized with the details as explained below:

1. The response choices counted as "correct" for the items included in the final analyses were designed to occur as equally frequent as possible in all response option positions. The aim was to ensure that systematic guessing by test takers would lead to only chance-level correctness.
2. All the characters in the items have names and all are introduced in the item stems. This is intended to be an improvement to Bouton's (1988, 1994, 1999) items with generic descriptions like "two friends", "two teachers" etc. and to some scenarios adapted from studies like Matsumura's (2001, 2007) where the characters are given false names like "P.D", "C.J", "X.L".
3. Except for two of them, every item is based on a conversational situation where a male interlocutor addresses a female one or vice versa. This is for the sake of gender balancing and aimed to be an improvement to male-male or female-female items.

One of those two exceptional items includes an ironic utterance that the male speaker makes to himself like muttering. Its original version in Colston and O'Brien (2000) was already that way. Besides that, the researcher and the assisting native speaker colleagues could not figure out a way to add a female interlocutor in the situation without making the item sound unnatural. Below are the original version of the item stem and the related ironic utterance (Colston & O'Brien, 2000, p. 1581):

Henri was an avid cyclist and was eagerly awaiting a new, very expensive, high tech bicycle he had ordered from this new company. When it finally arrived, it turned out to be really heavy and poorly constructed. When Henri saw that he was cheated by the bike company, he said,

"This company is incredibly honest."

The other exceptional item includes a scenario with indirect criticism (damning with faint praise) and its original version takes place between two female characters as given below (Bouton, 1988, p. 194):

Brenda and Sally have lunch every Tuesday. As they meet on this particular day, Brenda stops, twirls like a fashion model, and the following dialogue occurs:

Brenda: I just got a new dress. How do you like it?

Sally: Well, there certainly are a lot of women wearing it this year. When did you get it?
How does Sally like Brenda's new dress?

For the initial version of the test used in the first pilot study, it was one of the items that were included in the attempt to achieve gender balancing. It was modified so that it took place between one male and one female speaker. The result is provided below:

Brenda is waiting for her boyfriend Jim at a cafe for lunch. When he comes to the table, Brenda stands up, and twirls like a fashion model, smiling.

Brenda: I just got a new dress. How do you like it?

Jim: Well . . . there certainly are a lot of women wearing it this year. When did you get it?
What does Jim probably mean?

In the period between the first pilot study and the main study, six native speakers were interviewed about each item. The consensus emerged between them on the fact that the item would sound much more natural if the dialogue happened between two female characters, which is the situation in its original version anyway. One native speaker even objected that Jim sounded homosexual in the way the item was modified as shown above. Therefore, in the versions of the test used after the first pilot study, the item was re-modified so that the conversation occurred between two female characters and with a rephrased answer to the first character's question.

4. The question before each set of response options is always in the same format, which was adopted from Roever (2005): "What does NAME of the SPEAKER probably mean?" This is intended to be an improvement to Bouton's (1988, 1994, 1999) items using different questions for different items like "Which of the following best says what Bill meant?", "Which of the following is the closest to what the friend meant by this remark?"

This standardization served also as another step to the conversion into multiple-choice test items of some adapted scenarios originally with no question and/or response options.

Vocabulary explanations in the test

In order to minimize the effects of vocabulary knowledge differences between the participants, all the salient vocabulary items were displayed as underlined on the computer screen. Whenever a test taker positioned his/her cursor on any of them, the related definition from Cambridge Learner's Online Dictionary (reference) automatically appeared. Most of the words underlined for this functionality were determined as early as when the test items were administered to teacher trainee groups in the open-ended format previously explained. Before, during and after responding to the items, the teacher trainees were systematically encouraged to ask about any lexical units that posed a problem for them. Every query of theirs was noted down so that the decision could later be made on the vocabulary that required the incorporation of explanations from Cambridge Learner's Dictionary. Besides that, the researcher included some other vocabulary items that he considered salient even though they had not been queried by the teacher trainees.

Having developed the initial version of the web-based MDCT with the procedures and aspects described above, the following step for the researchers was to conduct the pilot study to refine the test.

PILOT STUDY

Following Roever (2005) the pilot study in this research was carried out with different groups at different times.

The first group consisted of two subgroups: 69 first year EFL teacher trainees at Uludag University and 13 Turkish citizens (all over the age of 30) who had been schooled and lived in an English-speaking country for between 9 and 36 years. The first subgroup was meant to work like Roever's EFL group of target proficiency while the second one was intended to function as his English as a Second Language (ESL) group.

The second group was comprised of 23 EFL learners at the School of Foreign Languages at Uludag University. They had all been ranked at beginner/elementary level a year earlier by the university's official placement test. They participated in this study after a year's intensive EFL instruction given to put them at a level relatively higher than intermediate. They were meant to function as Roever's EFL group below target proficiency.

The third group was 12 native speakers of English (5 American, 4 British, 1 Canadian, 1 Australian and 1 South African). They were intended to work like Roever's group above target proficiency. Besides that, as seven of them (5 American, 1 British and 1 Australian) were later interviewed one by one about each test item, they functioned also like Roever's native speaker participants that produced verbal protocols.

The aim of collecting pilot study data from such distinctly different groups was to cross-validate the decisions to refine and improve the test. In this regard, the results provided by especially the EFL teacher trainees, ESL group members and native speakers were examined to determine the test items with malfunctioning response options. The distractors that had not been chosen by any of the EFL teacher trainees and ESL group members were identified as in need of alteration. Additionally, the common items with the lowest item-total correlations for all the three groups were categorized as in need of revision or complete replacement.

The scores of the EFL teacher trainees were separately considered to identify the general suitability of the test for the target proficiency group. The test proved relatively suitable, with test takers scoring on average 52.95%. The scores of the EFL learners at the School of Foreign Languages were used in a comparison with those of the ESL group members. The objective was to have more data on the evaluation of general suitability and item revision. The expected great variability between the groups did arise in the test scores: EFL learners scored 29.19% while ESL group members scored 73.90%.

The results seemed promising in that the test proved generally suitable for the EFL teacher trainees, who could also be viewed as relatively high-level language learners to whom implied meanings can be taught. In addition, the test reflected the variability between the relatively low and higher proficiency groups. Nonetheless, as they would serve also as the referent group for the favored responses in the test, the average performances of the ESL group and native speakers were relatively unsatisfactory with 73.90% and 72.91% respectively. Besides, there were items with some particular response options chosen saliently less or more frequently than expected. The doubts arising were resolved when seven native speakers were interviewed about the test items. Their comments that overlapped with each other led to a considerable number of rightful changes in terms of the points laid below:

- * The wording of the situations in some item stems was revised. This added clarification to the contexts in which the implied meanings occur.
- * The distractors were altered or replaced when any of them was interpreted as not clearly enough correct or incorrect. This decreased the number of the ambiguous items where two or more response options were likely to be picked as the favored option.
- * Several revisions were made in the grammar and/or word choices of some items. This was to help them sound more native speaker-like.

The most important result of the debriefing sessions with the seven native speakers was that a second pilot study was decided to be conducted. This was not planned at all at the beginning of the larger research project where this study is the initial step as the test development phase for further data collection. From this point of view, while the second pilot study did serve as the second piloting stage of the larger research project in question, it was the final main phase of the present study aimed at developing an online MDCT to investigate formulaic implicatures comprehension.

MAIN STUDY

Before carrying out this phase, four (three American, one British) of the native speakers who had contributed in the previous debriefing sessions were interviewed again one by one. Their common point was that they were all trained and experienced in the field of language teaching (in Turkey as well). Before the talks, a considerable number of revisions and alterations were already done according to the data gathered in the previous phase. Moreover, thanks to the help of a friend of one of the researcher's, a new native speaker group of 14 people at the physics department of an American University had taken the revised version of the test, with five of them providing also their direct feedback on wording and some alternative distractors.

Eventually, in the printouts prepared for each one of the four abovementioned ELT professionals, beneath the revised version of every test item, there were also the alternative revision ideas inspired by the debriefing sessions of the first pilot study and the contributions of the additional 14 American test-takers. In this way, the ELT professional native speakers, who were assisting the researcher face-to-face, were provided the favored revisions together with their alternatives so that they were able to discuss the most appropriate changes by taking account of all the options that had accumulated.

The new version of the test was developed in consideration of these four native speakers' paralleling views on the revision alternatives. The new ideas that came up during the talk with any one of them were later shared with the others via emails, and compromise was sought. Some information is provided below to exemplify how a considerable number of items evolved to varying extents through the painstaking stages of the test development procedure explained so far. First, the sample item is given in the way it was in its source (Colston & O'Brien, 2000, p. 1581):

Henri was an avid cyclist and was eagerly awaiting a new, very expensive, high tech bicycle he had ordered from this new company. When it finally arrived, it turned out to be really heavy and poorly constructed. When Henri saw that he was cheated by the bike company, he said,

This company is a tiny bit sneaky. (UNDERSTATEMENT)

This company totally stole my money. (LITERAL)

This company is incredibly honest. (VERBAL IRONY)

What follows is its final version used in this study:

Henry loves cycling. He orders a new, very expensive bicycle from a new bicycle company. When it arrives, he sees that it is really heavy and does not look well-made at all.

Henry: "Wow, this company's really honest."

What does Henry probably mean?

- ☐ The company is dishonest.
- ☐ The company is a bit sneaky.
- ☐ The company is really honest.
- ☐ It is normal as the company is new.

As illustrated above, apart from the abridgement and simplification work, the test items sometimes needed to be added characters, a question and proper response options. In addition, as Taguchi (2005, p. 549) did for the dialogues in her study, linguistic units that characterize the interactive nature of spoken English, such as discourse markers (e.g., *well, you know*), interjections (e.g., *oh*), or hesitation markers (e.g., *um*; see Biber, Johansson, Leech, Conrad, & Finegan, 1999) were included in as many utterances as possible with the help of the assisting native speakers.

Participants

Consequently, the new test with the finally decided changes were administered online to

- * 43 EFL Teacher Trainees at Uludag University (10 to 11 students from 1st, 2nd, 3rd and 4th graders each),
- * 21 native speakers of English (13 American, 3 British, 2 Australian, 2 Canadian, 1 New Zealander),
- * 14 EFL learners at the School of Foreign Languages at Uludag University, who were ranked at pre-intermediate level four months earlier by the university's official placement test and participated in this study after a three and a half months' intensive EFL instruction,
- * 11 high school students, who were grouped with regard to their previous achievements in EFL and were getting a language intensive education to enroll for such university programs as ELT, English Language and Literature, Translation and Interpreting Studies.

RESULTS AND DISCUSSION

The data were analyzed with SPSS 22. The Cronbach Alpha's Reliability Coefficient for the EFL teacher trainees (both the target and biggest group) was calculated as ".777", which can be considered acceptably high.

To see if there were any significant differences between the four participant groups, i.e. EFL teacher trainees (henceforth EFLTTs), EFL Learners at the School of Foreign Languages (EFLTs), native speakers of English (NSs) and High School Students (HSSs), one-way ANOVA was performed. As the homogeneity of the variances of groups (Levene's test) was not satisfied ($p < 0.01$), non-parametric tests (Kruskal Wallis) were conducted. The tests showed significant differences among the groups investigated: $\chi^2 = 54.589$, $p < 0.01$. The results are given in Tables 2-7.

In order to see if there were significant differences between the specific pairs of participant groups, Mann-Whitney pair-wise comparisons were performed. Table 2 shows the results comparing EFLTTs with EFLTs.

Table 2: Mann-Whitney Pair-wise Comparisons between the Teacher Trainees and School of Foreign Languages Students

Group	N	Mean Rank	Sum of Ranks	U	P
EFLT ^{T*}	43	34.64	1498.50	58.50	0.000
EFL ^{L**}	14	11.68	163.50		

EFLT^{T*}: EFL Teacher Trainees
EFL^{L}:** EFL Learners at the School of Foreign Languages

As displayed in Table 2, a significant difference ($p < 0.01$) was found between the two groups in favor of the EFL teacher trainees, which would be expectable considering the differences in terms of the length and content of their work with English. The results concerned with the comparison of EFLT^Ts with NSs are given in Table 3.

Table 3: Mann-Whitney Pair-wise Comparisons between the Teacher Trainees and Native Speakers of English

Group	N	Mean Rank	Sum of Ranks	U	P
EFLT ^{T*}	43	22.78	979.50	33.500	0.000
NAT ^{**}	21	52.40	1100.50		

EFLT^{T*}: EFL Teacher Trainees
NAT^{}:** Native Speakers of English

According to the results in Table 3, there is a significant difference ($p < 0.01$) between the two groups in favor of the native speakers, which is expectable considering the fact that English is their mother tongue while it is still a foreign language for the other group's members though they were at a relatively advanced level. The results of the comparison between EFLT^Ts and HSSs are provided in Table 4.

Table 4: Mann-Whitney Pair-wise Comparisons between the Teacher Trainees and High School Students

Group	N	Mean Rank	Sum of Ranks	U	P
EFLT ^{T*}	43	27.23	1171.00	225.000	.804
HSS ^{**}	11	28.55	314.00		

EFLT^{T*}: EFL Teacher Trainees
HSS^{}:** High School Students

The results given in Table 4 show that there is no significant difference ($p > 0.05$) between the two groups. This could be considered predictable as students like those in the high school group function as the primary source of undergraduates for university programs such as English Language Teaching. Therefore, it is possible to postulate that the teacher trainee participants had the position of the high school students a couple of years ago while some of the latter would probably be the 1st year students of different ELT departments a couple of months later. Table 5 shows the results comparing EFL^Ls with NSs.

Table 5: Mann-Whitney Pair-wise Comparisons between the School of Foreign Languages Students and Native Speakers of English

Group	N	Mean Rank	Sum of Ranks	U	P
EFL ^{L*}	14	7.50	105.00	.000	.000
NAT ^{**}	21	25.00	525.00		

EFL^{L*}: EFL Learners at the School of Foreign Languages
NAT^{}:** Native Speakers of English

As put in Table 5, a significant difference ($p < 0.01$) was found between the two groups in favor of the native speakers. This is expectable considering the fact that English is their mother tongue while the students of the School of Foreign Languages were officially diagnosed as “false beginners” for English nearly a year earlier.

As for the comparison of EFL^Ls with HSSs, according to the results provided in Table 6, a significant difference ($p < 0.05$) was found between the two groups in favor of the High School students. This would be predictable considering the fact that they were a group that was formed with regard to their former achievements in EFL and they were getting a language intensive education to enroll for university programs based on EFL study. On the other hand, as mentioned before, the students of the School of Foreign Languages were officially diagnosed as false beginners nearly a year earlier.

Table 6: Mann-Whitney Pair-wise Comparisons between the School of Foreign Languages Students and High School Students

Group	N	Mean Rank	Sum of Ranks	U	P
EFL*	14	8.89	124.50	19.500	.002
HSS**	11	18.23	200.50		

EFL*: EFL Learners at the School of Foreign Languages
HSS:** High School Students

Finally, the results comparing NSs with HSSs are given in Table 7.

Table 7: Mann-Whitney Pair-wise Comparisons between the Native Speakers of English and High School Students

Group	N	Mean Rank	Sum of Ranks	U	P
NAT*	21	21.29	447.00	15.000	.000
HSS**	11	7.36	81.00		

NAT*: Native Speakers of English
HSS:** High School Students

The results in Table 7 show that there is a significant difference ($p < 0.01$) between the two groups in favor of the native speakers, which would be expectable since English is their mother tongue while a foreign language for the other group's members although they were at a relatively advanced proficiency level.

The results presented in Tables 2-7 above suggest that the expectations and predictions were more satisfactorily fulfilled than the pilot study.

The first research question of the present study was aimed at exploring whether native speakers of English could reach a compromise in their interpretation of the test items. The results show that the performance of the native speakers was remarkably high, which points to a good compromise with their interpretations of the test items. At this point it would be worth mentioning that, in our day characterized by globalized communication in multiculturalism, using NS norms as a benchmark for pragmatic behavior may not be so crucial in a foreign language situation (Wyner & Cohen, 2015, p. 547). Nevertheless, in the strenuous attempt to develop a valid and recent MDCT to measure pragmatic comprehension about formulaic and teachable implied meanings, this study had the compelling need for norms to count as the "favored interpretations of the items". In that regard, no other appropriate way to have them could be conceived than taking the response options on which the native speaker participants reached a satisfactory compromise in the measurements. Apart from that, as Wyner and Cohen (2015, p. 547) put it with a comprehensive look, NS norms as a benchmark can be valuable for learners to have familiarity with what these norms are and help them figure out not only what went wrong in experienced pragmatic failures but also ways in which they could be avoided in future interactions.

The second research question was aimed at investigating whether the performance differences between particular pairs of test-taker groups could be attributable to their proficiency differences only. The findings reveal that there are statistically significant differences between the NS' performance and those of all the other participant groups. This shows that the study was able to address a problem worth pragmatic assessment and instruction. Apart from the comparison between the NSs and the other three groups, it is also seen that the performance differences between particular pairs of groups seem to be attributable to the proficiency differences. This could be argued to be a strength of the test as it seems to reflect the performance variability between participants from different proficiency levels. This is important since educational assessment is supposed to discriminate among those who are assessed, and a good test should produce scores that vary between high and low performers (Biggs, 1996). Besides, in the subsequent stage of the larger research project where this study is a part, all the above-mentioned results were confirmed (Çetinavcı, 2016). On the one hand, the mean performance of the 127 new native speakers was 26.61 out of 28 items, which verified once again the research hypothesis that the online MDCT would prove to be one on which NSs of English reach a good compromise with their interpretations of the items. On the other hand, in comparison with a new group of 144 first-year EFL teacher trainees, there was a statistically significant ($p < 0.01$) NS superiority at opting for the favored interpretations of the implied meanings. This verified once again the research hypothesis that the test will prove to be one where the performance differences between particular pairs of test-taker groups could be attributable to their proficiency levels.

Several studies (Kehoe, 1995; Hughes, 2003, p. 228; Quaigrain & Arhin, 2017) have indicated that distractors with no or very low choice frequency would point to their ineffective functioning. This was a concern in Roever's (2005) study as well, which reports on the first pragmatic competence test developed in the field of Applied

Linguistics. In this regard, another positive feature of the online MDCT developed in this study is the fact that all the distractors of every item were chosen by the target group members (EFL teacher trainees) in varying frequencies. This means that none of the distractors was just an ineffective space filler, which could give the possibility to claim that they functioned in the way they had been supposed to.

Like Roever's (2005, p. 52) piloting experience pursuant to Hudson et al. (1995); the process explained above took nearly a year, but it was felt that a well-designed test was essential to obtaining meaningful results. From the administration of the initial pilot test till that of its final version, after receiving a thank-you note from the researchers, some native speaker participants e-mailed their comments about their experience even though none of them had been asked or encouraged to in any way. The change between the beginning and end of the process could be viewed as quite dramatic, which justifies the work during the long development period. Below are given some comments to illustrate the point that has just been made. While the first three are from the beginning, the fourth one is from the midst and the others are from the end of the process:

- 1) "Hope it works out. I'm sure you know what you're doing but some of the phrases weren't actually idioms?"
- 2) "Some parts do not sound like native English at all."
- 3) "It was still possible in most cases to see what the intent was but it just sounded weird if that makes any sense. Anyways, best of luck!"
- 4) "It was an interesting test, although I do admit, I think some of the questions had 'wrong' answers."
- 5) "The test was very well written, and one can see a lot of thought went into it."
- 6) "Good evening, I wanted to let you know that I have completed your exam, it looks great."
- 7) "Hi, I have completed the test. It was kind of fun. I enjoyed it. Glad i was able to help."
- 8) "Thought this to be very interesting. Went quickly. The discussions seemed pretty clear cut to me."

CONCLUSION

To conclude, it would be worthwhile to state that the present study took almost a year for the development of a valid, well-designed MDCT that can be used as a data collection instrument to have comparable sets of data for further descriptive and/or instructional studies. Special care was taken in the test to include some particular subsections of items in response to the calls in the literature for integration of different implied meaning types to add to our understanding of pragmatic comprehension in a target language. What is more, the overall focus of the test was on "implicature (implied meanings)" so that the study could keep out of the reported weight of "speech acts" in pragmatics research and provide a new perspective upon another important but lesser-studied component of pragmatics.

Within this framework, we could emphasize the fact that the present study gave a tangible product: A data collection instrument on the comprehension of eight particular implied meanings in English, all of which have been scholarly conceptualized. Being a test which is usable both in computerized and pen-and-paper format, it proved to be one on which a relatively big, heterogeneous group of NSs of English reached a good compromise with their interpretations of the test items. When considered together with the other phases in the larger research project that covers this study as well, in addition to the total number of 174 NSs (a heterogeneous group of 111 Americans, 39 Britons, 13 Canadians, 10 Australians/New Zealanders and 1 South African), 316 EFL teacher trainees, 37 EFL learners at a university school of foreign languages, 13 Turkish citizens who had been schooled and lived in an English-speaking country for a decade or more and 11 high-school students getting a language-intensive education made quantitative and/or qualitative contribution in the development, refinement and implementation processes of the test. They all add up to 551 people.

In addition, the online test in its final version added another important feature: ability to measure each test taker's response times for every single test item and the whole test. This was triggered mainly by the perspective put by Taguchi (2005, 2007, 2008, 2011a), who noted that not many studies had addressed fluency or processing speed in language learners' pragmatic performance.

As the last point to be made about the significance of the study, it should be restated here that some of the implied meanings included are ones that have already been reported as formulaic. For the rest, as discussed thoroughly earlier in the text, the claim in the present study is that at least some of their variations can be deemed formulaic, thus teachable. To the best of the researcher's knowledge, the test is a pioneering one in pragmatic assessment to bundle together specifically that type of implied meanings. As one could not teach what s/he cannot initially measure, the test can serve as the starting point for any ELT or ELT teacher-training program concerned to help the students be equipped for that specific domain of pragmatic competence as one of the acknowledged requisites for overall communicative competence.

On the grounds of the limitations of this study and the experiences that accumulated throughout its conduct, some recommendations can be made for further research.

First of all, considering the fact that this study measured pragmatic comprehension with a reading instrument (like in many other previous inspiring studies) while people mostly “see and hear” in real-life communication, the procedures in similar future studies could be designed as based on a sufficient number of readymade video extracts or fictionalized dramas to the purpose. Provided that this is achieved with proper validation work in a manner where audiovisual items would not impede but aid the watchers or listeners (Gruba, 2000; Roevers, 2005), the measurement of pragmatic interpretation could include such clues as tone of voice, setting, gestures and facial expressions, which all can express so much meaning together with or independently of the words there. Besides these, the ideal to be pursued within this framework would most probably be extracting discourse samples with the target implied meanings via corpora/concordance work and producing scenes out of them with proper use of tone of voice, facial expressions and gestures not open to ambiguity. The fuller the extent to which this is achieved, the more likely it would be to use the products in both testing and instruction procedures, which would give the researchers the chance to base their studies on authentic materials as much as possible.

In the context of discussing the content and scope of studies which are similar to this one, another recommendation for further research could be made about the identification and integration of even more implied meaning types into the designs so that we can add to our understanding of pragmatic comprehension/interpretation and learn which ones of them could be troublesome to EFL/ESL learners and why, which is an attempt made by the present study with the integration of “indirect pieces of advice” and “indirect requests”. What is more, the range of L1s and target languages in studies on pragmatic interpretation could be expanded so that investigators and language educators can better assess whether and to what extent findings from studies of a particular L1 or target language may be valid in terms of other language combinations. Moreover, further research could be conducted also on how competent language learners are in terms of “producing” implied meanings. This would provide a new perspective in studies of this kind beyond the focus merely on comprehension/interpretation.

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APPENDIX 1. MDCT Items**Item 1:**

Tom is from Atlanta. His friend Sally has recently moved to Atlanta.

Tom: “How do you like Atlanta so far?”

Sally: “I love it!”

What does Sally probably mean?

- ☐ She thinks that Atlanta is a dirty city.
- ☐ She has not seen much of the city since she moved in.
- ☐ She thinks the city needs more great changes.
- ☐ She likes Atlanta and enjoys living there.

Item 2:

Henry loves cycling. He orders a new, very expensive bicycle from a new bicycle company. When it arrives, he sees that it is really heavy and does not look well-made at all.

Henry: “Wow, this company's really honest.”

What does Henry probably mean?

- ☐ The company is dishonest.
- ☐ The company is a tiny bit sneaky.
- ☐ The company is a really honest one.
- ☐ It is normal as the company is new.

Item 3:

Jose and Tanya are professors at a college. They are talking about a student, Derek.

Jose: "How did you like Derek's essay?"

Tanya: "Well . . . I thought it was well-typed."

What does Tanya probably mean?

- ☐ She did not like Derek's essay.
- ☐ She does not really remember Derek's essay.
- ☐ She thought the topic Derek had chosen was interesting.
- ☐ She liked Derek's essay quite a lot.

Item 4:

Judie and her classmate David are community college freshmen. Judie is considering taking a course but David has heard it is really difficult.

David: "I don't know . . . but people say it's really difficult."

What does David probably mean?

- ☐ He thinks the course may not be very difficult.
 - ☐ He thinks Judie can take that course.
 - ☐ He recommends not taking that course.
 - ☐ He thinks Judie should not listen to what people say about the course.
-

Item 5:

Rob is telling his friend Sheila about a card game he played last night. He lost money and decides not to play with those guys again.

Sheila: “They were good, huh?”

Rob: “Good? Let’s say awfully lucky”.

Sheila: “Lucky? What’s the matter? Don’t you trust them?”

Rob: “Is the sky green?”

What does Rob probably mean?

- ☐ He thinks they are OK.
- ☐ He does not want to talk about the card game anymore.
- ☐ He suddenly saw something in the sky.
- ☐ He does not trust them at all.

Item 6:

Jack sees his classmate Jane in the faculty hallway.

Jack: “Oh, Jane. I’m so glad I ran into you. I need your help!”

Jane: “What’s up?”

Jack: “I have a paper due tomorrow, but I’m working tonight in the cafe. Can you type my paper?”

Jane: “Shoot! I have to study for my finals tonight.”

What does Jane probably mean?

- ☐ She will type the paper.
- ☐ She will think about it.
- ☐ She cannot type the paper for tomorrow.
- ☐ She can type it when she is done with everything.

Item 7:

Susan and John, friends, are watching a film together.

Susan: “This film is too boring! I can’t watch it anymore.”

John: “Really? I don’t think it’s so bad.”

What does John probably mean?

- ☐ He thinks the film is really bad.
- ☐ He is doing something else, not watching the film.
- ☐ He does not think the film is very bad.
- ☐ He is not quite sure.

Item 8:

Bob and Maggie, friends, are talking about school and courses. Bob is taking introductory chemistry this semester.

Maggie: “How are you doing in chemistry?”

Bob: “So . . . did you watch that basketball game yesterday?”

What does Bob probably mean?

- ☐ The content of yesterday's lesson was completely irrelevant to chemistry like a basketball game.
 - ☐ He is doing badly in chemistry.
 - ☐ Chemistry is like an easy game for him.
 - ☐ He is doing so well in chemistry that there is no need to talk about it.
-

Item 9:

Carol, an office secretary at a university, is typing at her desk. Jeff, a teacher, is in Carol's office to make a lot of printouts.

Jeff: "The printer is almost out of ink."

What does Jeff probably mean?

- ☐ He wants Carol to refill the ink.
- ☐ He uses the printer really very often.
- ☐ He does not want to do the printing himself.
- ☐ Carol can continue what she is doing.

Item 10:

Mike is trying to find an apartment in New York City. He just looked at a place and is telling his friend Jane about it.

Jane: "So, is the rent high?"

Mike: "Is the Pope Catholic?"

What does Mike probably mean?

- ☐ He does not want to talk about the rent.
 - ☐ The rent is high.
 - ☐ He did not understand Jane's question.
 - ☐ The rent is not very high.
-

Item 11:

Felicity is talking to her co-worker Brian during a coffee break.

Felicity: "So, life must be good for you. I hear you got a nice raise."

Brian: "Um, this coffee is awfully weak. You'd think they'd at least give us decent coffee."

What does Brian probably mean?

- ☐ He does not want to talk about how much money he earns.
- ☐ He does not like the coffee.
- ☐ Reality may not be what you think it is.
- ☐ He does not care about money.

Item 12:

Roger is thinking of taking his car to a repair shop in the city centre. His friend Melanie knows that the shop is known for doing careless work.

Melanie: "I don't usually take my car there. It has a really bad reputation."

What does Melanie probably mean?

- ☐ Roger should take his car there for only small repairs.
 - ☐ She advises Roger not to take his car to that repair shop.
 - ☐ The reputation of a place is important.
 - ☐ Roger can take his car there.
-

Item 13:

Paul and Mary, two friends, are having a talk. Paul remembers that he must pay his apartment's rent today but has no money for it now.

Paul: "Oh, the rent is due today, but I don't get paid until Monday. Could I borrow \$50? I'll give it back next week."

Mary: "Sure, no problem."

What does Mary probably mean?

- ☐ She is not sure about giving money to Paul.
- ☐ She will give the money to Paul.
- ☐ It is a problem for Paul.
- ☐ She will not give the money.

Item 14:

Barbara and Brad, classmates, are talking about what they are going to do during the summer. Barbara's mother wants her to stay home, and entertain the relatives when they come to visit them at the beach.

Brad: "Do you have a lot of relatives?"

Barbara: "Does a dog have fleas?"

What does Barbara probably mean?

- ☐ She does not like her relatives and feels like an unlucky dog.
 - ☐ She does not have very many relatives.
 - ☐ She has a lot of relatives.
 - ☐ She wants to learn if a dog usually has fleas.
-

Item 15:

Toby and Ally are trying a new buffet restaurant in town. Toby is eating something, but Ally cannot decide what to have next.

Ally: "How do you like what you're eating?"

Toby: "Well, let's just say it's . . . colorful."

What does Toby probably mean?

- ☐ He thinks it is important for food to look good.
- ☐ He likes the food.
- ☐ He wants Ally to try something colorful.
- ☐ He does not like the food much.

Item 16:

Peter promises his friend Mary to help her move to a new apartment. That day, he moves the clock on the wall while Mary moves the heavy boxes.

Mary: "Thanks, you've been terribly helpful."

What does Mary probably mean?

- ☐ Peter helped her a lot.
 - ☐ Moving the clock was really important as it needed special care.
 - ☐ Peter is weak.
 - ☐ Peter was not helpful at all.
-

Item 17:

John's friend Mary asks him about their classmate Sally.

Mary: "You know. I've been curious to know if you went out with Sally."

John: "Um . . . Sally's not really my type."

What does John probably mean?

- ☐ He is not sure of his feelings.
- ☐ He is talking bad about Sally as she refused him.
- ☐ Mary is his type.
- ☐ They did not go out.

Item 18:

Dale runs into his friend Julia. He knows Julia recently had a job interview.

Dale: 'By the way, did you get that job you applied for?'

Julia: 'Good God, I'm so tired of this cold weather.'

What does Julia probably mean?

- ☐ She does not want to talk about the interview.
 - ☐ She is bored of searching for a job.
 - ☐ She did not understand Dale's question.
 - ☐ She could not attend the interview because of cold weather.
-

Item 19:

Maria and Frank are working on a class project together but they will not be able to finish it by the deadline.

Maria: "Do you think Dr. Gibson is going to lower our grade if we hand it in late?"

Frank: "Do fish swim?"

What does Frank probably mean?

- ☐ He thinks they should choose a new project topic on fish.
- ☐ He thinks Dr. Gibson will not lower their grade.
- ☐ He thinks they will get a lower grade.
- ☐ He suggests just giving in the project to see the result.

Item 20:

Hillary sees that her boyfriend Bruce has forgotten to leave a tip while leaving the restaurant they had dinner in.

Hillary: 'You know, leaving a tip is important.'

What does Hillary probably mean?

- ☐ She advises him to leave a tip.
- ☐ She indirectly asks Bruce if they should leave a tip or not.
- ☐ It is OK now but Bruce should not forget the tip next time.
- ☐ She wants to leave quickly without tipping.

Item 21:

Jenny is out in the freezing cold after basketball practice. As she often has to do, she has been waiting for her mom to pick her up for an hour. She throws a quick glance at her watch, talking to herself.

Jenny: "She's a bit late huh?"

What does Jenny probably mean?

- ☐ Her mom is not very late yet.
- ☐ She is anxious about her mom.
- ☐ Her mom is really late once again.
- ☐ She needs to look at her watch again.

Item 22:

Susan and Ronald, two officemates, are having lunch in a café and discussing their boss.

Ron: 'So, do you think Mr. Davis will give me a raise?'

Susan: 'Do pigs fly?'

What does Susan probably mean?

- ☐ She wants to change the topic.
- ☐ The boss will not give Ron a raise.
- ☐ She has seen outside a pig falling down from a high place.
- ☐ Ron will get a raise.

Item 23:

Joan and Dave, classmates, see each other in the school corridor.

Joan: 'Hi Dave.'

Dave: 'Hi Joan. What's up?'

Joan: 'I was going to ask you a favor. Would you read my paper for English 101?'

Dave: 'Oh, Joan, sorry I can't. I have a class in about 10 minutes.'

What does Dave probably mean?

- ☐ He will read the paper.
- ☐ That is a difficult thing to do for him.
- ☐ He will read it after the class.
- ☐ He will not read the paper because he is busy.

Item 24:

Susan and Tom, friends, are talking about what is going on in their lives. Susan knows Tom had a job interview recently.

Susan: 'So how was your interview? Did you get the job you applied for?'

Tom: 'Um . . . I think I need to improve my interview skills.'

What does Tom probably mean?

- ☐ He did not get the job.
 - ☐ He wants help from Susan to improve his interview skills.
 - ☐ He will have the interview when he feels his interview skills are good enough.
 - ☐ They gave him the job with the advice that he should improve his interview skills.
-

Item 25:

Ken bought a new car and he showed it to his co-worker, Tina. She drove it around for a couple of times and they are talking at lunchtime the next day.

Ken: 'So what do you think of this new car?'

Tina: 'Well, the color's fine.'

What does Tina probably mean?

- ☐ What she liked most about the car is its color.
- ☐ She thinks the color of a car is very important.
- ☐ She does not know much about cars.
- ☐ She did not like the car very much.

Item 26:

Hilda is looking for a new job. She is having lunch with her friend John.

John: "So how's the job search coming along?"

Hilda: "Um, this curry's really good, don't you think?"

What does Hilda probably mean?

- ☐ She did not understand John's question.
 - ☐ She is not looking for a job anymore.
 - ☐ She wants to talk about nothing but food.
 - ☐ Her job search is not going very well.
-

Item 27:

Tom and Mary share the same apartment. Tom finds Mary in the kitchen.

Tom: 'Hey, ah . . . could you clean the house this weekend? I have plans.'

Mary: 'Oh, ah . . . I'm going to see my parents this weekend.'

What does Mary probably mean?

- ☐ She will clean the house.
- ☐ She will try to make some new arrangements.
- ☐ She refuses Tom's request.
- ☐ She thinks the house does not need cleaning.

Item 28:

Michael is planning not to come to today's class. His housemate Angela knows one absence loses five points in the end.

Angela: 'Well, you know, one absence loses five points from the final marks.'

What does Angela probably mean?

- ☐ Michael has already lost 5 points.
 - ☐ She advises Michael to come to the class.
 - ☐ She will remind the teacher to take off five points.
 - ☐ She recommends that he should do as he wishes.
-

Item 29:

Nina, an office secretary at a university, is working at her desk. Tom, a teacher, is there to make photocopies but the machine is not working.

Tom: 'The copy machine isn't working.'

What does Tom probably mean?

- ☐ He asks permission to make the photocopies.
- ☐ He indirectly criticizes Nina for not doing her job.
- ☐ He wants help from Nina with fixing the machine.
- ☐ He wants Nina to continue what she is doing.

Item 30:

Sally and Dennis, old friends, see each other again after a long time. Sally has heard that Dennis got divorced but is not sure.

Sally: 'By the way, is it true you got divorced?'

Dennis: 'You know . . . I think we got married too young.'

What does Dennis probably mean?

- ☐ They are still in that unhappy marriage.
 - ☐ They are not married anymore.
 - ☐ They are OK, but it would have been better if they had got married older.
 - ☐ He does not want to answer the question.
-

Item 31:

Bob and Sarah, two school friends, are halfway to finishing this semester. They are talking about the courses they are taking.

Bob: 'By the way, how are you doing in history?'

Sarah: Um . . . not so well. I got a 'C' on the last test.

What does Sarah probably mean?

- ☐ She is doing really well in history.
- ☐ She loves history.
- ☐ She is not sure about her performance.
- ☐ She is not doing so well in history.

Item 32:

Brenda and Sally, friends, have lunch every Tuesday. As they meet on this particular day, Brenda stops and twirls like a fashion model, smiling.

Brenda: 'I just got a new dress. How do you like it?'

Sally: 'Well . . . it's certainly a popular style'

What does Sally probably mean?

- ☐ Brenda should have bought it earlier.
 - ☐ She really likes it.
 - ☐ Every dress is the same for her.
 - ☐ She does not like it much.
-

Item 33:

Mark and Jane work in the same factory. They are both at work.

Mark: 'Hey Jane. Are you busy?'

Jane: 'Ah . . . not right now. We just finished that big project.'

Mark: 'Wow, good for you. I know that was a lot of work. By the way, can you work my night shift this Friday Jane? My son is graduating from college.'

Jane: 'Um . . . I'm having a party Friday.'

What does Jane probably mean?

- ☐ She indirectly invites Mark to the party.
- ☐ She will not work Mark's shift.
- ☐ She will relieve her tiredness of the night shifts with the party.
- ☐ She can work Mark's night shift.

APPENDIX 2. The MDCT Item Specifications

Implied Meaning Types	Item Numbering
1. Fillers (5 items)	1, 7, 13, 23, 31
2. Pope Question (5 items)	5, 10, 14, 19, 22
3. Indirect Criticism (4 items)	3, 15, 25, 32
4. Topic Change (4 items)	8, 11, 18, 26
5. Indirect Advice (4 items)	4, 12, 20, 28
6. (Verbal) Irony (3 items)	2, 16, 21
7. Indirect Refusals (3 items)	6, 27, 33
8. Disclosure (3 items)	17, 24, 30
9. Indirect Requests (2 items)	9, 29

APPENDIX 3. Favored Response Options for the Items

Item Number	Favored Option	Item Number	Favored Option
1.	d*	18.	a
2.	a	19.	c
3.	a	20.	a
4.	c	21.	c
5.	d	22.	b
6.	c	23.	d*
7.	c*	24.	a
8.	b	25.	d
9.	a	26.	d
10.	b	27.	c
11.	a	28.	b
12.	b	29.	c
13.	b*	30.	b
14.	c	31.	d*
15.	d	32.	d
16.	d	33.	b
17.	d		

* excluded from the final analyses for being a filler item

The Development of Authentic Assessment in Measuring Critical Thinking and Student Performance in Thermochemistry Material

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ABSTRACT

The study aims to obtain the product and to know the validity and reliability value of the authentic assessment instrument that can measure students' critical thinking and performance on Thermochemistry materials. The method used in this research is the R & D method (Research & Development). The subject of this research is vocational students who have studied Thermochemistry material. This research was conducted by using the form of written test in the form of multiple choice items item and description, performance test in the form of task and assessment rubric. The results of the research indicate that the authentic assessment developed is valid because the CVR count value is above the critical CVR value of 0.99 for the five validators. The authentic assessment developed is also reliable because the reliability value of the written test instrument is a multiple choice form with a value of 0.452 in the medium category and written test of the description form with a value of 0.749 in the high category, while the performance test instrument is in very high category with reliability value of 0.865. In addition, the results of authentic assessment development of written and performance tests are grouped into high, medium, and low grade categories.

Keywords: Authentic Assessment Instrument, Critical Thinking Skills, Student Performance

INTRODUCTION

The era of modernization in higher education is now undergoing a period of significant challenge and transformation. It is expected that these challenges will, in a comparatively short period of time, lead to changes in the ways in which the higher education experience is both mediated and accessed (Ashford, et al. 2014). Education becomes a very important need to balance the development of the times and technology in a broad sense education can cover all life processes and all forms of individual interaction with the environment (Wibowo et al., 2016; Taber, 2013). In a limited sense, education is one of the processes of teaching and learning interaction in a formal form known as instructional. Part of way learning, assessment very important role in improving the quality of teaching. Implementation of the assessment should be done intensively and regularly in order to foster good study habits for students. Assessment is the process of determining, collecting and using the information necessary to make judgments before the judgment of the student (Frey and Allen. (2012). Teaching conduct of students assessments, and assessments made by teachers are generally less concerned about the process (Ashford, et al. 2014). states that there is a need for development of a scoring system that is able to measure students' ability holistically as a result of learning and encourage students to learn to develop all their potential and creativity and apply their knowledge in everyday life. The application of students' knowledge in understanding the lessons in the classroom can be seen from the way each student thinks. Many varieties of thinking patterns developed by students, ranging from basic thinking to complex thinking or high-level thinking. In a Costa statement, there are four high-level thinking patterns, namely critical thinking, creative thinking, problem solving, and decision making. Among the four high-level thinking, critical thinking underlies three other patterns of thinking. This means that critical thinking needs to be mastered first before it reaches the other three higher-order thinking (Catherine And Cynthia, 2014).

Students are an educational object that is required to keep pace with technological developments and modern life today. Thus, students should be able to think ahead and criticize all circumstances. In order to be able to print competent personalities, the world of education needs to change the system or teaching pattern from conventional learning into a more innovative learning model and can optimize the ability in learning outcomes, or in the ability to think. Among these are high-level thinking skills that are useful in helping student's problems (Barber et al., 2015). In the 2013 Indonesia curriculum, the assessment given to students is not only in terms of cognitive ability but also affective and psychomotor aspects. In a process of learning, authentic assessment can measure, monitor and assess all aspects of learning outcomes (covered in the cognitive, affective, and psychomotor domains), both appearing as

the end result of a learning process, as well as changes and developments in activities and acquisitions Learning during the learning process in and out of the classroom. In other words, such a system is considered more equitable for the student as a learner, because every effort that the student earns will be more appreciated. In this respect many school systems, such as in Singapore (Koh, Tan & Ng, 2012), have undertaken fundamental reviews of school curriculum and assessment systems. In Singapore's case, it is the 'Thinking Schools, Learning Nation' agenda, created to ensure that they 'nurture thinking and committed citizens to keep Singapore vibrant and successful'.

Certainly, however, the realistic criterion is commonly presented as the underlying, critical defining factor for authenticity. For example, a discussion of the varied definitions of the terms performance assessment and authentic assessment is presented by Palm (2008). Beginning with a basic dictionary definition of authentic as meaning essentially that something is "real, true or what people say it is" (p. 6), he suggests that the term is used in various contexts as being true or real Palm concludes that authenticity is defined as assessment that is real in terms of processes and products, assessment conditions or the presented context, and true to life beyond school, curriculum and classroom practice or learning and instruction. With authentic assessment can appreciate each student's ability more justly and wisely because not all students excel in their cognitive abilities. There have been several studies on authentic assessment that can be effective in the assessment of the 2013 curriculum, one of the results of thesis research from Gustiani (2013) with the title "Authentic Assessment of Student Results Class XI on Acid Base Materials". In addition, the results of a thesis research from Purwanti (2014) entitled "Development of Authentic Assessment Instruments for Assessing Students" Vocational Practices Knowledge and Skills on the Concepts of Electrolyte and Non Electrolyte Solutions". Based on the above description of the background as well as research that has been there before, it is necessary to research that aims to provide an authentic assessment of student learning outcomes on different materials. The title raised in this study is "Development of Authentic Assessment Instruments for Measuring Critical Thinking Skills and Student Performance of Class XI on Thermochemical Material".

The purpose of this study is to obtain validity of authentic assessment instrument products to measure critical thinking skills and student performance on thermochemical materials, to obtain authentic assessment instrument product reliability to measure critical thinking skills and student performance on thermochemical materials, to find out the results of assessment instrument development Authentic multiple choice written tests and descriptions to measure students' critical thinking skills in authentic assessment instrument trials, to find out the results of authentic assessment instrument assessment of performance tests to measure students' practicum skills on authentic assessment instrument test. The authentic assessment according to Number 66 of 2013 on the Education Appraisal Standards is a comprehensive assessment to assess the start of input, process, and output (output) of learning (Basic and Medium. Kemendikbud. 2013). Create authentic learning and assessment tools, teachers need to learn how to design such tasks. McNeill, 2012; McCarthy, 2013) surveyed academics and found that many continued to target lower order learning outcomes. They state that universities increasingly value the skills such as problem-solving, critical thinking and creativity, yet the curriculum needs to be designed to support and scaffold development of these skills, and integrating them into assessment strategies has proven a challenge. While new technologies have sometimes been heralded as having the potential to address an apparent gap between the rhetoric of curriculum alignment and assessment practice in universities, academic practice is slow to change, and the uptake of new tools to support the development of higher order skills remains relatively low.

Authentic assessment is an activity to assess the students who emphasize what should be assessed, both process and results with various assessment instruments tailored to the demands of competence in the core competence (KI) and Basic Competence (KD). In authentic assessment, learners are asked to apply concepts or theories to the real world. In addition, authentic assessment also takes into account the balance between attitude, knowledge, and skill attitudes that are tailored to the characteristics of learners according to their level.

THE STUDY

The research was conducted in one of the vocational schools in Bandung. The samples involved are students who have followed the learning on thermochemical materials in class XI semester 1 academic year 2014/2015 as many as 32 students. The object of this research is the authentic assessment instrument of written test (multiple choice and description) and performance test (task and rubric) which has been tested for its validity. The research method used is research and development. Research and Development is a research method used to produce a particular product, and test the effectiveness of the product. Cresswell (2014) reveals that research methods can be interpreted as a scientific way to get information or data with a specific purpose.

Research Procedures:

1. Preparation stage includes several steps, literature study of authentic assessment of written test and performance, review of thermochemical material based on curriculum 2013, preparation of authentic assessment instruments written test and performance, preparation of written test (multiple choice and description), preparation of performance test (Task and rubric), validity or judgment test, calculation of validity.
2. The Implementation Phase covers several steps, preparation of student ability test questions of thermochemical material and student worksheet of practicum test, essay and validity performance test, calculation of reliability, processing and data analysis, findings and discussion, conclusion.

FINDINGS

The results of the study are divided into four parts, validity of the authentic assessment instrument written test and performance, the reliability of the authentic assessment instrument written test and performance, authentic assessment instrument analysis written test in the form of multiple choice items and descriptions, and analysis of authentic assessment instruments in the form of performance tests Students of SMK on practice determination ΔH using simple calorimeter.

Based on calculating the CVR value for authentic assessment instruments written test and performance, it is known that all instruments validity. Accumulated validation results of authentic assessment instruments are shown in Table 1.

Table 1. Accumulated Validation Results of Authentic Assessment Instruments

Authentic Assessment Instruments		Item	CVR Value	CVR Critical	Validity of Instruments
Written Test	Multiple Choice	1, 2, 3, 5, 7, 11, 12, 13, 14, 15, 16, 17, 18, 19	1,00	0, 99	Valid
	Essay	1a, 1b, 2a, 2b, 2c, 3a, 3b	1,00		Valid
Performance Assesment		1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1,00		Valid

The result of reliability value for each type of authentic assessment instrument development on the concept of the thermochemical material is presented in Table 2.

Table 2. Reliability Value For Each Type of Authentic Assessment Instrument

Instruments		Item Value	Number of Item Used	Reliability	Category
Written Test	Multiple Choice	15	1, 2, 3, 5, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, dan 19	0,452	Medium
	Essay	3	1a, 1b, 2a, 2b, 2c, 3a, dan 3b	0,749	High
Performance Assesment		10	1, 2, 3, 4, 5, 6, 7, 8, 9, dan 10	0,865	Very High

The result of the item analysis, it is known that the differentiating power of each item of multiple choice questions developed is in all categories ranges, among others: less, adequate, good, and excellent. While the level of difficulty in the category of difficult, medium, and easy. Detailed results of the item analysis are presented in Table 3.

Table 3. Item Analysis

Item Number	Differential of Item		Difficulty of Item	
	Value	Category	Percentage	Category
1	0,63	Good	43,75 %	Medium
2	0,00	Bad	12,5 %	Easy
3	0,06	Bad	6,25 %	Easy
4	0,31	Enough	50 %	Medium
5	0,00	Bad	43,75 %	Medium
6	0,06	Bad	87,5 %	Hard
7	0,30	Enough	75 %	Hard
8	0,19	Bad	62,5 %	Medium
9	0,75	Very Good	50 %	Medium
10	0,38	Enough	50 %	Medium
11	0,06	Bad	75 %	Hard
12	0,25	Enough	50 %	Medium
13	0,25	Enough	37,5 %	Medium
14	0,06	Bad	50 %	Medium
15	0,19	Bad	81,25 %	Hard

From Table 3 it can be seen that in the Differential of Item analysis, there is a category of problem Differential of Item, Easy, Medium, and Hard. Although there is a bad item, but no one gets a negative value so no items are omitted. With the Differential of Item, so this problem is good to be able to know the ability of students with upper, medium, and low class category. The percentage of the number of different power categories per item is illustrated in Figure 1.

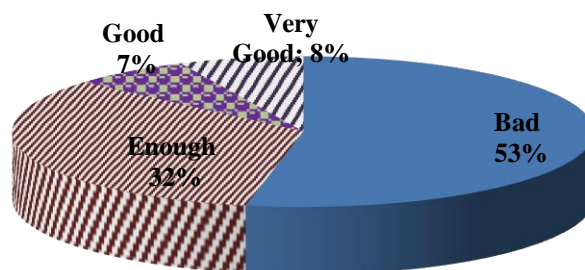


Figure 1. Percentage of Multiple Choice Differential Item

In the analysis of the level of difficulty there are three types of problems, namely the level of difficulty easy, medium, and difficult. On the tested problem the level of difficulty is evenly distributed from the easy to the difficult, but the most problem is the medium category. Thus the ability of students in problems work can be known level. The percentage of the number of categories of difficulty levels per item is illustrated in Figure 2.

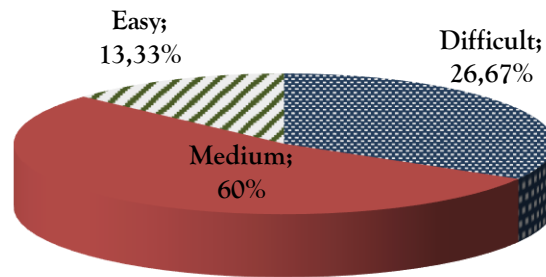


Figure 2. Percentage of Problem Difficulty Points Multiple Problems Charts

For authentic assessment instruments written the type of description on the analysis of difficulty levels, the problem is included in the category of being. With the details of 32 students follow the written test description of 3 questions developed. The maximum score is 21 and the minimum score is 0. The number of students who get 0-10 score of 19 students (meaning fail), the value of 11 as 6 students, and the value of 12-21 as many as 11 students. So the percentage of difficulty level is 59,38%. The 59.38% difficulty rate is between 28% and 72%, meaning the problem is moderate. Note: The ideal pass limit is 11 (scale 0 - 21).

The result of the student's assessment using the multiple choice instrument is then analysed as a whole and grouped according to the high, medium, and low student scores. From the division of the group, there are 4 high group students, 24 medium group students, and 4 low group students. This division of student scores is found in Appendix 19. For a percentage description of the group of knowledge scores to assess students' critical thinking skills is presented in Figure 3

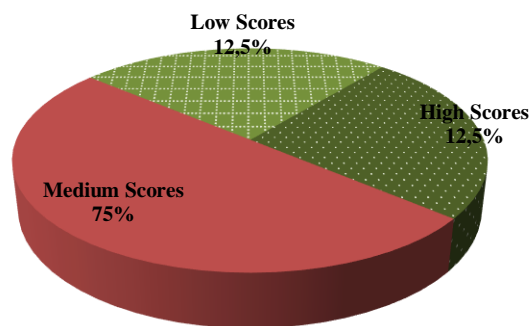


Figure 2. Percentage of Student Knowledge

Group of written tests also carried out the division of the value of student's critical thinking skills. The division of students' critical thinking skills is grouped into four categories, which are less good, good, good enough, and excellent. The division of students' critical thinking skills is presented in Table 4.

Table 4. Group Distribution of Student Critical Thinking Skills

Group	Category Value	Student
High	Very Good	-
	Good	2
	Enough	2
	Bad	-
Medium	Very Good	-
	Good	-
	Enough	2
	Bad	22
Low	Very Good	-
	Good	-
	Enough	-
	Bad	4

Based on Table 4 can be seen the distribution of values on students' critical thinking skills. In high group students there are 2 students with good grades, 2 students are good, and no students with the category of excellent and poor value. In the group students there are 2 students with good value, 22 students are bad, and no students with the category of very good and good value. Whereas in low group students there are 4 students with bad grades, and no students with very good category, good, and enough. In the grouping of performance tests conducted also the division of student competence in carrying out the lab. The division of student competencies is grouped into four categories, which are less competent, competent, and highly competent. The division of students' competency skills group is presented in Table 5.

Table 5. Distribution of Student Practicum Competency Group Competencies

Group	Kategori Kompetensi	Jumlah Siswa
High	Highly Competent	2
	Competent	2
	Sufficient Competent	-
	Less Competent	-
Medium	Highly Competent	-
	Competent	21
	Sufficient Competent	2
	Less Competent	1
Low	Highly Competent	-
	Competent	3
	Sufficient Competent	-
	Less Competent	1

Based on Table 5. can be seen the distribution of competence on student practicum skills. In high group students there are 2 highly competent students, 2 competent students, and no students with sufficient competent and less competent categories. In the group students there are 21 competent students, 2 students are competent, 1 student is less competent and no students with highly competent category. While in low group students there are 3 competent students, 1 student is less competent, and there are no students with very competent category and quite competent.

CONCLUSION

The results of research on the development of authentic assessment instruments and authentic assessment instrument test, it can be known that some research findings have been analysed, and the discussion of the research results, can be obtained some conclusions, among others: Authentic assessment instruments developed eligible valid to assess critical thinking skills And the performance of vocational students on the concept of thermochemical materials. Authentic assessment instruments developed, i.e. written test instruments and performance have CVR value counts above the critical CVR value of 0.99 for five validators. The developed instruments are qualified to assess the

critical thinking skills and performance of SMK students on the concept of thermochemical materials. The instrument of written test of multiple choice form with value 0,452 in medium reliability category and written test of description form with value 0,749 in high category, while in instrument of performance test is in very high category with reliability value equal to 0,865.

The results of the development of authentic assessment instruments of multiple choice written test and descriptions of SMK students are grouped into high, medium, and low grade categories. The value of critical thinking skills of majority students is in the category of poor value in working out the problems on thermochemical materials, both in the medium and low groups. While in the high group balanced on the category of good value and good enough there are 2 students in each value category. The results of the development of authentic assessment instruments of performance tests of SMK students are grouped as well as on written tests into high, medium, and low grade. Majority student competency score is in competent category in conducting practicum of determination ΔH reaction using simple calorimeter, good in high, medium, and low group.

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The Development of Handout on the Subject of Psychology For Teacher For Educational Students

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ABSTRACT

The objectives of this research are: to develop and discover efficiency of handout on the subject of psychology for teacher for educational students to meet with criteria at 80/80 and to study satisfaction level of students by handout on the subject of psychology for teacher. The target group herein was 30 students who studied in Academic year of 2015. Target group was determined by using purposive sampling. Tools used in this research were 40 items of post-test, student's satisfaction evaluation form towards handout on the subject of psychology for teacher usage. Data analysis was conducted to find efficiency of handout on the subject of psychology for teacher as defined by criteria at 85.77/ 83.72 and student's satisfaction level towards handout on the subject of psychology for teacher usage of 30 students. The obtained mean was 4.55 and standard deviation was 0.58. The results showed that the efficiency of handout on the subject of psychology for teacher to promote teaching skills was at 85.77/ 83.72 that was higher than defined criteria at 80/80. In addition, Overall satisfaction of students towards handout on the subject of psychology for teacher usage was in the highest level with the mean of 4.55 and standard deviation at 0.58. The obtained results were able to be used as guidelines for further development of learning activities management of other courses.

INTRODUCTION

The Royal Institute (1996, p 647) defined the meaning of handout as a material or tool with useful information and subject matter for reinforcing learning experience that can be applied to instructional process of teachers and students to meet with curriculum. Sujit Songkasri (2011, p 31-35) defined the meaning of handout as a book for children reading in order to obtain knowledge along with amusement. It is a kind of document with clear content, objectives, and theme that is easy or difficult based on class, age, interest, and background of student. It is consisted of some amused and various contents including tales, folk tales, short stories, documents, articles, diaries, and essays. The language used in Handout is easy, correct, and appropriate while its size should be suitable for children. Handout means academic work that is used for supporting any subject under university's curriculum reflecting course content and instructional method systematically. It is considered as an important tool of teacher in supporting instruction. It is in the form of document or other related media.

Course Description on the subject of psychology for teacher : This course is related to human's development, promotion on development of students with each age, factors influencing on learning, Learning Theory and its application to learning management and promotion, classroom management, classroom behavioral modification, principles of guidance and primary consulting. General Objectives are 1.To be able to explain on involvement between psychology and teacher as well as to identify importance and benefits of psychology to teacher. 2.To be able to explain on nature and development of students. 3.To be able to apply Psychological Learning Theory to learning management. 4.To be able to analyze on physical factors influencing on learning for applying to reinforce motivation on learning management. 5.To be able to analyze on problems of students for applying to guidance and consulting. 6. To be able to apply obtained knowledge for managing environment facilitating student to start learning.

From such reason, the researcher was interested in utilizing innovation to convey a development of handout on the subject of psychology for teacher for educational students.

OBJECTIVES

To develop handout on the subject of psychology for teacher to gain efficiency at 80/80 and achieve better level of student's satisfaction.

HYPOTHESIS

Handout on the subject of psychology for teacher had efficiency level at 80/80 according to standard criteria and student's satisfaction level towards handout on the subject of psychology for teacher was in high level.

SCOPE OF RESEARCH

Populations used in this research was consisted of 2,540 students who were students of Suan Sunandha Rajabhat University in all years.

Target group used in this research on handout on the subject of psychology for teacher was consisted of 30 students

who were students of Suan Sunandha Rajabhat University in all years obtained by using purposive volunteer sampling.

DEFINITIONS

1. Handout means innovative media classified as publication that is created and prepared for supporting teaching of teacher or learning of student under the curriculum in order to promote student to learn by himself/herself. In addition, it is also used in managing learning of both student and teacher to be more efficient.

2. Efficiency of handout means capabilities of lesson in building the learning achievement of the target students from Faculty of Education, SSRU in order to enable them to obtain learning according to determined criteria of 80 / 80.

The former 80 means efficiency of processes evaluated from the student's scores obtained from doing practices of each lesson during the class that is averagely 80%.

The latter 80 means efficiency of the result evaluated from the scores of students for their post-test that is averagely 80%.

3. Satisfaction of students means the feeling of students toward learning by using handout on the subject of psychology for teacher. This satisfaction was measured by using 10 items of Satisfaction Questionnaire upon the likert's 5 rating scales.

RESEARCH FRAMEWORK AND CONCEPT

Research framework and concept is shown in Fig. 1.

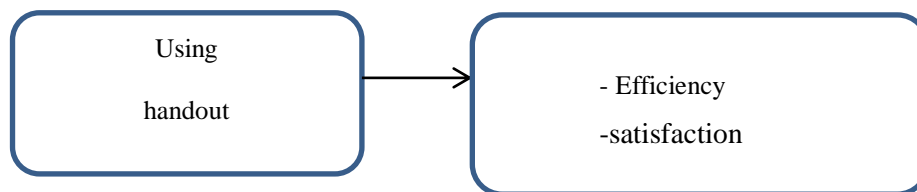


Fig. 1. Research framework and concept

RESEARCH PROCESS

1. Studied papers and researches as well as studied from philosophers through interview and focus group in order to synthesize psychology. Subsequently, the obtained results were classified and arranged systematically in Thai-language format.

2. Submit developed handout on the subject of psychology for teacher to experts for inspection and improvement.

3. Tried out improved handout on the subject of psychology for teacher with students who were not target group for further improvement and public relations.

4. Students who were target group studied created handout on the subject of psychology for teacher and took pre and post-test. Subsequently, satisfaction of students was evaluated after their usage of handout on the subject of psychology for teacher.

4.1. Tested students with test review of 11 lessons. The obtained scores were collected as scores of formative evaluation.

4.2. 40 items of achievement test on lessons were tested with students and the obtained scores were collected as scores of post-test.

4.3. 10 items of satisfaction evaluation form towards lessons were commented by students.

5. The results were checked and the obtained scores of pre and post-test were analyzed by using statistics in order to find efficiency at 80/80.

6. Student's satisfaction after using handout on the subject of psychology for teacher was analyzed and concluded.

CONCLUSION

1. From development and try out of handout on the subject of psychology for teacher, it was found that it was suitable and efficient according to defined criteria calculated to be 85.77/ 83.72 when utilizing with 30 students who were target group that was consisted with defined hypothesis.

2. From the results of student's satisfaction towards learning with handout on the subject of psychology for teacher, it was found that overall student's satisfaction towards instruction using handout was in the highest level, i.e., students had overall satisfaction towards handout in high level with mean of 4.55 and item 10 was gained the highest satisfaction level of students. Average demand of students on creating handout for other subjects was 4.74. For other evaluations, most of them had high level of satisfaction.

Handout is consisted of:

Introduction

Psychology is science of human's behavior and mind, learning and development of student under instruction or in classroom that is studied to invent some theories and principles that can be applied to solve educational problems and to promote efficiency of instruction. Accordingly, educational psychology plays the important role in creating curriculum and managing instruction by considering on individual difference. It is necessary for educators and teachers to have knowledge and understanding on student's behavior and learning process as well as to be able to solve problems on instruction. Since psychology has extensive influence on living, anyone studying on psychology should understand human nature, for example, demands, problem solving, modification, emotion and feeling in various situations. Moreover, they should be able to apply obtained knowledge to solve psychological problems, overcome all weaknesses, eliminate conflicts and anxiety, maintain good psychological health, modify themselves, and plain their life appropriately. As a result, anyone studying on educational psychological or teacher should start from studying on basic knowledge of psychology as the good foundation for further study.

Student Development

Development is changing or growing in structure or pattern and all humans have to experience the procedures of development throughout their life. Developmental psychology is important, i.e., it enables person to understand other persons in both individual and group levels therefore such person will be able to connect demands of people in different ages. Consequently, persons will be able to understand one another better and modify themselves to live with one another happily. Moreover, they will be able to work with others smoothly and efficiently. Human Development means changing happened with humans physically, emotionally, intellectually, and socially in order format. Age development can be performed by children with each age normally and success of each research can make people happy and confident as well as be the foundation of further age development. However, if it is unsuccessful, it can cause some difficulty on modification leading to unacceptable behavior and unhappiness life. To study on human's development, there are several systematic theories that have already been analyzed, studied, and proved until they have been accepted and reliable. Developmental Theory is not for attaching and following but it is for presenting as the guidelines for applying to instructional activities in each situation. The important theories are Gesell's Developmental Theory, Piaget's Intellectual Theory, Bruner's Developmental Theory, and Ericson's Developmental Theory, etc.

Human Development Theory

Development is changing or growing in structure or pattern and all humans have to experience the procedures of development throughout their life. Developmental psychology is important, i.e., it enables person to understand other persons in both individual and group levels therefore such person will be able to connect demands of people in different ages. Consequently, persons will be able to understand one another better and modify themselves to live with one another happily. Moreover, they will be able to work with others smoothly and efficiently. Human Development means changing happened with humans physically, emotionally, intellectually, and socially in order format. Age development can be performed by children with each age normally and success of each research can make people happy and confident as well as be the foundation of further age development. However, if it is unsuccessful, it can cause some difficulty on modification leading to unacceptable behavior and unhappiness life. To study on human's development, there are several systematic theories that have already been analyzed, studied, and proved until they have been accepted and reliable. Developmental Theory is not for attaching and following but it is for presenting as the guidelines for applying to instructional activities in each situation. The important theories are Freud's Developmental Theory, Piaget's Intellectual Theory, Bruner's Developmental Theory, Ericson's Developmental Theory, and Kohlberg's Moral Development Theory, etc.

Learning Theory

Learning Theory is the overall result of explanation on the belief on learning that is managed orderly. It is consisted of Learning Rules for using as the practices leading to the results upon confidence. There are 2 main groups of traditional Learning Theory including behaviorism emphasizing on the importance between stimulus and responses as well as focusing on measurable or noticeable behavior, for example, theories of Pavlov, Watson, Thorndike, and Skinner. On the other hand, Cognitivist Theory emphasizes on perception and understanding that is the physical internal process including theories of Gestalt, Lewin, and Tolman. There are 2 new theories including Gagne's Eclecticism integrating principles of Behaviorism and cognitive theory in order to develop instruction properly and Humanism emphasizing on student who has emotion, feeling, and abilities to rely on himself/herself. Accordingly, if he/she is free to choose and make decision by himself/herself, he/she will be responsible and learn efficiently. The important person of this group is Maslow, etc. For good learning management, teacher should consider on learning elements, learning process, and application of Learning Theory to suit with students and situations.

Individual Difference

Heredity and environment are factors influencing on human development causing every human different from others on both intra-individual difference and individual difference. Heredity plays a role as the indicator while environment is additional factor. Fertilization or pregnancy is caused by fertilization between sex cells of father and mother leading to new life in mother's womb. Genetic transformation is a process for transforming

characteristics of physical structure of father and mother or ancestor to child and offspring with gene as the indicator. There are 3 types of environment influencing on human development including pre-natal, natal moment, an post-natal. To reinforce human's quality, it is necessary to consider on 2 main factors including genetic factors and environmental factors.

Motivation

Learning requires many important factors including reinforcement helping to improve abilities on connection between stimulus and response to be stronger including positive reinforcement, negative reinforcement, and motivation, condition stimulating persons to express their behavior to achieve goals as demanded by such motivation, emotion and condition which body is stimulated leading to physical and mental changing as well as changing of endocrine systems, attitude, and interest. Attitude means estimated sensation towards things in any direction that affect to such thing approaching or avoiding. Interest is a part of attitude, creativity, and information technology connecting existing knowledge or experiences with new situation appropriately and variously by using imagination and effort. Consequently, it leads to new theory or process that is different from others. Teacher should manage instruction by considering on factors causing students to learn for developing and enabling students to learn with full potential.

Guidance Psychology

Guidance is an educational process helping to enable individual to know and understand himself/herself as well as environment. Consequently, they he/she will be able to lead himself/herself, solve problems, and develop himself/herself upon his/her potential and become a good member of the society. Guidance is not giving suggestion but it is giving help in order to enable such person to be able to help himself/herself. The goal of guidance is to solve problems for preventing problems as well as for developing and promoting. Guidance is classified into 3 types including educational guidance, occupational guidance, personal guidance, and social guidance. Guidance is beneficial for students, parents, teachers, and universities.

Counseling Psychology

Counseling service providing is giving help on personal, educational, and occupational problems and all necessary facts are studied and analyzed. Solutions of those problems will be figured out as well. Counseling service can be divided into 2 types, i.e., personal counseling and group counseling. Consultant should study on techniques of counseling service, for example, introduction to conversation, questioning, and silence using, etc. Moreover, it is also necessary to consider on common factors of counseling service, for example, relationship, flexibility, motivation, and guidance, etc. Consultant should select the use of each technique and consider on common factors of professional counseling techniques to meet with each situation for obtaining the ultimate benefit from such counseling.

Student Case Study

Psychological research or study will help to predict behavior and create desirable behavior as well as to control and modify behaviors of students through long-term and short-term behavioral study or cross-sectional study. Research method and data collection was conducted through many methods, for example, introspection method, observation, survey, interview, case investigation, questionnaire or checklist, testing, and experiment. Since each method has different weaknesses and strengths, teachers should have good understanding on human behavior study methods as well as abilities in selecting appropriate tools for collecting data in order to gain the ultimate benefits. Moreover, psychical study is also beneficial for teachers, for example, supporting teachers' instructional preparation and lesson plan. Moreover, it also enables teachers to perceive teaching principles and efficient methods as well as supports teachers in classroom control administration and atmosphere, etc.

Classroom Management

As a result, the meaning of classroom management is quite extensive covering physical classroom environment management, management with student's problematic behavior, classroom discipline building, teacher's learning management, and teacher's skills development to stimulate and motivate students in order to enable students to learn efficiently. Classroom management is classified into: physical classroom management including desks and chairs management, media, devices, and materials management, display board creation, learning corner preparation for facilitating and promoting students to learn with their full potential; psychological classroom management including teacher's learning management, teacher's personality for building learning atmosphere, interaction between teachers and students as well as interaction among students. This is because learning is not only learning achievement but it is also social and emotional skills development. Teachers have to rely on the psychological principles and Dharma principles to manage such classroom.

Teaching Theory

Teaching is a science related to learning and teaching that has been accumulated by the society of the world from past to present. Teaching Theories of Bruner, Gagne', and Gardner, are good examples. Teachers are able to apply these Teaching Theories to enable students to learn under defined goals and objectives of teaching. Such knowledge is obtained from thinking and analysis of philosophers or obtained from research, testing, and proof under scientific process of psychologies and educators. Such knowledge is consisted of educational philosophy, teaching context, theories, principles, concepts, systems, formats, methods, techniques, learning and teaching

psychology, learning management design and lesson plan, instructional operation, measurement and assessment.

DISCUSSION

Efficiency of these handout was in high level as expected at 85.77/ 83.72 due to creation and development of such handout. The researcher studied on basic data and analyzed work, contents, learners who were target group, and behavioral objectives prior planning on creation and development to meet those behavioral objectives under explanation and suggestions of content expert for inspecting accuracy of contents, language correctness, appropriateness of design, instructional methods, and presentation. Subsequently, the obtained lessons were improved, developed, and tried out with a small student group in order to find further faults for additional improvement and development prior performing field tryout with 40 students. The results showed that efficiency of handout was 85.77/ 83.72 that was satisfying and met with expected hypothesis that was consistent with work of Chaiwat Waree (2016) This research aims to develop Education Course Syllabus, Thai language major, according to Buddhism way of Thailand by using Taba's Approach and to evaluate the efficiency of Education Course Syllabus, Thai language major, according to Buddhism way of Thailand. The result of the evaluation on efficiency of Course Syllabus, Thai language major, according to Buddhism way of Thailand conducted by the expert showed that the quality of this syllabus was, in overall, in the highest level at mean = 4.62 and S.D. = 0.42.

Student's satisfaction towards handout on the subject of psychology for teacher was in high level for all items because the research studied on psychology of learning of learners before planning creation of handout. Subsequently, the obtained results were planned for creation and development of complete handout that was consistent with work of Sophon Ratana (2013) obtained the results on the use of an Handout on geography of Australia and Oceania continents influencing on learning of Secondary Education Level 1 students of Charat Chanupatham School in Phatthalung Province.

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The Development of Talent Management Indicators For Primary Schools in Thailand

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ABSTRACT

The purpose of this research were to studies the components of talent management of primary school in Thailand. Data was collected by 3 methods were using: 1) analysis the talent management 100 documentary sources; 2) in-depth interview 3 expertise in talent management; and 3) field studies 3 schools l that talent management model. The research found that :Talent management in primary school consisting of 4 main components are 1) identifying talent consisting of 4 indicators are: 1.1) planning personnel; 1.2) determination of the talented people; 1.3) positioning key; and 1.4) the evaluation of advanced practitioners.; 2) development the talented people consisting of 3 indicators are: 2.1) challenging assignments, 2.2) the empowerment, and 2.3) to enhance the abilities of talented people; 3) rewarding consisting of 4 indicators are: 3.1) allocation of incentive, 3.2) to strengthen the trust, 3.3) the recognition from the team, and 3.4) strengthening the spirit; and 4) maintaining the talented people consisting of 3 indicators are: 4.1) strengthening the dialogue, 4.2) to strengthen the work environment, and 4.3) developed role model.

Keywords: Talent, Talent Management, Primary Schools.

INTRODUCTION

Good human resources refers to staff members who impose excellent skills and deliver high core competence at work. A proportion of good human resources at the working level accounts for only 3-5 percent of all workers in most institutes while the figure is reported at around 10 percent at the management level. Compared to other lay workers, good human resource people stand out from other lay workers based on the extent of the current and future impacts that the persons have upon their office affiliations. The amount of these qualified people in most offices lessens over time (Garuetin Kulpheng, 2009). Based on a school perspective, being a good staff member means being a teacher or other personnel who have a high degree of work commitment, creativity, work competence, and leadership who can help to direct the schools toward their goals. Therefore, managing talented school staff to get the best out of their capacity requires well-rounded professional skills (Dawruwan Thawinkarn, 2016). The management of talented staff members is done for the purpose of helping the staff to achieve the organization's goals. The capacity exhibited by good staff members exaggerates the survival of the institution and its competitive advantage. Schools represent another form of social units which are comprised of people of different hierarchies, such as administrators, teachers and other educational personnel. These groups of people are the gears that turn the wheels of educational mobilization. School principals should pay attention to carefully carving their staff members into talented associates because learning to manage the existing talented staff is not of secondary importance in school development.

Talent management means exercising measures to support the talented staff. Stated another way, talent management means attempting to obtain, develop, hire, and maintain good staff members within the organization. The principles, relating to talent management, have been consistently developed in different arenas, such as firms in the fields of education, business, and human resources. It is a kind of development that places emphasis on increasing the performance of individuals in alignment with the success of the organizations. When attempting to successfully

manage talent in schools, management is often confronted with challenges to the creation of innovation and leadership for educational change. It is advisable for schools to continue their efforts in developing a talented staff and in encouraging networking with external institution. Moreover, it is important to tailor Training curricula that are aimed at developing leadership and talented staff. Accordingly, talent management should be set as a means for identifying, developing, hiring, maintaining and exploiting the talented staff members in the organization (Davies and Davies, 2011). Reviewing the literature related to talent management has shown that this kind of management directs the schools toward excellence. Rudhambu (2014) investigated the talent management system in Botswana University and discovered that talent management contributes to workings of a progressive school. Agrawal (2010) conducted research about the talent management system of business schools. It was observed in this research that factors indicating of the success of talent management involved the following: school quality, motivation, work advancement, and wages. Annakis, Dass, and Isa (2014) explored factors contributing to the efficiency of talent management in government and private universities. They found that the talent staff's academic perceptions, the talent staff's development, and the culture for the talent staff's development are crucial for the success of talent development. A review of several research studies revealed a similar pattern of findings given the extent that talent management is mainly based on the following factors: 1) identifying talent staff, 2) the development of talent staff, and 3) the rewarding and maintaining of the talent staff {Arunwadee Nuntawattanukul, Pornrat Sadangharn, & Apinya Ing-art (2014), Supaporn Prasongtan (2015), Dawruwan Thawinkarn (2016), Collings and Mellahi (2009), Agrawal (2010), Tymon, Jr., Stumpf, & Doh (2010), Mandloi (2014), Cappelli & Kellahi (2014), Chauhan & Bhatt (2015)}.

Based on the importance of talent management as identified above, schools should be prompted to find effective measures especially for talent staff development. Talent management has not yet been introduced for Thai schools in the basic education system. Furthermore, there are relatively few research studies about talent management in the Thai schools. Consequently, the researcher has gravitated towards exploring the factors and indicators of talent management in the Thai primary schools. It is expected that the results derived from this research will be beneficial in helping the schools to successfully manage their talented people and direct their schools toward their set goals.

RESEARCH OBJECTIVE

The purpose of this research was to study the indicators of talent management of primary schools in Thailand.

LITERATURE REVIEW

In order to be able to precisely address the facets related to talent management in the Thai schools in the basic education system, the following documents were reviewed.

Definitions and philosophies of talented people

Talented people are defined based the two classifications below:

Group 1: Talented people can be classified from other members of a group based on their state of being a creator, a rule breaker, an initiator for change, and generator of knowledge. Davies & Davies (2011) explained that talent people are those who are blessed with many different professional skills. Talented people usually spend interesting, enthusiastic and energetic lives. They exhibit high capacity in problem-solving and finally manage to find solutions to the problems via effective use of resources. Similar ideas have been dictated by Apron Phoowittayapan, (2010) who stated that talented people are persons who possess talents, gifts, and characteristics that make them stand out from other candidates. Talented people are good at work and human management. It is important that talented people possess both good virtues and good knowledge since possessing only one of these two qualities does not mean anything for the institutional development.

Group 2: Talented people are associated with the person's traits, such as their capacity and potential. The Office of Civil Service Commission defines talented people as persons with high performances that are well-recognized by their affiliations. Talented people tend to possess high levels of work etiquettes and are prompted to become the crucial strength of organization. Wichai Wongyai (Mo.Po.Po.) regards talented people as those who

stand out from the crowd with their creative thinking, high potential, effective performance, talents, and natural abilities. Talented people usually exhibit high degree of achievement and are well-respected by others. They are learning persons who have a passion for escalating their work advancement. Suganya Rasamitamachot (2011) says that talented people are those with high occupational skills that enable them to create superior performances. Talents that people from different fields of professions have can be various and can be based on the nature and culture of the individual organization.

This research study has attempted to investigate the management of talented people in Thai primary schools. The term, “talented people”, is defined under the Thai school context as teachers or educational personnel who generate an outstandingly high level of performance as evidenced by their levels of education, academic positions, awards, and other empirical evidences. The impacts that talented teachers have on students, school and communities are used for locating talented teachers. More importantly, there are 11 desirable qualities for high school work potential that have been used to indicate talent teachers as follows: 1) demonstrating achievement-based performance, 2) giving good service, 3) having professional expertise, 4) endorsing justice and ethics, 5) demonstrating teamwork, 6) having bureaucratic commitment, 7) being creative, 8) having an holistic viewpoint, 9) being devoted to the public, 10) participating in interpersonal interaction, and 11) being a learning person. The evaluation of these talents was based on the criteria imposed by the Office of Civil Service Commission.

Principles relating to talented people management in schools.

Josh Bersin (2007) imposed 8 steps for talented teachers evaluation as detailed below:

1. Workforce planning
2. Recruiting
3. Onboarding new employees
4. Performance management
5. Training performance support
6. Succession planning
7. Compensation and benefits
8. Critical skills gap analysis

Birchall, Holley & Reid (2008) applied human resource principles into the development of talent people and postulated 5 steps involved in the development of talented people.

1. Identification
2. Development Opportunities for Talent
3. Transparency
4. De-Selection
5. Creating Developmental Opportunities for The Talent Pool

Factors relating to the management of talented people in schools

After reviewing a hundred of documents with themes concerned with the components of managing talented people, the factors needed for managing talented people in school have been clarified in Table 1.

Table 1: Components, definitions, and sub-components for managing talented people in basic education schools

Components	Definitions	Sub-components
1. Identifying	The process of identifying talented people should be systematically carried out in order to be able to correctly specify the members of the talented group and to direct the appropriate development for them.	1) Planning personnel 2) Determining the talented people 3) Defining the key positions 4) Evaluating the advanced practitioners
2. Developing Talented People	Encouraging talented people with respect to their professional development in order to enhance their work potential.	1) Offering challenging assignments 2) Giving Empowerment 3) Enhancing the abilities of the talented people
3. Rewarding	Finding prevailing ways to increase the motivation of the talented people via forms of subsidization or other rewards.	1) Allocating incentives 2) Strengthening trust 3) Receiving recognition from the team 4) Strengthening the spirit
4. Maintaining the Talent	Finding ways to retain talented people with the organization, increasing their patriotism & loyalty, and giving in for organizational development.	1) Strengthening the dialogue 2) Creating a supportive work environment 3) Developing role-models

RESEARCH METHOD

This descriptive research into the investigation of the indicators for managing talented people in the Thai primary schools was conducted and was based on a threefold process of data collection.

1) One hundred papers, related to the topic of managing talented people both in Thailand and internationally, were reviewed in order to uncover the most often quoted indicators. The frequency of each of the factors found in the papers were quoted in a frequency table. For the purposes of this research, those with the frequency of more than 50 percent were used as the indicators of talented people (Thunnissen & Marian (2015), Cappelli & Keller (2014), Davies & Davies (2011), Dawruwan Thawinkarn (2016).

2) Interviews were carried out with experts who had been involved with the talented people management at the national level. The three experts, who were interviewed, were as follows: 1) Dr. Tuang Untachai; Director of the Board of Education and Sport from the National Legislative Council; 2) Dr. Pisanu Tulasook, Assistant of the Permanent Secretariat of the Ministry of Education; and 3) Dr. Amporn Pinasa; Director of the Department of Human Resources and Lawsuit Development. These scholars were asked to identify the appropriateness of the indicators to be used for identifying talented people by marking their evaluative opinions on a scale from 1 to 5 with the following levels of appropriateness; (5) highly appropriate, (4) appropriate, (3) moderately appropriate, (2) not appropriate, and (1) highly inappropriate. Specific this research, the factors, that had been rated with the score of at least 3.5, were then selected as the indicators of talented teachers.

3) An area-based investigation was conducted at the three following schools having excellent talented people management: Phathai Udomsuksa School, Daroonsikhalai School, and Roong-Aroon School. The factors, contributing the success of talented people management in these schools, were decoded via conducting interviews with the school directors and teachers. The data obtained at this phase was used together with the data that had been obtained from Research Methods 1) and 2) in order to reach conclusions about the indicators for talented management in the schools.

RESULTS AND DISCUSSION

The research indicated that talent management in primary schools had consisted of 4 main components, each with sub-components as mentioned below.

1) Talent identification consists of the 4 following indicators:

1.1) Personnel planning

It is important for personnel planning to be conducted since it helps the schools to precisely allocate the number and characteristics of the people to be assigned for a particular job. It also determines that qualified persons are placed in

the correct job. Jomphonong Mongkolwanich (2012) articulated that personnel planning is magnificent for speculating future personnel needs. This practice is effective for ensuring that the recruitment of new members is in alignment with the organizational and positional specifications.

1.2) Determining the “Talented People”

Making the positional specification is necessary for the schools to obtain the right kind of people who can fulfill the assignments with collaboration with others. Chuchai Samitigrai (2013) further explained that after coming to know what position(s) are available, it is necessary to tailor the job specifications and the related requirements. The allocation of job specifications should take into account the level of knowledge and skills as well as the personality that the applicants have. The members of Human Resources department are obliged to conscientiously carve job specifications to make sure that the right person is recruited for the task.

1.3) Defining key positions

It is important for the members of the school to recognize what positions are more crucial than others. Key positions are high impact positions, and therefore, highly qualified people are needed to fill those jobs. Therefore, knowing what positions are primary helps allocate positional specifications and correct selection of applicants. Dessler (2011) explained that the act of defining key positions is fundamental to having good people fill key jobs. Key positioning is triggered from the office's internal needs. The allocation of key positions should be done systematically and consistently.

1.4) The evaluation of advanced practitioners

Performance evaluations are conducted at different degrees of intensity. In most cases, the criteria for evaluation is associated with the work hierarchies within the office. Apparently, people with high levels of responsibility are related to those from high positions, and the evaluation of this group of people is accordingly high.

2) The development of talented people consisting of the 3 following indicators:

2.1) Challenging assignments

Allocating challenging assignments to the educational personnel is important for the development of the organization as a whole. The tasks, that are challenging, increase problem-solving abilities and skills. Tactically speaking, when people are more frequently exposed to complicated tasks, they are more likely to be able to tackle a wider range of problems.

2.2) Empowerment

Empowerment is an important skill for building leadership. The work environment should be amended to cater to having learning experiences and promoting lifelong learning. Teaching other and building democratic leadership should be promoted.

2.3) Enhancing the abilities of talented people

Schools should make professional development a school policy. The school members should be encouraged to learn about their school's capacities, how they can increase their work potential, and about administrative and leadership skills. The schools should implement different short training courses and exploit different techniques to help their people master competence in these areas.

3) Rewarding

3.1) Allocation of incentives

Giving rewards to talented staff members in the schools is important since it shows that the school recognizes the importance of having outstanding people who can achieve high levels of accomplishment at work.

3.2) Strengthening trust

In order to bring about trust among their school members, the administrators should be good role models and behave in trustworthy ways. Trust from school members is developed under the circumstances when the administrators have properly projected their behaviors. Confidence and potential of the leaders should be portrayed properly to foster group harmony. Leaders should learn how to create trust by being open to different ideas.

3.3) Recognition from the team

Talented people are motivated when they are accepted and recognized. Talented people should be involved in major school events as follows: joining with the top administrators in allocating the direction of the school and being assigned to project work that they have proposed. When the leaders compliment members of their staffs after some memorable achievement, it is an impressive way to inspire workers (Davies & Davies, 2011).

3.4) Strengthening the spirit

Making people feel welcomed and uplifted is always an effective method of creating inspiration. In case any work-related disputes arise, the administrators should act as negotiators to help ease the difficulty and to even find solutions to the matter.

4) Maintaining talented people

4.1) Strengthening dialogue

The ability to communicate with other co-workers is a quality of a leadership that is crucial for the management of talented staff members. Communication reflects trust and a sincere connection between the interlocutors. During the conversations, the leaders should reveal their confidence and capacity to lead their schools while remaining open to receiving different or even opposing opinions.

4.2) Strengthening the work environment

Leaders with good leadership skills are generators in their work atmospheres. Successful leaders should be able to accomplish the following: 1) to create an atmosphere of trust, 2) to generate an energetic environment, 3) to facilitate cooperation and organizational values, 4) to create the organization's structure and direction, and 5) to support changes towards better personnel.

4.3) Setting role models

Establishing good role models is a magnet that also makes others want to also do something good as dictated by the model. Garuetin Kulpheng (2009) explained the steps in which talented people in an organization can be turned into role models. In these steps, the leaders should accomplish the following: 1) should be prompted to a) learn from the success others both inside and outside of their offices and b) should use those examples of success as a models. 2) should evaluate what makes each member of the school outstanding, 3) should refine the merits learnt from the examples of success and apply them to their cultures of their own organizations, 4) should evaluate and indicate the ability exhibited by talented people, which should be exercised systematically, 5) should identify the additional qualities that talented people have, 6) should a) make a draft of specifications for positions based on observed qualities of talented people and b) ask for the administrator's approval or suggestions, 7) should revise the qualities of the talented people based on the administrators' suggestions, 8) should a) finalize the qualities of talented people and b) establish the qualities as a model for 'talented people', and 9) should utilize the model with the organization.

CONCLUSION

The research found that talent management in primary school had consisted of 4 main components as follows: The first element was **Identifying Talent** consisting of 4 indicators: 1.1) Personnel Planning, 1.2) Determining the

Talented People, 1.3) Defining Key Positions, and 1.4) Evaluating the Advanced Practitioners. The second was **Developing the Talented People** consisting of 3 indicators: 2.1) Challenging Assignments, 2.2) Empowerment, and 2.3) Enhancing the Abilities of Talented People. The third element was **Rewarding** which consisting of 4 indicators: 3.1) Allocation of Incentives, 3.2) Strengthening Trust, 3.3) Recognition from the Team, and 3.4) Strengthening Spirit. The fourth and final element is the **Maintaining of Talented People** consisting of 3 indicators: 4.1) Strengthening Dialogue, 4.2) Strengthening the Work Environment, and 4.3) Developing Role- Models.

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The Development of Textbook on the Subject of Learning Management Process For Educational Students

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ABSTRACT

The objectives of this research are: to develop and discover efficiency of textbook on the subject of Learning Management Process for educational students to meet with criteria at 80/80 and to study satisfaction level of students by textbook on the subject of Learning Management Process. The target group herein was 40 students who studied in Academic year of 2016. Target group was determined by using purposive sampling. Tools used in this research were 40 items of post-test, student's satisfaction evaluation form towards textbook on the subject of Learning Management Process usage. Data analysis was conducted to find efficiency of textbook on the subject of Learning Management Process as defined by criteria at 86.50/ 82.62 and student's satisfaction level towards textbook on the subject of Learning Management Process usage of 40 students. The obtained mean was 4.25 and standard deviation was 0.55. The results showed that the efficiency of textbook on the subject of Learning Management Process to promote teaching skills was at 86.50/ 82.62 that was higher than defined criteria at 80/80. In addition, Overall satisfaction of students towards textbook on the subject of Learning Management Process usage was in the highest level with the mean of 4.25 and standard deviation at 0.55. The obtained results were able to be used as guidelines for further development of learning activities management of other courses.

INTRODUCTION

The Royal Institute (1996) defined the meaning of textbook means "Academic document that is systematically arranged and may be written to respond to all contents of course or to any part of course or curriculum consisted of analysis and synthesis on related knowledge and reflecting ability of teaching in the higher education level or may be presented in other media formats, for example, CD-Rom or may be combined by both document and other media as proper as well as text made in other media formats that are appropriate for teaching that have been published not less than 1 semester."

According to the meaning of text, it shows expansion of the scope of instructional media that is over than documentary articles or textbooks. However, to write any textbook, author is required to have knowledge and thinking on the written topic deeply with advance writing method plus with experience on such topic. After writing any textbook, it is also necessary to pass with accuracy testing conducted by some experts in such field. In addition, confidence should be found through the test of students in order to make such textbook to be quality and suitable with readers. Prapapan Sengwong (2007, p 42) said that textbook referred to a kind of document indicating how to solve problems on learning management for specific topics or objectives of learning of each learning area as the materials for supporting learning management of teachers or students under curriculum. Its topics and content must be extensive and complete according to details of learning area defined in curriculum that shall not be less than 1 credit/course.

Textbook on Learning Management Process, Code No. CAI6431, aims to provide knowledge and understand on educational science and art and its application to learning management as well as to hold some activities to develop students and give some suggestions to students.

Course Objectives : To make students to have knowledge and understanding on principles of learning and learning process, application of Learning Theory to design curriculum. Therefore, students will become persons with knowledge and ability on learning management that is consistent with each student's learning style.

Course Description : The learning theories, application of Learning Theory to design curriculum, and learning management that is consistent with students' learning style.

From such reason, the researcher was interested in utilizing innovation to convey a development of textbook on the subject of Learning Management Process for educational students.

OBJECTIVES

To develop textbook on the subject of Learning Management Process for educational students to gain efficiency at 80/80 and achieve better level of student's satisfaction.

HYPOTHESIS

Textbook on the subject of Learning Management Process for educational students had efficiency level at 80/80 according to standard criteria and student's satisfaction level towards textbook on the subject of Learning Management Process for educational students was in high level.

SCOPE OF RESEARCH

Populations used in this research was consisted of 2,650 students who were students of Suan Sunandha Rajabhat University in all years.

Target group used in this research on textbook on the subject of Learning Management Process for educational students was consisted of 40 students who were students of Suan Sunandha Rajabhat University in all years obtained by using purposive volunteer sampling.

DEFINITIONS

1. Textbook means a kind of document that is made and prepared for supporting instruction of teacher or student in any subject. It should be consisted of topics, objectives, subject matter, and activities for promoting student to learn as defined by curriculum.

2. Efficiency of textbook means capabilities of lesson in building the learning achievement of the target students from Faculty of Education, SSRU in order to enable them to obtain learning according to determined criteria of 80 / 80.

The former 80 means efficiency of processes evaluated from the student's scores obtained from doing practices of each lesson during the class that is averagely 80%.

The latter 80 means efficiency of the result evaluated from the scores of students for their post-test that is averagely 80%.

3. Satisfaction of students means the feeling of students toward learning by using textbook on the subject of Learning Management Process for educational students. This satisfaction was measured by using 10 items of Satisfaction Questionnaire upon the likert's 5 rating scales.

RESEARCH FRAMEWORK AND CONCEPT

Research framework and concept is shown in Fig. 1.

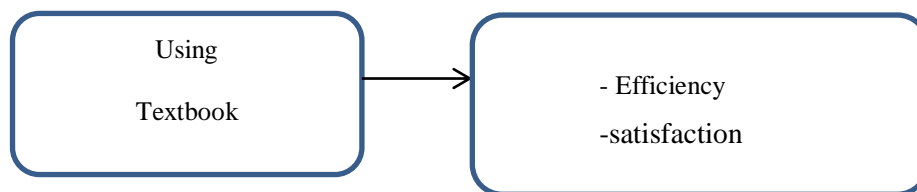


Fig. 1. Research framework and concept

RESEARCH PROCESS

1. Studied papers and researches as well as studied from philosophers through interview and focus group in order to synthesize pedagogy. Subsequently, the obtained results were classified and arranged systematically in Thai-language format.

2. Submit developed textbook on the subject of Learning Management Process for educational students to experts for inspection and improvement.

3. Tried out improved textbook on the subject of Learning Management Process for educational students with students who were not target group for further improvement and public relations.

4. Students who were target group studied created textbook on the subject of Learning Management Process for educational students and took pre and post-test. Subsequently, satisfaction of students was evaluated after their usage of textbook on the subject of Learning Management Process for educational students.

4.1. Tested students with test review of 11 lessons. The obtained scores were collected as scores of formative evaluation.

4.2. 40 items of achievement test on lessons were tested with students and the obtained scores were collected as scores of post-test.

4.3. 10 items of satisfaction evaluation form towards lessons were commented by students.

5. The results were checked and the obtained scores of pre and post-test were analyzed by using statistics in order to find efficiency at 80/80.

6. Student's satisfaction after using textbook on the subject of Learning Management Process for educational students was analyzed and concluded.

CONCLUSION

1. From development and try out of textbook on the subject of Learning Management Process for educational students, it was found that it was suitable and efficient according to defined criteria calculated to be 86.50/ 82.62

when utilizing with 40 students who were target group that was consisted with defined hypothesis.

From try out of textbook on the subject of Learning Management Process for educational students, it was found that efficiency of process (E1) provided in tests was calculated to be 86.50% and efficiency of results (E2) was calculated to be 82.62%. These textbook on the subject of Learning Management Process for educational students had higher efficiency than 80/80 as defined therefore it could be concluded that these textbook had high efficiency as defined by criteria and they were able to be used for classroom instruction efficiently.

2. From the results of student's satisfaction towards learning with textbook on the subject of Learning Management Process for educational students, it was found that overall student's satisfaction towards instruction using textbook was in the highest level, i.e., students had overall satisfaction towards textbook in high level with mean of 4.25 and item 10 was gained the highest satisfaction level of students. Average demand of students on creating textbook for other subjects was 4.54. For other evaluations, most of them had high level of satisfaction.

Textbook is consisted of:

Introduction

For current instruction emphasizing on learning, teachers should mainly consider on instructional methods, procedures, or techniques in order to enable students to gain benefits fully whereas students should consider on the main elements, i.e., teachers and students, teaching process and learning process or learning behavior. In this process, it is necessary for designer of teaching or teaching behavior to analyze students, curriculum's objectives, course objectives, lesson objectives, credit objectives, and terminal objectives for analyzing which technique is suitable with such objective. After analyzing the process, it can be seen that what media and devices used in such process are and what results obtained from such process are as mentioned by many academicians in various theoretical formats.

Learning Theory of Behaviorism

Learning is a process for developing abilities and potential of humans in various fields that have been interested by many philosophers and psychologists for long period. To make understanding on philosophy, theories, principles, and concepts on psychological learning upon theories given by philosophers, Learning Theory of Behaviorism highly emphasizes on "behavior" because behavior is considered as the expressed thing that can be noticeable, measurable, and tested. Conditioning learning theory was established by many experts and the first person was Pavlov followed by Watson who modified and improved the concept of Pavlov. Lastly, it is operant conditioning theory of Skinner who highly emphasized on reinforcement, both continuous reinforcement and partial reinforcement. Based on these theories, they could be the good supporters for responsive behavior of students.

Learning Theory of Cognitivist

Learning Theory of Cognitivist emphasizes on cognitive or intellectual process whereas they believes that human learning is not only classified as behavior caused by responsive behavior towards stimulus but it is more complex. There are 5 important theories including: 1) Gestalt Theory that is the main concept believing that the whole is more than the sum of the parts; 2) Field Theory believing in behavior, drive, and motivation of individual; 3) Sign Theory caused by the use of signs as the indicators expressing behavior to the destination; 4) Cognitive Development Theory under the concept of Piaget stated that children will be developed upon each age orderly and development is natural without accelerating children to cross any stage of development; and 5) Theory of Meaning Verbal Learning believing that learning will be meaningful for students if they are able to connect with their existing knowledge.

Learning Theory of Humanism

Learning Theory of Humanism has different concept, hypothesis, and methods from the concept of Cognitivist and Behaviorism without any experimental foundation. According to the concepts of any psychology, e.g., Maslow, they believed that each human was born with nature inside their body in the form of experiences, thinking under conspicuousness and sensation. However, humans are not ruled by this internal natural. Carl Roger emphasized on child-center learning whereas teachers should build the teaching atmosphere to be interesting while promoting the growth of students. Combs believed that teachers should have teaching objectives and should help each student to develop his/her positive thinking by himself/herself. However, this learning style did not pay attention on differences of students only but it also included with value and goals by focusing on participation in all learning procedures, problems solving, creativity, new contents, and sample group with participation of all members.

Learning Theory of Self-Directed learning

Learning Theory of Self-Directed Behavior could be classified into 2 types by considering on 2 foundations, i.e., one group emphasizes on individual's cognitive structure process while another group emphasizes on learning that is the social effect: 1) Cognitive Constructivism is Learning Theory of Cognitivist which Piaget emphasized on age and stages of development; 2) Social Constructivism is Learning Theory on intellectual development which Lev Vygotsky emphasized on external interaction and this theory is more limited than that of Piaget. From studying, it could be seen that our existing knowledge would be changed when we learn further. Knowledge adjustment is considered as the process of perceiving knowledge and adjusting it. For child-center learning, it does not mean that we will leave student alone but student will be emphasized as center or the most important thing of learning.

Utilization of Curriculum in Learning Management

For utilization of curriculum in learning management, the important procedure is utilization of curriculum in classroom. Besides principles and goals, some details are also defined in curriculum, for example, curriculum structure that is consisted of some courses that are necessary for students, learning duration, and criteria on learning result assessment. For contents, teachers must consider and prioritize contents of courses defined in curriculum importance of (Sequence) to be continuous upon characteristics of learning development including student's maturity, experiences, interest, necessary basic knowledge, difficulty of course contents, and skills or processes that are suitable with students in order to enable students to have knowledge and abilities upon general objectives and goals of the curriculum.

Lesson Planning

Lesson planning starts from studying on characteristics of the course content in the course details aiming to educate students on a particular topic and then set the details. To make the teaching of the teacher effective and enable learners to learn as defined, the lesson plan must have consistency among the key elements of the lesson plan. Determination on behavioral objectives will enable students to achieve goals and perceive abilities of students that can be used as the criteria for assessing how much learning students obtain and which parts should be added or improved. For learning, students should obtain the results of assessment on knowledge, abilities, and skills gradually during classroom teaching duration in order to perceive some information on students' learning achievement, abilities, and advancement of their skills as well as their attitude. All defects obtained from the results of assessment should be defined as the remarks for further improvement.

Teaching Design

To design teaching, it is necessary to rely on 3 major theories, i.e., general system theory, communication theory, and Learning Theory. Prior designing teaching or lesson planning, designer or related person and teacher must emphasize on analyzing students in various fields related to basic behavior of students as mentioned in characteristics of students, learning abilities, and their experiences in both individual and group level in order to make such teaching design to be complete and appropriate with students of each course. Procedures, principles, or methods of those theories' systems may be similar or different slightly or may have additional details for more efficient utilization.

Child-Centered Teaching

Child-centered teaching is a kind of teaching style helping to enable students to invent and seek for knowledge by themselves whereas teachers will define situations or environment as well as problems related to situations in order to stimulate or promote students to study and search for knowledge by themselves. This is considered as the good method to improve skills of students on thinking, knowledge seeking, consulting, and decision making. Learning management allowing student to learn individually upon his/her abilities and interest will be similar to direct teaching whereas students will learn and obtain knowledge from documents or tools supported by teachers for further research and study. Teachers will ask some questions and hold some related activities or allow students to study upon the worksheets given by teachers. When comparing, it is found that teachers will be able to provide large amount of knowledge, concepts, or principles.

Cooperative Learning

Cooperative learning is a kind of learning management emphasizing on child center which supports students to have reaction among one another and learn to work in group as well as be able to communicate to one another. The behavior of one friend would be able to stimulate or promote behavior of other friends in the same group. Teachers will group students with different abilities to be in the same small group for working together and learn together. To operate cooperative teaching emphasizing on learning achievement, teachers must test and give score to students gradually, i.e., cooperative learning is a kind of learning activity supporting and promoting interaction between teachers and students as well as interaction between student and student. Teacher will prepare documents and worksheets as well as facilitate learning for students. Then important objective of preparation of cooperative learning is to support and promote each student to have freedom on thinking and giving their opinions as well as participating in teamwork, cooperating, and helping one another to be successful with their group working.

DISCUSSION

Efficiency of these textbook was in high level as expected at 86.50/ 82.62 due to creation and development of such textbook. The researcher studied on basic data and analyzed work, contents, learners who were target group, and behavioral objectives prior planning on creation and development to meet those behavioral objectives under explanation and suggestions of content expert for inspecting accuracy of contents, language correctness, appropriateness of design, instructional methods, and presentation. Subsequently, the obtained lessons were improved, developed, and tried out with a small student group in order to find further faults for additional improvement and development prior performing field tryout with 40 students. The results showed that efficiency of textbook was 86.50/ 82.62 that was satisfying and met with expected hypothesis that was consistent with work of Chaiwat Waree (2016) This research aims to develop Education Course Syllabus, Thai language major, according to Buddhism way of Thailand by using Taba's Approach and to evaluate the efficiency of Education

Course Syllabus, Thai language major, according to Buddhism way of Thailand. The result of the evaluation on efficiency of Course Syllabus, Thai language major, according to Buddhism way of Thailand conducted by the expert showed that the quality of this syllabus was, in overall, in the highest level at mean = 4.62 and S.D. = 0.42.

Student's satisfaction towards textbook on the subject of Learning Management Process for educational students was in high level for all items because the research studied on psychology of learning of learners before planning creation of textbook. Subsequently, the obtained results were planned for creation and development of complete textbook that was consistent with work of Pantipa Patjangkata (2006) Development of Textbooks by using Cartoon on Product and Service Selection of Matthayom Suksa 1 Students of Ban Hua Mu School, Mahasarakam Educational Service Area 2.

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The Dynamics of *Tahfiz* Institutions: A Case Study of Three Best Practice Models of *Tahfiz* Education in Malaysia

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ABSTRACT

Amidst the modern and globalised world, the Malaysian Muslim society has become more aware of the importance and benefits of memorising the holy Quran. This has caused the emergence of many *tahfiz* institutions and centres around the country. This paper describes the standards and best practices discovered in three *tahfiz* institutions namely ‘Tahfiz Pondok Durani’, ‘Pondok Bustanul Ariffin’ and ‘Maahad Tahfiz al-Kayyis’. In doing so, the study employs the qualitative method through document analysis and in-depth face-to-face interview sessions with the principals. The paper concludes with a discussion on the roles *tahfiz* institutions and centres might play in producing a well-balanced generation, and the associated standards that would allow other *tahfiz* institutions to emulate.

Keywords: *tahfiz*, Quran, standards, best practices

INTRODUCTION

Recent developments indicate that *tahfiz* institutions and centres have started to gain special attention from the public (Basirah Abu Bakar & Mohd Yakub @ Zulkifli Mohd Yusoff, 2016; Noor Hisham Md Naw, Nur Azuki Yusuff, Mohd Binyamin Che Yaacob & Nasrul Hakim Salleh, 2014; Mohd Aderi Che Noh, 2017; Nordin Ahmad, 2015). Many of them are in existence following the responses to the reality of today’s fast-paced world

where life is very much secularised, and the Islamic values are becoming more trivial and insignificant each day. *Tahfiz* education is introduced to all who are interested, including children as early as six years old up to adults.

Islamic Education in Malaysia

In general, the development and implementation of Islamic education in the Malaysian context can be discussed from two angles which are before and after its independence. Historically, before the British era, the Malaysian education system among the Malays was mainly concerned with the teaching and learning of Islamic teachings and the Quran (Abdul Halim Tamuri & Che Pee Saad, 2008; Rosnani Hashim, 2004; Norlizah Che Hassan, Fathiyah Mohd Fakhruddin, Ahmad Fauzi Mohd Ayub, Lukman Abd Mutalib & Wan Marzuki Wan Jaafar, 2015). Thus, for the children, attending school was equivalent to learning Islam and Quran which were mostly conducted at the *surau* (prayer hall) led by an *imam* or *lebai* (local religious leaders or scholars).

Traditionally, the memorisation of the Quran has taken place in *pondok* (traditional religious school). Circa 1966, the first Malaysian Prime Minister, Tunku Abdul Rahman Putra al-Haj has founded the *Tahfiz* Institution, inspired by the visit of Sheikh al-Azhar Sheikh Mahmud Syaltut during his official visit to Malaysia to officiate the opening of the National Mosque (Norlizah Che Hassan, Fathiyah Mohd Fakhruddin, Ahmad Fauzi Mohd Ayub, Lukman Abd Mutalib & Wan Marzuki Wan Jaafar, 2015).

Huffaz and Tahfiz Institutions

Tahfiz institutions are centres that are “accountable in educating students who can memorize and recite the whole Al-Quran” (ibid., 2015, p. 235). According to Hamidah, Maheran, Abd Halim and Muhammad Mukhlis (2014), the number of *tahfiz* centres in Malaysia has increased from only 58 to 278 in twelve years (1999 – 2011). Furthermore, it is found that more than 91% of the number is privately owned.

Memorising the Quran is no easy task, and someone who manages to do so has a special place in Islam. According to Murihah Abdullah, Abdul Hafiz Abdullah, Arieff Salleh Rosman and Mohd Faez Ilias (2016), a *huffaz* (someone who memorises the whole of the Quran) has several responsibilities which include:

1. honesty and integrity towards the memorisation of the holy book of Quran.
2. being consistent in reciting and finishing the reading of the Quran.
3. frequently and habitually reading the Quran at night time.
4. ensuring the memorisation of the Quran stays in the memory.
5. upholding the image of a *huffaz*.
6. exemplifying good manners.
7. trying to build skills so as not to make the Quran a source of income.

According to Mohd Anuar Abdul Rahman and Norshahril Abdul Hamid (2011), the immediate surrounding of students is seen as an important element in shaping the personality of an individual. Thus, in order to build and shape a successful *huffaz*, many *tahfiz* institutions will set certain routines for students which include the memorisation schedule, time management, and also the other compulsory practices which must be adhered to by the students (Murihah Abdullah et.al., 2016). The routine is usually viewed as a group practice to create a suitable atmosphere for a *huffaz*. This kind of positive atmosphere will be the catalyst for students in memorising the Quran, and at the same time avoiding and blocking students from any negative or immoral elements.

In this era of the fourth industrial revolution, there are many challenges faced by humankind especially in ensuring the best education for the future generations. In fact, Azam Othman, Suhailah Hussien, Ismail Sheikh Ahmad, Adnan Abd Rashid and Mastura Badzis (2017) emphasise that in spite of the many ideals and aspirations portrayed in the 21st Century education, everything is very much “secular-oriented”, as “there is no emphasis on the students’ role as *Insan* and servants of Allah” (p.205). Although this is the reason why many parents resort to enrolling their children into *tahfiz* institutions which is to gain Islamic knowledge as a form of ‘protection’ in this demanding world, there are still negative, disapproving and pessimistic views regarding the operations of these institutions. Hence, this study proposes to look into the practices and operations of these institutions and highlight those with the best practices. The guiding research questions are:

RQ1: How are the *tahfiz* institutions managed?

RQ2: What are the characteristics of the *tahfiz* institutions deemed as having the ‘best practices’?

Thus, this paper presents the findings of a qualitative study that sought to share, impart and reveal best practices of selected *tahfiz* institutions that can be emulated by other institutions to ensure students at these institutions can be at par with students from the mainstream education system.

THE STUDY

This study was part of a larger life-long Islamic education project funded by the Ministry of Higher Education Malaysia that was designed to look at the existing life-long Islamic learning programmes and consequently offer suitable recommendations to promote better life-long Islamic learning culture in the Malaysian society. Besides the introduction earlier, this paper discusses the research context, research design and its findings based on the research questions posed. It ends with the discussion regarding the future of *tahfiz* institutions and some recommendations regarding the issue.

Research Context

Based on the data on SIMPENI (Islamic Education Information System Portal), a website managed by JAKIM (Jabatan Kemajuan Islam Malaysia), there are 669 registered *tahfiz* institutions in Malaysia (<http://simpeni.islam.gov.my/simpeniv2/index.php>). The research team went to the different zones in Peninsular Malaysia – North, Central, South and East covering 12 *tahfiz* institutions. This paper discusses the three institutions—Tahfiz Pondok Durani and Pondok Bustanul Ariffin, both located in the central zone, and Maahad Tahfiz al-Kayyis situated in the northern zone, which are deemed to have the best practices. This is elucidated in the research findings.

Research Design

This is a qualitative study whereby the researchers employed in-depth face-to-face interviews with the *mudir* (principals) of the *tahfiz* institutions, and also document analyses of the institutions' formal documents and websites or blogs. The document analyses also include photographs of the institutions and their activities.

RESEARCH FINDINGS

RQ 1: How are the *tahfiz* institutions managed?

Tahfiz Pondok Durani

Tahfiz Pondok Durani, located at Teras Jernang, Selangor is led by its principal, Tn. Hj. Nasir Malik. When asked what has made him sacrifice many things and set up the institution, he mentioned, *"I accidentally came across a book entitled 'Negeri Lima Menara' (A State of Five Towers) which describes Gontor, an Islamic institution in Indonesia—which amazes and inspires me to establish a tahfiz institution myself. That's how it started"*.

Despite the many challenges faced e.g. financial and staffing, Tahfiz Pondok Durani is still relevant, and it stands among the centres chosen by parents to educate their children. Indeed, its establishment is the response to the reality of today's world where life is very much secularised and Islam is marginalised. The institution's vision is to prepare its graduates and alumni to spread in a variety of fields, professions and vocations covering all aspects of life, contributing to the society, and at the same time, instilling Islamic values. The vision is hoped to be made a reality through the development of its students.

Students development at Tahfiz Pondok Durani is emphasised through three main components as described in

Figure 1.

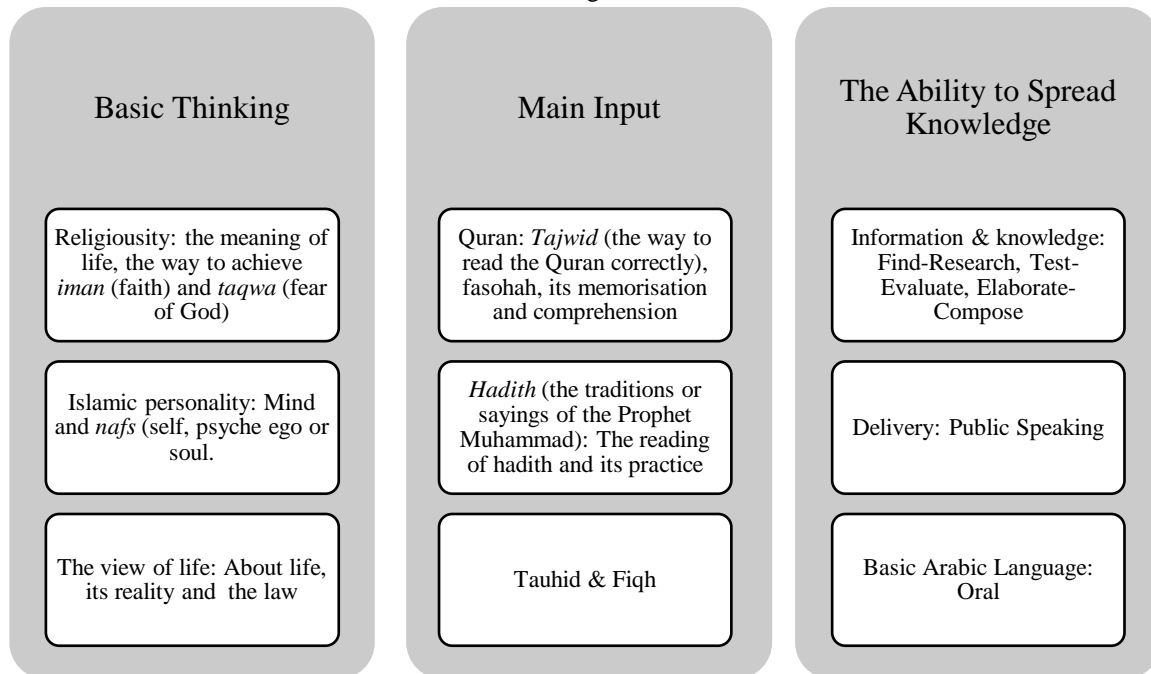


Figure 1: The Development of Students at Tahfiz Pondok Durani

These components, coupled with the vision and mission of the *mudir* (principal) as well as teachers and other school infrastructure, help in producing students who can memorise the Quran, indirectly building ‘self’ which consequently building the Ummah. Figure 2 below contains this aspiration.

TAHFIZ PONDOK DURANI						
Target					Process	
A BUILDING SELF						
A1	Level of Achievement	Know & knowing	Understand & Practise	Appreciate & Spread	Faqih (a Muslim theologian versed in the religious law of Islam)	Evaluation, Tazkirah (A brief talk (about the religion of Islam) as a reminder, Tests
A2	Development					
	A2.1 Basic Thinking	Knowledge	Iman (Faith)	Taqwa (Fear of God)	Religiosity	Forums & Discussions
		Akidah (formal statement of faith)	Fikrah (daya berfikir)	Nafsiyyah	Sahsiah (Whole nature or character of a person /	Workshops and Practices

				Personality)
	About life	Reality	Law	View of life
A2.2 Basic Intelligence	Research	Know	Understand	Manage – Use
	EQ	IQ	PQ	
	Feelings	Situation	Activities	
	Self & others	Challenges, thinking & chances	Sports & entrepreneurship	
A2.3 Main slots	SQ			Lectures
	Quran	Memorise 30 juz >> Know Harfiah >> Understand > Practise		
	Hadith	Selective memorisation >> know Interpret >> Understand > Practise		
	Tauhid & Fiqh	Learn >> Know > Understand > Practise		
A2.4 The Ability to Research, Test & Spread Knowledge	Internalising knowledge	Arrange - Adapt	Use of Techniques	Think, Compose, Deliver: Public Speaking Workshops & Practices

B

BUILDING THE UMMAH

(Based on Tahfiz Pondok Durani's school booklet)

Figure 2:

According to the principal, new students entering the centre will be asked about basic Islamic knowledge to gauge their level of understanding towards Islam in terms of *Rukun Islam* (the Pillars of Islam), *Rukun Iman* (the Pillars of Faith), and *Solat* (Prayers).

The principal also assimilates his past managerial experience as a manager in a big factory into the management of the *tahfiz* centre. He includes some western approaches in running Tahfiz Pondok Durani.

"I include Peter Sach's Organisational Learning, Process Thinking, Personal Mastery and also Ungku Aziz's Thinking Model. We will discuss the khutbah (the primary formal public preaching in Islam carried out at (noon) congregation prayer on Friday). We also have public speaking on Saturdays".

These sessions assist in generating more well-rounded individuals who can be involved effectively in intelligent discussions and debates. In addition, with the help of some parents, for example those who own a car workshop, who offer their expertise to teach students skills such as fixing the car, students are also exposed to acquiring living skills, apart from the religious knowledge they obtain at the institution.

Pondok Bustanul Ariffin

'Pondok Bustanul Ariffin' is a well-known *tahfiz centre*, not only among the local community but also among Malaysians as a whole. It is located in Kampung Labuhan Dagang, Banting, Selangor, Malaysia. This *tahfiz* centre has been in operation since 2003 on a 3 ½ acres of land. The current enrolment is around 200 students which include foreign students from Aceh, Cambodia and Egypt, while its alumni have reached around 2,000 of

which some have come back and offered their services to the centre itself, and others who pursue their studies in and out of Malaysia.

With its comprehensive mission and vision of ‘Knowing yourself, thus knowing your God’, the centre has made it clear to the students that they will be guided in the path of Islamic teachings. In making this a reality, the centre employs capable and dedicated teachers which include the alumni of the centre, al-Azhar University graduates, and also others who are qualified to teach Islamic knowledge subjects. The daily schedule at the institution starts as early as 4.30 a.m. with *Solat Tahajjud* (night prayer), reciting the Quran and performing other *sunat* (non-obligatory) acts of worship, and *Solat Subuh* (fajr prayer). Then, at 8 – 11 a.m. the students will go into their respective classes. At 12, all students are made compulsory to have *Qailullah* (a nap before *Zuhr* prayer which was practiced by Prophet Muhammad S.A.W.). After lunch and *Solat Zuhr* (noon prayer), students will continue with classes until 4 p.m., and then they will recite the Quran again and also perform *Solat Asr* (afternoon prayer), before having their daily leisure sports activities such as playing football, archery and paragliding. Apart from that, students are also involved in the institution’s Arabic Language Club to improve in the language of the Quran.

The principal holds a B.A. Syariah degree from Al-Azhar University, Egypt and has a broad experience as a religious teacher. He has also undergone additional periods of *ilm*-seeking at different institutions which include 4 years in Terengganu, 4 years in Thailand and another 4 years in Syria. All these experiences and religious knowledge that he has gained contribute to the way he manages Pondok Bustanul Ariffin, its study system and also its students of various backgrounds. The principal has also gained the trust from parents who face problems with their children such as drug addicts or ex-convicts, to assist in their moral rehabilitation through the Islamic ways.

In addition, due to the centre’s location and its wide space, it is possible to integrate valuable skills such as wiring, welding or flooring for the students to learn as an additional element. There is also a palm oil plantation area which students help to work on, and get the benefits too. This will allow the students to be equipped with living skills that enable them to have added values.

Madrasah Tahfiz al-Kayyis

The *tahfiz* institution is located in Pulau Pinang, the northern part of Malaysia. It is managed by the *mudir* - Ustaz Zolkarnain Tan. The teaching staff include himself, his wife and another teacher who is from Egypt. Currently, there are 53 students in the institution – 30 boys and 13 girls. The boys are based in the old mosque while the girls are in a single-storey bungalow house about three kilometres away. Formally, Al-Kayyis was established in December, 2004. Since then, 150 students have graduated where all of them have successfully memorised the 30 chapters of the Quran.

Al-Kayyis embraces the vision of ‘Developing an excellent *huffaz* (a person who memorises the Quran) cum a survivor/an educator. Thus, the *mudir* ensures that the *tahfiz* is run in line with the vision. He employs the deoband system in the *tahfiz*. Ustaz Zolkarnain studied using the same system in Pakistan for 11 years, thus he believes that it produces excellent *huffaz*. This effort has been proven very successful as the number of *huffaz* produced by Ustaz Zolkarnain has reached 150 in its 13 years of operation.

Ustaz Zolkarnain did not come from a well-to-do family, therefore, he had to struggle to be what he is today. He did all kinds of jobs, from cooking to being a factory worker. However, at the same time, he was always invited to be the *imam* for *terawikh* prayers (prayers done in the month of Ramadhan). His life experience has taught him to be independent. He believes in ‘the hand that gives is better than the hand that receives’. In other words, he trusts that independence leads to success. This is evident in his management of the *tahfiz* where everything is run by the students – they cook, clean, wash their own clothes, entertain guests and others. Ustaz Zolkarnain relayed that once he received 40 guests and all was handled by his students. He said “the guests couldn’t believe that his students did the cooking. They called the students and asked. They praised: *sedap* (delicious)”. Furthermore, when we visited the two locations of the *tahfiz* – the mosque and the house, both were clean and

spotless, even the kitchen. They have to follow the timetable strictly. Besides doing the everyday living skills, the students are also exposed to horse riding. It is one of the Prophet's *sunnahs* (activities done and favoured by the Prophet). Ustaz Zolkarnain has two horses behind his house where every day, 6 students take turn to practise horse riding. He said "they could also be jockeys".

The students can usually memorise the Quran between 2 to 5 years. Once done, they can continue to take the mainstream exam and pursue their studies. In fact, one of the earlier students is doing his doctorate degree. Ustaz Zolkarnain admitted that not everyone can complete the 30 chapters of Quran memorisation. To those who cannot, he gives them a choice. He shared "if they cannot complete, I give them a choice, to stay, behave and try to complete it ...or to have the opportunity to work". He then revealed that he has set up the business wing of the *tahfiz*. This includes the drinking water factory, the clinic, the sundry shop and the fish-rearing business.

It can be surmised that the students' exposure to being independent at the institution and also the setting up of the avenues for jobs by Ustaz Zolkarnain are steps in ensuring that the students' future is guaranteed and the institution's vision and mission are realised.

RQ2: What are the characteristics of the *tahfiz* institutions deemed as having the 'best practices'?

Based on the findings in RQ1, the researchers have ascertained several key characteristics identified as the 'best practices' in the selected *tahfiz* institutions. These characteristics include:

Characteristic 1: Broad Mission and Vision

It could be seen from the case study of the three *tahfiz* institutions that each of them has very clear mission and vision which is mainly to produce a generation of students who are steadfast in upholding the Islamic teachings and values, as well as producing a generation of *huffaz* who will preserve and practise the content of the holy book of Quran.

Characteristic 2: Motivated and optimist *Mudir* (principals)

All principals of the selected *tahfiz* institutions are far-sighted individuals who have good judgment about what is relevant in today's world, and what will be needed in the future. They are the anchor persons of the institutions, who inspire and aspire the students and also the direction of the institutions. They are also wise in making decisions, and in managing the institutions that despite the challenges faced, the institutions remain relevant and significant to the community.

Characteristic 3: Proper Time and Institutions' Management

It could be seen that all the institutions stress on appropriate time and institutional management—a crucial element that is also given paramount emphasis in Islam. This could be seen through the daily learning schedules arranged for the students, and the running of the institutions encompassing the daily routine as well as the broader management implications of risk to the institutions.

Characteristic 4: The Shaping and Development of Students

In line with the main objective of the establishment of the institutions, which is basically to revert to Islam in every aspect of life, all institutions place emphasis on the spiritual development of the students according to Islam and the Quran. Once they possess a solid foundation of the religion, they will better understand their existence as *khalifah* (servant and representative of Allah) in this world.

Characteristic 5: Integration of Living Skills

Islam is a way of life. Even though the ultimate purpose of humans' life is to obtain the blessings of Allah, Islam does not disregard the importance of living in this world. In fact, it teaches its followers to work and study hard as if they will live forever, and to serve Allah as if they will die tomorrow. This signifies that Islam puts emphasis on a balanced life. It could be observed that all the *tahfiz* institutions offer some choices of skills e.g. wiring, welding, business etc. for the students to acquire, along the journey of learning about Islam.

Discussion and Conclusion

Tahfiz institutions are seen as alternative education centres for Malaysian Muslim parents who feel that the modern, fast-paced world of today would jeopardise their children's well-being. These institutions are also viewed as worthy efforts in ensuring the balance of physical and spiritual needs of the future generations, as well as fulfilling their needs and necessities of the world and the hereafter. Nevertheless, these institutions are often criticised for being disorganised and unsystematic. This study aims to highlight some best practices of *tahfiz* institutions. Based on the research that was carried out, it can be concluded there are several key characteristics identified as the 'best practices' of selected *tahfiz* institutions. These characteristics include: 1) Broad Mission and Vision, 2) Motivated and Optimist *Mudir* (Principals), 3) Proper Time and Institutions' Management, 4) The Shaping and Development of Students and 5) Integration of Living Skills, as discussed in the Findings section.

For leaders of Islamic educational institutions, the key challenge is to meet major challenges of the 21st century while upholding the ideals of the Islamic integrated education system and realising its noble objectives. At present, a standardised framework of implementation for integrated Islamic educational institutions that is considered to be wholly accepted by Muslims is still lacking. The absence of such a framework makes it challenging for Muslim parents to make better choices for their children's education. Thus, based on the characteristics highlighted in this study, at least other *tahfiz* institutions can emulate, and pattern themselves after these *tahfiz* institutions' best practices.

Photographs of the selected *tahfiz* institutions.

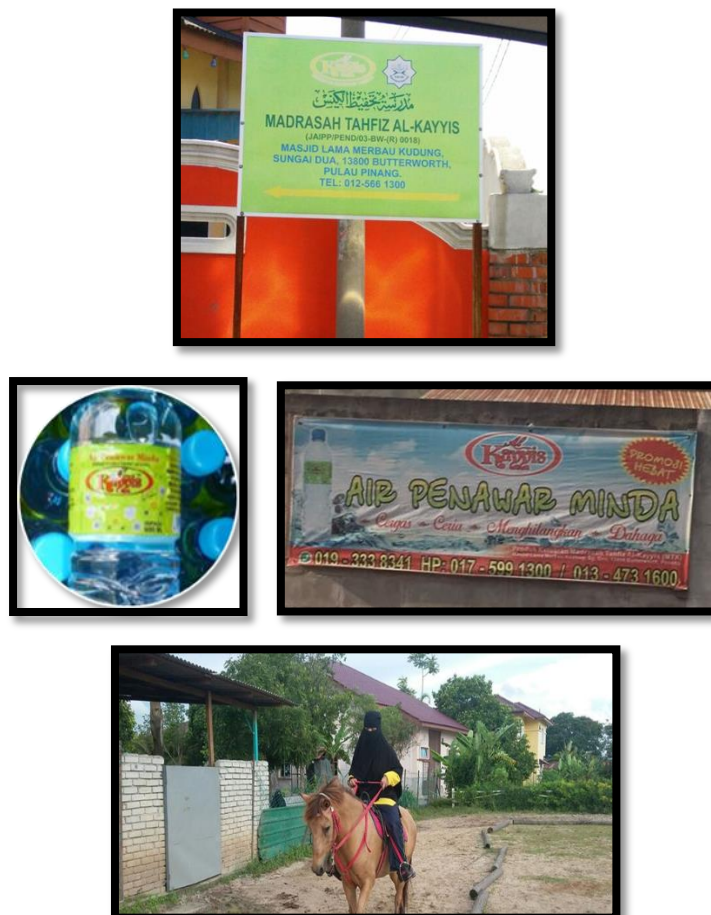
Tahfiz Pondok Durani



Pondok Bustanul Ariffin



Madrasah Tahfiz al-Kayyis



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The Education of Enlightenment – with Specific Regard to Musical Education

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ABSTRACT

Considering the ideas of the Age of Enlightenment and their consequences from a social historical aspect, various different conclusions can be drawn. The effect of Enlightenment on the education system, which was almost exclusively under ecclesiastical authority at the time, has scarcely been studied. The aim of my study is to analyse the influence of the decrees issued during the reign of Maria Theresa and Joseph II and to present the characteristics of contemporary music teaching. I introduce the contemporary practise of music teaching on the basis of materials found in the University of Vienna Library, with specific regard to the use of church songs, which had a direct effect on the music teaching material of elementary schools and norm schools. The latter were contemporary training institutions for elementary teachers, based on Ignaz Felbiger's work. The materials and standard of music education in the schools of the Empire were fundamentally determined by the teachers' musical culture and knowledge of church songs.

The two axioms of Enlightenment are reason and usefulness. As a result of the new way of thinking and attitude to life, there was a surge of religious poetry in the protestant areas of Germany in the first half of the 18th century. This poetry also became popular in the Southern German region of Catholic majority. New, joyful major tunes were composed to the new poems, which suited the new world-view and sense of life.

The teaching of music and the customs of church singing, which were closely related to each other, underwent a great change not only in the Hapsburg Empire but also in Hungary. Several of the songs which became "fashionable" at that time can still be found in the songbooks of various denominations. These songs are popular even today and are happily sung in our churches by the congregation, regardless of denomination. In conclusion of my paper, let us listen to some of the most beautiful of them.

INTRODUCTION

The ideology and influence of the age of Enlightenment can be analysed from several aspects. My paper focuses on 18th century musical education, which was in close connection with contemporary church music and singing. This is how Immanuel Kant, probably the philosopher with the greatest influence in his age, summarises the ideological basis of Enlightenment in his essay entitled "What is Enlightenment?" published in 1784:

"Enlightenment is man's emergence from his self-imposed nonage. Nonage is the inability to use one's own understanding without another's guidance. This nonage is self-imposed if its cause lies not in lack of understanding but in indecision and lack of courage to use one's own mind without another's guidance. Sapere aude! Dare to know!" This imperative from Horace became the motto of Enlightenment.

THE CONSEQUENCES OF ENLIGHTENMENT FOR CHRISTIANITY

The importance and significance of Kant's work on European thought is indisputable; however, for deeply believing Christians, Enlightenment is a concept evoking painful associations. It first brings to mind the French Revolution, which degraded the Nôtre Dame Cathedral in Paris to the temple of the Goddess of Reason and sent pious monks to be beheaded under the guillotine, the "civilisational achievement" of the age. As for examples closer to home, we could mention the decrees issued by Joseph II, (1780-1790) Hungary's 'king in the hat', which led to the opening of a casino in the monastery church of the Carmelite order in Buda, as well as his instructions regarding church music, which destroyed the one-and-a-half-millennium tradition of Gregorian chant. (Dobszay, 1999)

Education, which, as we know, was primarily under ecclesiastical authority at the time, and was responsible for the teaching of music, which was the depository of church music, underwent crucial changes.

My paper focuses on the changing repertory of songs and the reforms regarding church music, based on the decrees of Maria Theresa (1740-1780) because

- on one hand, similarly to several other figures of the age of Enlightenment, this well-educated monarch believed that improving the standard of education was the solution for society's problems. (Kéri, 1996, p. 48.)
- on the other hand, their influence can still be felt today: the customs of church singing changed not only in the Southern German region but also in Hungary. Several of the songs which became "fashionable" at that time can still be found in the songbooks of various denominations. They are popular even today and are joyfully sung in churches, regardless of denomination. (Antonicek, 1980)

MARIA THERESA'S CHURCH REFORMS

She issued decrees concerning the church from the beginning of her forty year-reign. Even though she was a well-educated musician herself, her interference with the issue of church singing was largely motivated by political and ethical reasons. She intended to mitigate the excesses of Baroque religious life by significantly reducing the number of church holidays, in great agreement with Pope Benedict XIV. On the other hand, she ordered numerous prayer times as well as praying and thanksgiving (Te Deum) church services. Arranging her prayer decrees in chronological order, we get the chronicle of the wars she waged during her reign. (Hollerweger, 1976. p. 63-65.) On June 15, 1768, she approved the secret instruction for the construction of her state church system. It meant that thence, the internal affairs of the Catholic Church only consisted of the preaching of the Gospels, religious education, the ethical discipline of the priesthood and administering the Sacraments and the masses and other church services providing the framework for the above. The state claimed the right to oversee all the other activities of the church. The direct continuation of this trend was the Ratio Educationis, issued in 1777, the introduction of which does not constitute the topic of this paper. Suffice it to say that this was the time when institutional education first came under state control. (Burger, 2002)

THE SPREADING OF CATHOLIC RELIGIOUS POETRY AND HYMN TRANSLATIONS IN VIENNA

In 1774, the Consistory of Vienna commissioned former Jesuit monk Michael Denis to compile a new songbook. Denis composed 17 lyrics in the new religious spirit, but these did not contain sheet music as they were marked with *ad notam*, which meant that they could be sung to the tune of well-known songs. The majority of them were paraphrases of similar songs for similar occasions in the spirit of enlightened Catholicism. (Horak, 1991)

However, these popular tunes were relatively new, originating from the end of the 17th or the first half of the 18th century and were mostly joyful major tunes, which suited the new world-view and sense of life. Furthermore, the material of the song collection also reflects the new attitude in the following aspects:

- the ecclesiastical year was represented by songs for the most important holidays,
- the cult of Mary was restricted to only three songs,
- songs of the saints were represented by a single song: that of St. John of Nepomuk, who was the favourite saint of the age.

However, song for various occasions appeared:

- for rain,
- for good weather,
- during a time of great expenses and war,
- miscellaneous songs to be sung in all kinds of trouble.

MARIA THERESA'S NOTATION HYMNAL (1776)

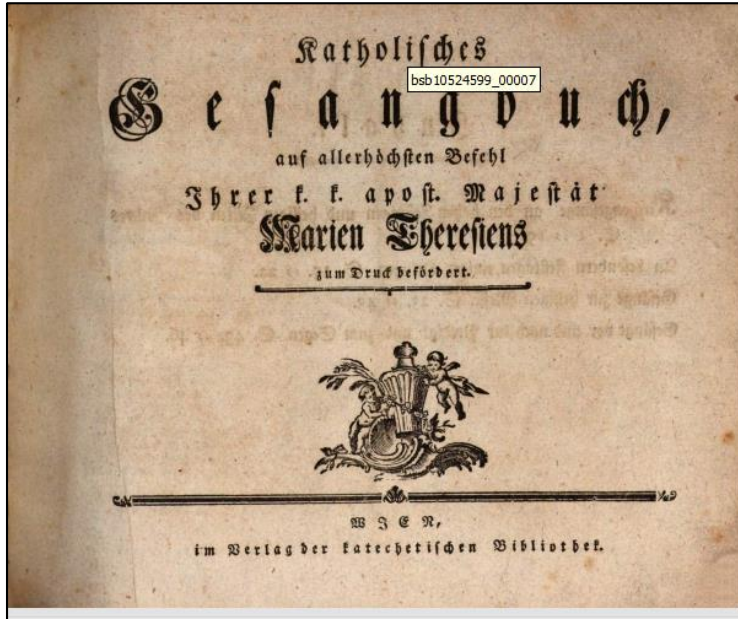


Figure 1 Maria Theresa's Notation Hymnal 1776

Denis completely replaced the Baroque or traditional lyrics, but the songs remained connected to the tradition by the well-known tunes. Marie Theresa's notation songbook (1776) presented completely new tunes to match the new lyrics, thus completely severing the connections to tradition. The influence of this is also obvious in music teaching in schools. (Bäumker, 1962)

Even after two centuries, it is still a mystery for church historians why the editor of Marie Theresa's songbook had ignored Denis's sophisticated poetry and preferred poems by Ignaz Franz (1719-1790), a vicar of Silesian origin, along with others by unknown authors. It would be interesting to find out the reason for the Monarch's decision particularly because in some of Franz's poems, the reader is shocked by their simple-mindedness and triviality already in the first line. (Watzatka, 2012)

For example:

Da wir nunmehr gehört die Messe, wie man soll / We have attended mass, as is fit...

Ich geh aus meinem Schlafgemach / Going out of my bedroom...

Ich glaube fest und zweifle nicht / I believe strongly and doubt not ...

Zum reinsten Opfer ruft die Pflicht / Duty calls for the purest sacrifice ...

Several similar examples could be listed. These lyrics reveal an apparent cultural historical contradiction: it was precisely the pursuit for rationality and common sense that allowed the silliest and most trivial lyrics to spread widely. It attests to the good taste of churchgoers that only a few decent poems from Franz several volumes remained in use for a longer period, whereas Denis's songs were sung for over one hundred and fifty years.

Ignaz Franz also had a direct effect on the music teaching of the age. This prolific poet not only composed songs to fill several songbooks [in his rather primitive style], but also had a good relationship with Johann Ignaz Felbiger, who invented and constructed the system of norm schools.

The norm school complex was an educational institution consisting of several branches which, according to the 1777 Ratio, had to be organised in the seat of every school district. The educational profiles of the branches created a complex education and training system. The branches were the following:

- a) primary school;
- b) teacher training branch;
- c) drawing school: young people and citizens working in the guilds that took part in the training were taught technical-industrial drawing or artistic painting and graphics, and to teacher trainees, calligraphy and board

drawing;

d) music school: those participating in the training and teacher trainees were taught church singing and (organ) music.

As future teachers had to be prepared/trained to teach singing in elementary schools, Felbiger compiled a set of songs for school use from Franz's poems called »Normaschulgesangbuch«, (Norm School Songbook). This volume was in use in Vienna for decades and provided the songs and lyrics to be taught at schools for generations. Unfortunately, this collection of songs determined the musical culture of elementary school pupils and future teachers and through them, public taste, in a way that could hardly be called sophisticated. (Daragó, 2015)

TUNES IN THE HYMNAL



Figure 2 Notation Maria Theresa's Hymnal

The Hymnal/Hymnary contains settings for two female voices and continuo and the most of them were composed in major tonality. The instrumental-like music is dominated by eighth and sixteenth values. The musical structure of the hymns is not homogenous. However, the singing voices generally move parallel in third and sixths intervals, the voices end accidentally by five- or six-note chords. This decreased use of polyphony and the melismatic, more song-like melodies of the voices and its ornaments refer to the galant style obviously. The suspension is also a typical musical gesture at the end of the passages.

The Style of the Hymnal is also not homogenous and does not reflect any kind of ecclesiastical (not to mention liturgical) manner. (Watzatka, 2006)

CONCLUSIONS

The church reforms of the second half of the 18th century, and particularly the reforms of church music, closely related to them, were conceived in the spirit of enlightened absolutism. The customs of church singing changed not only in the Southern German region but also in Hungary. Several of the songs which became "fashionable" at that time can still be found in the songbooks of various denominations. These songs are popular even today and are happily sung in our churches by the congregation, regardless of denomination.

The two axioms of Enlightenment, reason and usefulness affected the people of the age in a way that they did not become atheists but started to orient themselves along the principles of reason and practicality also in the matters of belief: they wanted to understand their belief and make it an everyday practice in their lives.

Interference by the musically educated monarch with matters of church singing was motivated by political and ethical reasons rather than by aesthetic or musical sophistication. Nevertheless, people were not receptive to the replacement of the entire set of songs either in Austria or in Hungary. New lyrics were welcomed, but traditional tunes were often preferred to the new ones. Aggressive reforms were opposed almost everywhere, but those remaining in touch with the traditions were accepted. Lyrics by Denis, which touched spiritual depths, were preferred to those by Franz, which rhymed but were too simplistic and naïve and only became popular with norm-schoolers.

It is interesting to note that some well-crafted songs by Ignaz Franz immediately became popular and have remained so until today in German-speaking areas: »Herr, ich glaube, Herr, ich hoffe«, (My lord, I believe and hope ...), as well as a Te Deum in verse; »Großer Gott, wir loben dich«.

With some additions, these songs comprise the basis of the set of songs that determined church singing from the end of the 18th century for the next one and, at some places, even up to the beginning of the 20th century. Thus they also determined the teaching of music and singing in the Hapsburg Empire as well as in Hungary, which constituted its part.

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The Effect of Birdwatching Activities on Systematics Terms Learning in Biology Courses

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ABSTRACT

A person must know some biological terms for bird watching. Also, specialize in bird watching contribute to improving the biological knowledge on birds. A number of biological terms can be easily learning by student in such activities. The contribution level of structured bird watching activities on student knowledge was investigated in this study. A class which consist of 30 undergraduate biology students were separated to almost equally three groups. First group joined to structured bird watching activities under control of an Ornithologist beside classroom courses. Second group joined only classroom courses and the third joined only bird watching courses. The terms were explained with examples in both courses. The students took an exam related to eight terms of systematics after courses. The exam was evaluated over 100 point. The students who joined both courses have highest achievement (85.2) between groups. The average exam score of other groups 65.5 and 71.5 respectively. The results show that the coupled courses have positive impact on learning of student. However only structured bird watching activities (groups third) are more effective than classroom courses according to study results. In conclusion, the outdoor educations such bird watching can be the best way to teaching for some biological terms. Because of this results, the biology curriculum can reconstructed according to this drawback.

INTRODUCTION

The informal outdoor education and activities can be effective way to advance learning in science (Knapp and Barrie, 2001). The ultimate goal of environmental and ecological education, other than to generate knowledge, is to develop students' awareness and concern about the total ecosystem and its associated problems and to shape students' behavior concerning the environment and conservation (Bogner, 1998). Outdoor learning in biology most often take place at specific places away from ordinary school surroundings, as field trips or visits to outdoor/environmental education centers (Fägerstam and Blom, 2013). Biology has traditionally had strong connections with fieldwork and outdoor education activities dating back to early naturalists (Cotton, 2009). Fieldwork, where whole organisms are studied, enables integration of different elements of biology showing how the biological jigsaw functions. Biology is an experimental subject, and whole organism ecological studies provide an opportunity to investigate and collect data on a topic – often intensively, over prolonged periods, in great breadth and depth. Fieldwork offers students a particularly good opportunity to collect numerical data on a large scale, either working individually or in groups, and to subject the data to statistical analysis in an open-ended manner (Barker et al., 2002). Previous research indicates that learning biology outdoors might have positive effects on both knowledge and attitudes toward biology (Fägerstam and Blom, 2013). However, fieldwork can improve student's better retention of acquired knowledge (Mackenzie and White, 1982; Nundy, 1999); enhanced motivation and higher-order learning (Kern and Carpenter, 1986); and development of practical skills (Kent et al, 1997). Despite these acknowledged benefits, published evidence suggests that bioscience fieldwork is on the decline in both higher education (Smith, 2004) and in schools and colleges (Tilling, 2004; Lock, 2010). Birdwatching is a form of wildlife observation in which the observation of birds is a recreational activity. It can be done with the naked eye, through a visual enhancement device like binoculars and telescopes, by listening for bird sounds. Birding activities may be designed to address several goals of the science curriculum: adaptation, comparing and contrasting animals and animal life cycles, to name a few. It may also serve as an inspiration for art and writing lessons (Dow, 2013).

The base of study is investigate the effect of bird watching activities on the learning systematic terms in biology lessons.

Problem Statements;

Do bird watching activities (BWA) catalyze the learning of systematics terms in biology lessons?

Do BWA's increase the achievement of student in biology lessons?

Are BWA's better than classical learning methods to learning systematics terms?

THE STUDY

This survey was conducted in the autumn of 2016. Data were gathered from students enrolled in courses at the class and bird watching activities at the Hacettepe University. To evaluate the impact of the programs had on students' knowledge toward the systematic terms, a quasi-experimental design (Isaac and Michael, 1995) was

implemented using an evaluation instrument that included 8 open ended question. Tree undergraduate biology (third semester) class of students finalised their themes about systematic and classification of living things at Invertebrates Courses. The 30 students were selected from two class and split to three groups which are almost equal in terms of; numbers of student; each groups consist of ten students, academic standing, age, gender distribution (Table 1).

Table 1: Characteristics of each group

Group	Number of Student (N)	Average Academic Standing (Over 4)	Age	Gender Distribution (F/M)
I	10	3.02±0.56	19 - 22	5/5
II	10	3.14±0.48	20 - 22	5/5
III	10	3.09±0.65	20 - 23	5/5

The study was designed at the four step as pre-test, course, activities and post-test (Table 2). Each group took a same exam (pre-exam) which consist of eight open ended questions about systematic terms, prior to attending the bird watching activities. First and second group attend a presentation class together in related to systematics. After two weeks that, first and third groups joined to bird watching activities together. All group took the same exam (post-exam) again next to the end of the course program. At the end of the program it was expected that students would be able to describe the systematic terms; subspecies, biological species, genus, family, order, classis, phylum and kingdom. To easily evaluating the exam results, each question was over 12.5 point, the total of exam on the scale of 100. The answer of each questions were divided four part. Each part has equal point. The questions are;

Explain “Biological species” term over an example?

Explain binomial nomenclature with an example?

Explain subspecies term with an example?

Explain sibling species with an example?

What does Tetrapod mean vertebrate systematic?

Explain “Phylum” in a systematic order?

Explain “Kingdom” in a systematic order?

Explain “Genus” in a systematic order?

We used different statistical test to investigate each group condition pre- and post- activities and exams. To comparing and evaluating the gathered data following tests was used; test of normality, determining for distributions of mean value; independent sample T – test for differences between two groups; one way ANOVA, for comparing of three groups each other; and Post – Hoc Test, the relations between groups.

Table 2. The steps of study design, the are eight weeks between first and last steps.

Step	Group I	Group II	Group III
I	Pre - test	Pre - test	Pre - Test
II	Course	Course	-
III	Bird watching activities	-	Bird watching activities
IV	Post – Test	Post – Test	Post – Test

FINDINGS

“C___ [male], I hope I’m doing this right. I thought your observations were right on target. I subbed for high All students took in pre- and post- examinations consisting of eight open ended questions. According to the pre-test results shown in Table 3, the average scores of the groups are close to each other. In terms of group scores, all the questions were in normal distribution and there was no statistically difference between the students according to their average scores ($p > .05$). The second group achieved the highest score, while the third group received the lowest in the pre-test the. The difference between the lowest and highest mean scores of groups is 2.8. This low score difference is another proof that students do not differ from each other in terms of preliminary information. According to the test results, the average scores from the questions are not dependent on the sex and the academic standing of the student.

The first and third group participated in bird watching activities. The number of species observed by the days in which the groups participated is shown in Table 4. At the end of four different observation days (DOA), first group observed 27 and the third group observed 24 bird species. In both groups, systematic terms are explained with appropriate examples. In terms of these results, it can be said that the groups participated in very similar activities and that they observed enough bird species to explain the related terms. In each activity day, different terms were tried to explain to the students with examples. Table 4 shows the number of terms processed during the days of activity.

Table 3. Distribution of students' scores according to groups and questions from the pre- and post-exams and the percentage (%) of difference (-) between the two exams.

Questions	Group I				Group II				Group III			
	Pre-	Post-	-	%	Pre-	Post-	-	%	Pre-	Post-	-	%
1	6,10	10,95	4,85	44,29	6,35	10,00	3,65	36,50	6,20	7,20	1,00	13,89
2	6,10	11,30	5,20	46,02	6,60	9,90	3,30	33,33	5,90	7,15	1,25	17,48
3	6,15	11,15	5,00	44,84	6,55	9,65	3,10	32,12	5,65	7,10	1,45	20,42
4	6,15	11,10	4,95	44,59	6,20	9,80	3,60	36,73	5,75	7,30	1,55	21,23
5	5,45	11,10	5,65	50,90	6,40	10,15	3,75	36,95	5,60	7,45	1,85	24,83
6	5,55	11,45	5,90	51,53	6,10	10,10	4,00	39,60	5,95	7,25	1,30	17,93
7	6,20	11,55	5,35	46,32	5,90	9,85	3,95	40,10	6,55	7,30	0,75	10,27
8	6,65	11,40	4,75	41,67	6,25	9,90	3,65	36,87	5,95	7,25	1,30	17,93
Average	6,04	11,25	5,21	46,27	6,29	9,92	3,63	36,53	5,94	7,25	1,31	18,00

Table 4. Total Number of observed bird species (NOBS) by groups by activities and number of explained systematic terms (NOET).

Groups	I.DOA		II.DOA		III.DOA		IV.DOA		Total	
	NOBS	NOET	NOBS	NOET	NOBS	NOET	NOBS	NOET	NOBS	NOET
I	12	2	26	1	22	3	27	2	27	8
II	-	-	-	-	-	-	-	-	-	-
III	21	2	18	1	24	4	23	1	24	8
Total	25	2	27	1	25	4	27	2	27	8

After bird watching activities, all groups took to the same exam again. As expected here, the students were highly successful compared to the first test (Table 3). Similarly, the first test on the post-exam shows normal distribution of the scores from the questions, and gender is not a statistically significant factor on the scores ($p < .05$). According to the results of the post-exam, the average score of the first group participating in both courses and bird watching activities is statistically different from the others ($p < .05$). The first group increased the success rate by 46.27% according to the pre-exam and increased the average score per question from 6.04 to 11.25. Likewise, there is a significant increase in success in the second group. However, the change in success in the third group is quite low. There was no statistically significant difference between the groups in terms of the results of the pre-exam, but the third group was more unsuccessful than the other groups according to the results of the post-exam. On the other hand, the third group is 18.0% more successful than the pre-exam in the post-exam.

CONCLUSIONS

The results show that students participating in both the classroom and the outdoor activities are more successful than the students who participate in the open field or only in the classroom. The fact that the first group is more successful than the others can be explained by the participation in more training hours. However, when looking at the second group participating only in the courses or the third group courses participating only in the observations, it is seen that the courses that are performed together with the outdoor have a positive contribution to the success of the student. On the other hand, the classical education in the second group, the third group, showed higher success than the students who participated in the outdoor activities only. When conducted alone, it is seen that the success rate of classical inferior education is higher than that of outdoor education. When these two training methods are carried out together, the success of the students increases as seen in our study.

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The Effect of Curriculum Framework on Water Resource Management and Water Disaster of Secondary Schools

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ABSTRACT

The study aimed to investigate the effect of teacher training curriculum framework on water resource management and water disaster of secondary schools in Khon Kaen province, Thailand. There were two groups of sample involved to measure the efficiency of teacher training curriculum framework. The first group was comprised of 56 science subject teachers and the second group consisted of 147 Grade 9 students from three different sizes of school. The 56 teachers were equally distributed into experimental and control groups using multi-stage sampling technique while the 147 students were from large, medium, and small sized schools under the administration of Khon Kaen Educational Service Area Office 4. An experimental research pre-test and post-test non-equivalent control group design was employed. Data was analyzed using independent samples t-test and one-way ANOVA to Science subject teachers and Grade 9 students respectively. Results indicated that the teachers who participated in the developed teacher training curriculum workshop showed a better knowledge and skills on preparing learning units with integration water resource management and water disaster compared to non-participating teachers in the control group. Likewise, there was a significant difference between students who followed (experimental) and who did not follow (control) the curriculum framework using learning unit of water source and natural disaster content regardless their school size.

Keywords: Knowledge; teacher training curriculum framework; water disaster; water resource management

INTRODUCTION

Thailand is a tropical land as part of the Indochina peninsula, is bordered in the north by the Lao People's Democratic Republic (Lao PDR), in the south by the Gulf of Thailand and Malaysia, in the east by Lao PDR and Cambodia, and in the west by the Andaman Sea and the Union of Myanmar. The total land area is about 512 000 km². Thailand is an agriculture-based with more than 60 percent of the population engages in agriculture, yet agriculture production accounts for only about 12 percent of Gross Domestic Product (GDP) according to Sethaputra, Thanopanuwat, Kumpa and Pattanee (n.d.). However, water demand continues to grow in Northeast and Central Plain are the two of the four regions experience frequent droughts, and flooding also occurs more frequently because of deforestation and rapid economic development in the past decade.

Recently, Prime Minister of Thailand General Prayut Chan-o-cha on 3 February 2017 has stressed the need to raise public awareness of using water resources in a systematic manner, at the same time preparing the Thai people to cope with various types of disasters. In addition, he also emphasized the importance of water resource management which would enable Thailand to be able to have sufficient water to meet the demand for consumption, agriculture, and industry and for maintaining the ecological system. Moreover, he said that Thailand needed to improve the entire system of water resource management, covering all 25 river basins in the country, as well as irrigation and non-irrigation areas (Readers 197, 5 February 2017).

The Thailand National Hydro-informatics and Climate Data Center was developed from the Thailand Integrated

Water Resource Management project, initiated by His Majesty the late King Bhumibol Adulyadej in 1998. Currently, this center links information about water and weather data with 34 agencies and monitors the country's water situation. Data gathered from various sources are analyzed in order to designate flood vulnerable areas and prevent and mitigate flood damage. This reflects Thailand government attached great importance to water resource management and the tackling of water issues efficiently. It aimed to minimize the impacts of floods and droughts across Thailand, in addition to disaster risk reduction. On top of that, Thailand government was also ready to provide financial support for integrated water resource management (Readers 197, 5 February 2017).

The Department of Water Resources' Mekhala Center at the Ministry of Natural Resources and Environment was established in 2003 to gather and analyze water resource data. It develops water resource information and forecasting and offers recommendations for decision makers as they work to ease water crises. The center also provides the public with knowledge on the water situation, as well as water-related disaster warnings. The Department of Water Resources' Mekhala Center has a plan to develop the Mekhala Center as the national water information center. In this regard, a geographic information system will be developed for water resource management, covering various water issues, such as flooding, water allocation, water quality, disaster, and the development of the Thai people's quality of life. The Thailand government is ready to support the Mekhala Center as the national water information center, working with other relevant centers operated by various ministries (Readers 197, 5 February 2017).

The current environmental management problems such as water resource management and water disaster have to be integrated in teacher training curriculum in order to match the needs of schools and society. For example, state policy should encourage teachers utilizing learning unit of water source and natural disaster content in Science subjects that are appropriate for students to handle water disaster. Teacher training is important in order to prepare teachers with appropriate competencies to teach in classroom. Certification requirements for teaching have advanced with educational opportunity although they vary widely from country to country. For example, United States allows each state to establish its own requirements while England set its national standards. The trend in certification has been toward requiring more complete training with practice teaching and extensive graduate work for specialized positions. This becomes the central focus and students' center for learning that has been followed as the educational Thailand system to reform the national education system, pivot professional training (Thailand Ministry of Education, 2002). Improvements in teacher training led to demands for professional recognition and benefits. These resulted in the formation of several international organizations as well as local and national teachers' union. The success of teacher training either for elementary or secondary school education has led some school administration to consider requiring such special training for teaching.

Water resource management is about using water as a resource to meet human and environmental needs and it is a multi-sectional and interdisciplinary field. It seemed that all water managers had to do was to develop and manage infrastructure necessary to convert the natural spatial and temporal distribution of water and its quality to that desired by us as human at acceptable levels of reliability and cost. However, the attention of the water resource management can seem indistinct without a common setting of reference to coordinate the diverse perspectives among disciplines and sectors. The incongruent views of conflicting sectors such as energy and environment are often in evidence, and academic disciplines express different views though diverse sets of journals. If these incongruities among sectors and disciplines can be alleviated, the results might be improved water resources management education and stewardship of water.

Water disaster caused by climate change has been evolving in terms of frequency, severity, timing and duration. Unfortunately, this water disaster has affected severely and negatively in some regions of Thailand. It is therefore necessary to strengthen community safety, especially from such disaster by encouraging people and stakeholders in the community to collaborative on activities to prevent water disaster in order to live safely, to prevent exposure to danger, and to protect properties and benefits (Bates, Kundzewicz, Wu, & Palutikof, 2008). Flooding issues are influenced not only by the physical causes of flooding but by the overall social, economic, and political settings in the area concerned. However, in Thailand water disaster management is not effectively implemented (Sangthong & Rinthaisong, 2015).

As a result, teachers play a vital role to educate students so that they learn the consequences that can impact just every component in our economy and society because there are limited of water resource. According to Loucks (2017), we have to conserve, treat, reuse, find alternatives for and generally get smarter about how we develop and manage our natural resources. Consequently, we have to do it in a political environment of conflicting stakeholder expectations and in ways that minimize the damage to our natural environment as well. Teachers have to teach their students to understand so that their behavior or life style will not contribute to an environment of climate extremes and regional conflicts that are outside the ranges we and our ecosystems can thrive, or even survive.

Thailand is less vulnerable to natural hazards than many countries in the Asia-Pacific region. Flooding is the most severe hazard in the country and is frequent and destructive. Impacts from flooding vary throughout the country, but the entire country experiences flood danger each year (Report from Center for Excellence in Disaster Management and Humanitarian Assistance, 10 February, 2015). Owing to the low awareness of the public, the Center for Excellence in Disaster Management and Humanitarian Assistance had produced a handbook to be reference for individuals deploying to conduct disaster preparedness engagements or disaster response operations in Thailand.

RESEARCH AIMS

This study aimed to investigate the effect of developed teacher training curriculum framework on water resource management and water disaster of secondary schools in Khon Kaen province, Thailand. Specifically, researchers intended to:

- a. Explore teachers and school administrators' points of view regarding the current status, problems, and needs of teaching and learning related to water resource management and water disaster.
- b. Develop a teacher training curriculum framework according to qualitative finding from the first phase.
- c. Compare the efficiency of developed teacher training curriculum framework between teachers who using the developed curriculum framework and teachers who were using conventional teacher training curriculum framework.
- d. Compare students' achievement between the experimental group and control group for three different school sizes namely large, medium, and small.

METHOD

A mixed-mode survey was employed by combining different modes of collecting data for a single research. This design is extremely flexible when various combinations of modes can be employed to adapt to the particular needs of each research study. The vital principle of using mixed-mode method is the use of quantitative and qualitative methods in combination provides a better understanding of research problems than either method alone. The method employed here was a three-phase process that consisting of philosophical assumptions and effectively capturing most features inherent in a logical and structured approach to curriculum design. Essentially, the research design identifies the following phases in the development of a teacher training curriculum framework and its efficiency.

Phase 1: Drafting a teacher training curriculum framework integrating knowledge on water resource management and water disaster

In order to create the teacher training curriculum framework, two methods of data collection were utilized in the first phase. A survey design was employed to 217 school principals and teachers who are affiliated to Khon Kaen Educational Service Area Office 4 by using multi-stage sampling technique. A questionnaire consisted of 48 items with a 5-point rating scale was used as an instrument to collect quantitative data. This survey design was planned to investigate teachers and learners' problems and needs regarding water resource management and water disaster during the teaching and learning process. The Index of Congruence (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. In this test development, items were developed to be multidimensional assessments or measures of multiple combinations of skills. The

purpose of using IOC was applicable for the multidimensional case. The IOC index was 0.87 while Cronbach alpha coefficient was 0.93. Hence, the questionnaire was found to be valid and reliable.

On the other hand, a total of 21 specialists were purposively selected to collect qualitative data. These 21 specialists encompassing 12 professional scientists who are specializing in the area of water resource management and water disaster and nine teacher educators who are the experts in the field of curriculum and instruction were involved in a unstructured focus group discussion. They were led through an open discussion by a skilled moderator. All these informants have sufficient knowledge and expertise to generate rich input to develop the teacher training curriculum framework to assist teachers to manage their teaching by integrated the knowledge of water resource management and water disaster. Content analysis and inductive reasoning were used to analyze the data in order to identify the scope of the curriculum framework. Thus the data was summarized into conceptual categories related to the learning objectives and learning areas in the curriculum framework.

Phase 2: Tryout the developed curriculum framework and teacher training manual

The developed curriculum framework and teacher training from phase 1 were tried out to five secondary school teachers in the area of Science and Social Studies in normal classroom as a mean to test for its relevance. The try-out procedure was carried out to five teachers who were teaching these four subjects of science to Grade 9 students under the administration of Khon Kaen Educational Service Area 4. The participatory action research was employed in which the researchers actively engaged in the process under investigation. In this study, the five teachers of the social system being studied and can be considered as co-researchers. Since an initial case study was performed for identification of problems, theory development and implementation of the developed curriculum framework and teacher training manual in Phase 1 were the following actions taken by researchers. The Phase 2 was employed in another full-scale project where the researchers participated and reflected upon the use of the developed curriculum framework and teacher training manual with the teachers that were studied.

A one group pretest-posttest design was employed to the 28 teachers in order to measure the differences in term of the quality of teacher training manual and their abilities before and after the training. In this design, samples serve as their own control and comparisons are made before and after treatment. An assumption is made that differences between pretest and posttest are due to the treatment. There were three instruments used in Phase 2. The first instrument was an achievement test, the second instrument was a 20-items 5-point rating scale evaluation form used to evaluate the quality of learning units and lesson plans on water resource management and water disaster, and the third instrument was a five-point Likert scale of questionnaire used to rate teachers' satisfaction in respect of the teacher training program. The achievement test had reliability by KR21 as 0.75, difficulty level of 0.20 to 0.77, and discrimination power above 0.

Phase 3: Investigation on the efficiency of the teacher training curriculum

There were two groups of sample involved to investigate the efficiency of the developed teacher training curriculum. The first group was selected using multi-stage random sampling technique, giving a total of 56 teachers. The 56 teachers were equally distributed into experimental and control groups respectively. Each group consisted of 28 teachers. A 2 (attended the developed teacher training workshop vs did not attend the developed teacher training workshop) x 2 (time of measure: pretest vs posttest) design was utilized in this study. The second group was selected from a total population of 149 Grade 9 students. There were 68 and 79 of them were randomly selected into experimental and control groups respectively by distributing into three classes from large, medium, and small sized schools. The pretest-posttest design was employed to measure students' achievements before and after the treatment. An assumption is made that differences between pretest and posttest are due to the treatment.

Quantitative data from Phase 3 was analyzed by descriptive statistic using the mean score and standard deviation and inferential statistic using paired t-test and One-way ANOVA. Paired t-test was identified to be suitable for this study because all the participants were matched pairs and it was considered as a case-control group. As a parametric procedure (a procedure which estimates unknown parameters), the paired sample t-test makes four assumptions in this study: (i) the dependent variable must be continuous, it is interval; (ii) the observations are

independent of one another; (iii) the dependent variable should be approximately normally distributed, and (iv) the dependent variable should not contain any outliers. Although in this case, t-tests are quite robust, researchers decided to evaluate the degree of deviation from these four assumptions in order to assess the quality of the results. In this paired sample t-test, the observations were defined as the differences between two sets of values, and each assumption refers to these differences, not the original data values.

The one-way analysis of variance (ANOVA) was used in this study to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups. In this case, researchers examine the differences between the three groups of student from different school sizes. The one-way ANOVA is appropriate to compare the means between the three groups of students from three different school sizes in order to determine whether any of those means are statistically significantly different from each other. Specifically, it tests the null hypothesis as such: $H_0 = \mu_1 = \mu_2 = \mu_3$ where μ is group mean and 1 to 3 is the number of groups. If, however, the one-way ANOVA returns a statistically significant result, researcher would accept the alternative hypothesis (H_A), which is that there are at least two group means that are statistically significantly different from each other. At this point, researchers realize that the one-way ANOVA is an omnibus test statistic and cannot tell us which specific groups were statistically significantly different from each other only that at least two groups were. To determine which specific groups differed from each other, researchers need to use a post hoc test.

In order to make sure that a one-way ANOVA is appropriately used and produced a valid result, researchers have to ensure the data meet these six assumptions: (i) Dependent variable should be at the interval level or continuous; (ii) dependent variable should consist of two or more categorical, independent groups; (iii) independence of observations which means that there is no relationship between the observations in each group or between the groups themselves; (iv) there should be no significant outliers; (v) dependent variable should be approximately normally distributed for each category of the independent variable, and (vi) there needs to be homogeneity of variances. A 13-items pretest and posttest was designed to focus on the relevance of students' project to water resource management and water disaster with a four-point scale ranged from needs improvement, fair, good, and very good.

RESULTS

Results are presented according to the aim as mentioned above. The results of this study are demonstrated in three parts and organized according to quantitative and qualitative methods. The initial results highlight the current status, problems, and needs of teaching and learning related to water resource management and water disaster from the school administrators and teachers' perspectives. This is followed by development of integrating water resource management and water disaster courses into the teacher training curriculum framework process derived from 12 professional scientists and nine teacher educators from the area of curriculum and instruction through focus group discussions. The results were reported from the feedback of the 21 informants through their ratings. Finally the efficiency of the teacher training curriculum framework was evaluated from the two groups of sample namely teachers and students.

Qualitative findings regarding current status, problems, and needs of teacher and learning related to water resource management and water disaster

Generally, school administrators and teachers found that teacher training curriculum is an important tool to make educational progress in the desired direction by guiding teacher preparation. Most of the informants agreed that the integration process of water resource management and water disaster begins by reforming teacher training in order to get high quality teachers. This includes the following important features: 1) a minimum of teacher training in courses; 2) passing a test of knowledge and teaching skills on how to integrate water resource management and water disaster in all subjects to be taught in the secondary school curriculum, as appropriate; 3) teaching practice and experience, and 4) teacher training manual as guidelines of integration water resource management and water disaster as requirement for full teacher certification. Majority of the informants rated the teaching and learning problems related to water resource management and water disaster was at moderate level while the teaching and learning requirements for water resource management and water disaster were at high level. To summarize the need of having the teacher training curriculum framework was found to be high.

Moreover, most of the informants moderately agreed that there is a possibility of developing the teacher training curriculum framework.

In addition, all the 21 informants at Phase 1 indicated that the learning areas of water resource management and water disaster should cover seven themes namely water, water resource, water resource management, disaster management, proactive approach for managing water resource management and water disaster, local wisdom on resource management, and definition of water resource management and water disaster terms. On top of that, a contextual finding revealed that most of the teachers preferred to have five days' workshop. On the other hand, teachers also indicated that they need more knowledge and skills on how to design learning units and assessment on water resource disaster as well as information about community learning resources on water disaster.

Qualitative findings from the tryout the developed curriculum framework and teacher training manual

From the five teachers interview findings showed that a return of teachers to the educational setting. This boosts that issues related to the teaching profession namely the work and action of teachers are again valued and teacher role is recognized as central. All the five teachers emphasized the idea of lifelong learning, the reflective role of teachers as a constant researcher, and the importance of collaborative cultures, through teamwork, monitoring, supervision and evaluation of teachers, among others. These requirements involve the restructuring of teacher training manual. Thus recognition is essential to rethink training policies and build a policy that is consistent and that empowers teachers with knowledge, attitudes and values as well as the acquisition and development of crucial skills to integrate the water resource management and water disaster knowledge in their teaching and learning. In this regard, findings revealed that the need to implement teacher training to promote new forms of collaborative cultures together with strengthening the personal dimension and public presence of teachers.

Quantitative findings on the efficiency of the teacher training curriculum framework

After a five-days training workshop, the 28 teachers were trained using the developed teacher training curriculum framework, they were evaluated based on their abilities to integrate water resource management and water disaster in their teaching and learning process. Results indicated that all the 28 teachers were able to write learning units and lesson plans on water resource management and water disaster. A total of five out of the 28 teachers produced a high standard of teaching material (mean = 3.54) and the remaining 23 teachers produced the teaching material at good level (mean = 3.35). Moreover, all the 28 trained teachers achieved posttest scores at 70 percent which was the passing grade. There was a significant difference between the experimental group who attended the developed teacher training curriculum on water resource management and water disaster content compared to control group who did not attend the developed teacher training curriculum in the aspect of knowledge about how to design a learning unit on water resource management and disaster. Table 1 shows the Science teachers' achievement after the teacher training workshop compared to teachers who did not attend any teacher training workshop. Posttest scores for the experimental group has improved tremendously with the mean score difference from the pretest as 12.29 (40.21-27.92) while posttest of the control group has just slightly improved with the mean score difference from the pretest as 2.39 (29.92-27.53).

Table 1. Pretest and posttest results of Science teachers before and after the five-days teacher training workshop

Group	Pretest scores			Posttest scores		
	n	M	SD	n	M	SD
Experimental	28	27.92	4.29	28	40.21	3.39
Control	28	27.53	3.32	28	29.92	2.58

Note: The maximum score is 50

Table 2 below indicates there was a significant difference between the experimental group and control group in terms of their knowledge and skills using learning unit of water source and natural disaster content to integrate into their learning units and lesson plans. Paired sample t-test was used as a statistical procedure to determine whether the mean score difference between the two sets of observations (experimental and control groups) is zero. In this paired sample t-test, each teacher or subject was measured twice, resulting in pairs of observations.

The application of paired sample t-test was suitable for this case control group design. Since researchers were evaluating the effectiveness of the five-days teacher training workshop using developed water resource management and water disaster curriculum framework, researchers considered this approach to measure the performance of a sample of 28 Science teachers before and after completing the training workshop, and analyzed the differences.

Result showed a statistical significance difference which was determined by looking at the p -value ($p < .01$). The p -value gives the probability of observing the test results under the null hypothesis. The lower the p -value, the lower the probability of obtaining a result like the one that was observed if the null hypothesis was true. Thus, a low p -value indicates decreased support for the null hypothesis. The cutoff value for determining statistical significance in this study was ultimately decided as a value of .01. This corresponds to a 1% (or less) chance of obtaining a result like the one that was observed if the null hypothesis was true. Paired sample t-test finding concluded that there was a significance difference between the experimental and control group at significance level of 0.01.

Table 2. Comparison posttest results after the teacher training between the experimental and control groups

Group	Posttest results			MD	t	p
	n	M	SD			
Experimental	28	40.21	3.39	10.29	-12.769	0.00
Control	28	29.92	2.58			

$p < 0.01$

A one-way between students ANOVA was conducted to compare the effect of experimental learning utilizing water resource management and water disaster curriculum framework and conventional learning curriculum on their achievement in large, medium, and small school sizes. Results revealed that there was students from the experimental group had a much higher learning achievement than the students in the control group, with a statistically significant difference at the $p < .01$ level. However, there was no significant difference among students in the control group in relation to their school sizes. In other word, there was not a significant effect of school sizes on students' achievement at the $p < .01$ for the three conditions [$F(2, 65) = .99, p = .37$]

Table 3. One-way ANOVA findings of the experimental group in large, medium, and small school sizes

Sources	df	SS	MS	F	p
Between groups	2	25.86	12.93	.99	.37
Within groups	65	849.13	13.06		
Total	67	875.00			

DISCUSSION

This study found that teacher training curriculum framework for implementation of preventing and coping with dangerous conditions during water disaster management would help the teachers obtain the knowledge and skills on how to teach their students to cope more effectively during a disaster. In addition, findings of this study revealed that successful collaboration between school educators and communities on water resource management can be voluntarily developed by accumulating knowledge and passing on experiences and lesson learned. Results of this study are in accordance with Sangthong and Rinthaisong (2015). Santhong and Rinthaisong found that collaboration between Hulllning Sub-district Administration Organization and the Hulong communities on flood management, based on the disaster management cycle and factors which contributed to successful collaboration.

The developed curriculum framework covers various topics namely capable administrators, effective communications, capacity building, knowledge development, public relations, motivation for people, cultural activities encouraging safety, flood simulation, and improved accountability. The teacher training which utilized the developed curriculum framework would help the teachers to prepare their students to cope with and be

prepared for water disaster; collaboration can be voluntarily developed by the Local Administrative Organizations and the local people. As a result, teacher training manual should be an integral part of the curriculum development stage. Results of the study indicated that teachers are able to adjust their teaching to be aligned with the curriculum and update their knowledge and skills as well.

Teachers were found to be satisfied with the five-days workshop which seemed to provide sufficient knowledge and skills on how to design learning units and assessments on water resource management and water disaster as well as information about community learning resources on water disaster. According to Goodson (2000), a training model was a balance of being external to school and a personal mission to teachers. Moreover, the results of this study showed that there was no significant difference between groups on the pretest before the intervention. However, after the intervention, students' achievement in the experimental group, were significantly higher than the control group. On this line of reasoning, the developed curriculum framework is found to have a more significant effect on the overall students' achievements than the conventional curriculum framework. The results of this study are found to be consistent with several previous findings (Silanoi, Phitak, Nethanomsak, & Sararattana, 2015; Sittisomboon, 2003).

Since the developed teacher training curriculum framework with integration of water resource management and water disaster indicated there was a significant different effect from it, great emphasis has to place on Science teachers to use the developed curriculum framework to improve students' knowledge and skills to cope with the water disaster. With the passage of time, the importance of Science teachers' teaching styles is being rolled-out perhaps and they are taking initiatives to improve their learning units and lesson plans thus upgrading students' achievements.

CONCLUSION

The education system has to always respond to certain social demands and challenges; it reflects some ideological paradigm of a given period. Schools as educational institutions shape the fundamentals of the nation view of future citizens. As societies undergo a value shift, so the requirements for the education system also change gradually. The higher priority according to disaster risk management in international discussion mandates its assimilation in much closer development collaboration. The issue should be mainstreamed in national and local development strategies and policies through specific measures and activities. To enable people to be aware of and to act responsibly with regard to the dangers which can affect their safety, they must have knowledge, understanding, and recognition of the importance of good safety practices as well as understanding the consequences from a lack of such measures.

Procedures to help develop an understanding require local administrative organizations collaborate with school community to provide knowledge and training session by an expert or experienced teachers responsible for managing the process. If this paradigm of collaboration is regularly implemented, the villagers will develop safety consciousness automatically. Consequently, water resource management seeks to attain a mutual beneficial collaboration between the interests of local administrative organizations and school community to promote community prosperity and to improve the people's well-being through the best possible use of water resource.

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The Effect of Education Thematic Films on Classroom Teacher Candidates' Motivation to Teach and Attitudes Towards Teaching Profession

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ABSTRACT

It is thought that the use of education thematic films in teacher education and the teacher-student relations in films will be an example for teacher candidates, therefore it can affect the attitudes towards the profession and the motivation of teaching. In this context; the aim of the research is to examine the effect of education thematic films on classroom teacher candidates' motivation to teach and attitudes towards teaching profession. An explanatory design model has been used in the research that one of the mixed method designs. Explanatory design; requires qualitative data for the purpose of supporting, explaining and interpreting quantitative data (Patton, 2002). Research was conducted with 3rd year students; In the spring semester of the 2016-2017 academic year, Mersin University Faculty of Education Classroom Teacher Education Department. The "Motivation to Teach Scale" developed by Kauffman, Yilmaz-Soylu and Duke (2011) and adapted to Turkish by Ayık, Ataş Akdemir, Seçer (2015) and "Attitude Scale for Teaching Profession" developed by Üstüner (2006) were used for data collection tools in this research. As a result of the analysis, it is possible to say that the films watched during the implementation process have positive effects on teacher motivation and attitudes towards the teaching profession. In order to develop the teachers' motivation to teach and their attitudes towards the teaching profession, it is possible to make all students in the faculty watch the education thematic films on certain days and establish a qualified film archive within the faculty for reaching more teacher candidates.

Key words: Classroom teacher candidate, education thematic film, attitude, motivation.

INTRODUCTION

In today's world of rapidly improving knowledge and technology, information-generating societies are one step ahead of societies in the world that consume knowledge in order to create both economic development, wealth and prosperity. Therefore, the education of the individuals who will shape the future and produce information and technology gains more importance every day (Yavuz and Coşgun, 2008). Teachers are the first factor in ensuring that individuals get a good education. The fact that the teachers are qualified also ensures the qualified education of the individuals they train. In this respect, our primary goal should be to train qualified teachers. Teachers with such power to influence on the people are expected to have good motivations and attitudes towards this profession as well as cognitive field competences such as knowledge and skills. Because it is very important to make this profession fondly and willingly in order to be successful in the teaching profession, which requires patience, dedication and continuous work (Akşar and Erden, 1987).

Motivation is a concept that applies to all individuals and concerns the goals that enable individuals to act (Ayık, Ataş Akdemir, Seçer, 2015). It is about how the individuals are treated and what they feel about the work they do "(Keenan, 1996: 5). People need to be motivated to work towards the goals of society, groups or institutions. Because the motivated individual does his job with pleasure, which in turn affects the productivity of both himself and the institution positively. To explain the importance of motivation in education, Former American Education Secretary Terrell Bell said that "There are three basic dimensions in education. The first is motivation. The second is motivation. Third is also motivation "(Dede and Yaman, 2008). Teacher candidates' perspectives on the teaching profession in particular are very important to their motivation for teaching. If a contribution to the learning of

people is desired, one should be aware of what might be the motivating elements in this matter. The reactions that an individual develops against internal needs are called intrinsic motivation. The source of intrinsic motivation can be a sense of curiosity, interest, knowledge, understanding, sufficiency and development that spontaneous for the individual. Extrinsic motivation involves external influences. Extrinsic motivation is based on punishment and reward, contrary to intrinsic motivation. The individual acts with the aim of winning a good position or promotion based on a liaison, promotion. Motivation theories are examined in two parts: need-content theories and process theories. Need-content theories generally include Maslow's Hierarchy of Needs, Alderfer's VIG theory, Herzbergs' Two Factor Theory, and McClelland's need for achievement theory. Process theories are; Equality theory, expectation theories, reinforcement theory and purpose theory (Akbaba, 2006). According to the need - content theories, motivation is considered in terms of the internal needs of the individuals, and according to the process theories, it is considered that many external factors are effective on motivation (Süral-Özer, P. and Topaloğlu, 2012).

Another important determinant of an individual's success in a job is the attitude of the individual towards that occupation (Çakır, 2005). As in all professions, attitudes towards the profession in teaching also affect the efficiency of the teaching action significantly (Üstüner, 2006). The attitudes of teachers who constitute the most important stance of the education system that directly determines the future of a society are important factors affecting the quality of the education process (Nakip, 2015). One of the characteristics of attitudes is that every attitude has one direction. The individual has a positive or negative tendency towards any topic. If attitude is positive, positive feelings, evaluations and tendencies; If the attitude is negative, negative feelings, evaluations and tendencies are in question towards object, event or person. When the direction of the attitude is positive, individual gradually approaches the subject of the attitude, and when it is negative, they move away from the subject of attitude (İnceoğlu, 2004: 48). The education supplied to the teacher candidates should also provide positive attitudes towards their profession (Senemoğlu and Özçelik, 1989, Johnson and Howell, 2005).

When literature is examined, it has been found studies such as aiming to change teachers' attitudes towards teaching profession in a positive way, but education thematic films have not been used before (Erden, 1994, Zembat and Bilgin, 1996, Tanrıoğlu 1997, Argun and İkiz, 2003, Çeliköz and Çetin, 2004, Erkan and Akman, 2004, Üstün, 2005, Nakip, 2015). It has not been found studies which aims to increase teachers' motivation for teaching. In this sense, it is thought that the use of education thematic films in teacher education and the teacher-student relations in films will be an example for teacher candidates, therefore it can affect the attitudes towards the profession and the motivation of teaching. In this context; the aim of the research is to examine the effect of education thematic films on classroom teacher candidates' motivation to teach and attitudes towards teaching profession.

THE STUDY

Pretest-posttest semi-experimental design without control group was used in the research. An explanatory design model has been used in the research that one of the mixed method designs. Explanatory design; requires qualitative data for the purpose of supporting, explaining and interpreting quantitative data (Patton, 2002).

Research was conducted with 3rd year students; In the spring semester of the 2016-2017 academic year, Mersin University Faculty of Education Classroom Teacher Education Department. The "Motivation to Teach Scale" developed by Kauffman, Yilmaz-Soylu and Duke (2011) and adapted to Turkish by Ayık, Ataş Akdemir, Seçer (2015) and "Attitude Scale for Teaching Profession" developed by Üstüner (2006) were used for data collection tools in this research. The "Motivation to Teach Scale" is a measurement tool composed of 12 items and two sub-scales developed to measure the intrinsic and extrinsic motivation of teacher candidates. The reliability of the intrinsic motivation sub-scale is determined .86 and the reliability of the extrinsic motivation sub-scale is determined .76. "Attitude Scale Towards Teaching Profession" is a five-point Likert-type scale consisting of 34 items. The internal consistency coefficient of the scale (Cronbach Alpha) is .93.

Three different films were shown during the three weeks of the study. The films shown within the scope of the research were Dead Poets Society; Choir; Taare Zameen Par (Stars in the ground). After each film, teacher candidates were offered the opportunity to discuss the film and teaching profession. Every week after the film, the

teacher candidates were asked to write their journals about their thoughts and views both on the film and teaching profession. Written journals of students who participated in the research were used as a qualitative data collection tool. In the research, the statements contained in the journals of the teacher candidates were directly shared in the relevant places.

FINDINGS

As a result of the statistical analysis, the effects of education thematic films on teaching motivation and attitudes towards teaching profession were examined. Kolmogorov-Smirnov test was conducted to decide whether to use parametric or non-parametric tests in the analysis of the data obtained from the scales and it was seen that the scores of both scales were not distributed normally. For this reason, the Wilcoxon Signed Ranks Test was used for non-parametric tests to answer research questions.

Findings obtained from the Motivation to Teach Scale

Findings obtained from the Motivation to Teach Scale, Kolmogorov-Smirnov test was conducted to decide whether to use parametric or non-parametric tests in the analysis of the data obtained from the scales and it was seen that the scores of both scales were not distributed normally. For this reason, the Wilcoxon Signed Ranks Test was used for non-parametric tests to answer research questions.

Table1. Wilcoxon Signed Rank Test Results of Motivation to Teach Scale Pre-and Post-Implementation Scores

	pre-test/post-test	n	mean of rank	sum of ranks	z	p
Motivation to Teach	Negative rank	15	16,53	248,00	5,01*	,00
	Positive rank	46	35,72	1643,00		
	Ties	3				
1. sub-scale extrinsic motivation	Negative rank	26	31,90	829,50	0,63*	,53
	Positive rank	34	29,43	1000,50		
	Ties	4				
2. sub-scale intrinsic motivation	Negative rank	5	7,40	37,00	6,53*	,00
	Positive rank	56	33,11	1854,00		
	Ties	3				

* based on negative ranks

Wilcoxon Signed Rank Test Results of Motivation to Teach Scale showing whether the Pre-and Post-Implementation scores of the 64 teacher candidates who took part in the implementation differed significantly are given in table 1. The results of the analysis show that there is a statistically significant difference between the pre- and post- implementation scores of the teacher candidates participating in the implementation ($z = 5,01$, $p < ,05$). When the mean and sum of ranks of the difference scores are taken into account, it is seen that the difference is in favor of positive rankings, that is, the post-test scores. According to these results, it can be said that the films watched during the implementation process have a significant effect on teaching motivation of the teacher candidates.

When we look at the sub-scales of the scale, it is seen that there is no statistically significant difference in the extrinsic motivation scores ($z = 0,63$, $p > ,05$), which is the first sub-scale, and a significant difference in intrinsic motivation scores ($z = 0,63$, $p < ,05$), which is the second sub-scale, in favor of the post-test scores. These results can also be expressed as the fact that the films watched may have significant effect to the intrinsic motivations of the teacher candidates. Moreover, it can be said that the reason why the teaching motivation scores differ significantly in favor of the post-test is the change in the intrinsic motivation scores.

Teacher candidates were interviewed and opinions about their motivation for teaching were taken both after each film and in the journals, they wrote. It seems that they focus on the importance of intrinsic motivation rather than external motivation in fulfilling their profession properly. It can also be explained by the fact that there is no significant difference in the extrinsic motivation scores and the significant difference in the intrinsic motivation scores.

"There is no need to pecuniary resource for being teacher. Even resource is supportive something can be taught without it. Teacher can design materials with the bag of tricks and draw attention of the students to the lesson and make the students forget about financial or environmental deficiencies. "

" Although financial or environmental conditions support education, it does work, but these conditions for education can not be preliminary."

" Financial or environmental conditions are important. But I think that the teacher can close this gap by improving himself. The important thing is to improve ourselves on behalf of education and training".

"Financial and environmental reasons increase or decrease the efficiency of education. But what matters first is the will of the human being. "

Findings obtained from the Attitude Scale for Teaching Profession

Table 2. Wilcoxon Signed Rank Test Results of Attitude Scale for Teaching Profession Pre-and Post-Implementation Scores

pre-test/post-test	n	mean of rank	sum of ranks	z	p
Negative rank	21	23,45	492,50	3,53*	,00
Positive rank	42	36,27	1523,50		
Ties	1				

* based on negative ranks

Wilcoxon signed rank test results showing whether the attitudes of teacher candidates towards the teaching profession before and after the practice differed significantly are given in Table 2. According to the results of the analysis there is a statistically significant difference between the pre- and post- implementation attitude scores of the teacher candidates participating in the implementation ($z = 3.53$, $p < .00$). It is seen that the difference is in favor of positive rankings, that is, the post-test scores. According to these results, it can be said that the films watched during the implementation process have a significant effect on attitudes of the teacher candidates.

Attempts are made to ensure that the information, emotions and skills that will be provided to the students in the teacher training programs are more effective in their professional life. One of the conditions for the individuals who will practice the teaching profession to fulfill the requirements of this profession more effectively is the positive attitude towards the profession. The determination of the attitudes of the students who are studying in the teaching programs will inform them about what kind of attitudes should be given during the training process (Üstüner, 2006). In this sense, during the undergraduate education process, attitudes and perspectives of teacher candidates can be improved positively thanks to the films about the possible situations that they will come across when they start their profession. In this study, teacher candidates shared their views about each of the leading teachers and their approaches to teaching profession in the film as follows;

"If I were the teacher in the film, I would try to make the child realize her dream by encouraging. In the same way, her parents could not enjoy it, but I would try to change it. I would try to show that each person's talents and demands are different. "

"As a result of the film I watched, I understood better the characteristics that must be found in a teacher. I understand the importance of tolerance and patience. "

"I do not know if I could be a teacher who appeals so much students, but I will definitely want to be one of them. I cannot find much to tell if I will be different in my teaching profession. At the end of film, despite all the pressure of the students' yelling on the tables "captain, my captain" was a proof that the teacher can appeal to them.

"After the film I watched, I would try to do my best to meet both the social and psychological needs of the students. Treat with love and make them adopt me. Once I became acquainted with my students, I would teach them the appropriate level. "

"Differences. I think you have to try different ways to be a more creative teacher besides your uniformity. In this film, I was very impressed by the approach of our teacher to students with different perspectives."

"I had an idea about how I should become in terms of attitude and behavior towards the students in my professional teaching life. I learned that the difficulties of ensuring authority in the classroom environment as well as its conveniences are greatly influenced by our student approach. "

"I think that an approach that should be consider as an example is a teacher I would like to start in the future, and I have an approach that I would like to practice very much. The students are taught in a positive way to help them to be better individuals by telling their mistake or telling why their mistakes are wrong. ",

CONCLUSIONS

Teacher candidates' views on the teaching profession are very important in terms of attracting attention to the values that the candidates attach to teaching on the one hand and affecting their success in teaching (Gürses et al., 2005). In this study examine it was tried to investigate the effect of education thematic films especially on the attitudes of classroom teacher candidates towards teaching motivation and teaching profession. The result show that the films influenced teacher candidates' attitudes towards the teaching profession and their motivation to teach positively.

Kaşkaya, Ünlü, Akar and Sağrılı (2011) investigated the effects of school and teacher thematic films on professional attitudes and self-efficacy perceptions of teacher candidates. Similar results were obtained as a result of this research. As a result of this study using different film options, different attitudes towards teaching profession scale and self-efficacy scale, it is seen that education thematic films form a significant difference in teacher candidates' professional attitudes and self-efficacy perceptions.

In order to develop the teachers' motivation to teach and their attitudes towards the teaching profession, it is possible to make all students in the faculty watch the education thematic films on certain days and establish a qualified film archive within the faculty for reaching more teacher cadidates. Also collaborating with other academicians about the selection of qualified and appropriate films will be convenient. Similar studies can be conducted with prospective teachers in different branches of the main science. Similar studies can be conducted with other teacher candidates in different branches of the same department. Being informed about the professional attitudes of teacher candidates who will work in educational organizations in the future may lead to know what kind of education should be given in pre-service training. Research on larger groups in all teaching areas can be undertaken in order to determine the attitudes of teacher candidates towards motivation to teach and teaching profession and to take remedial measures in this regard.

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The Effect of Educational Games which are Played under the Guidance of Teachers on Children's Creative Thinking Skills in Preschool Period

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ABSTRACT

The aim of this study is to determine the effect of the educational game training which will be given 2 days a week in addition to standart preschool education ,to preschool children aged 4 and 5, on creativity development. Totally 141 children from two different kindergarten are included in this study. Children are randomly divided into two groups 37 girls, 38 boys in total 75 children to experimental group and 30 girls, 36 boys in total 66 children to control group. Before the study Thinking Creatively in Action and Movement (TCAM) Test developed by E. P. Torrance and adapted to Turkish by Karabulut (2012) were applied all of the 141 children. Educational game is played to the experimental group 2 days a week and an hour a day during 14 weeks in addition to their standart education. But the control group doesn't involve in any activities except for their standart education. At the end of the 14 weeks TCAM test is applied again both control and experimental group as a final test.

As a result of the statistical analysis of the obtained data significant differences has been determined in the fluency , originality, imagination and total creativity scores of the children in the experimental group compared to the children in the control group. In the light of the these datas , it can be said that under the guidance of the teacher, regular and well-planned educational game programmes make a significant contribute on children's creative thinking skills.

Key words: Movement Education, Creative Thinking, Educational Game

INTRODUCTION

The term of 'Creativity' which has some meanings such as to be able to think different from the others, to interpret events different from everyone, to create new things by using imagination is a really important subject that should be emphasized in children's World (Duch, 2007 & Dağlıoğlu,2011). Because as adults we teach them what the objects are used for and their life styles as far as we know (Sungur, 1997). For instance; a carpet in the middle of a living room canbe a pool or a sea for their imagination, a sofa can be train, a table can be a hut for them. While teachers at school and parents at home are educating them they may try to stereotype them (Öztunç, 1999). That's why preschool period gains a lot more importance in terms of creativity education and development (Güven, 1999 & Konstantinidou, 2014).

Contribution of the pre-school education to children's multi-faceted development is indisputable (Pagona & Costas, 2008). Another crucial part for children in this period when the most free and original thoughts can be produced and the boundaries of imagination are challenged is movement and game(Cheung, 2010 & Çamlıyer and Çamlıyer 2009). Thinking Creatively in Action and Movement(TCAM) developed by E. P. Torrance came out because of the children's love of game and movement. Maybe children can express what they can not write, can not draw or can not tell with movement and game (Torrance, 1981).

METHOD

The study was planned to find out whether there is a contrubition or not playing educational games with the movement support under the teacher's guidance two days in a week, an hour a day during 14 weeks on children's creative thinking skills. In accordance with this purpose 141 children from two different kindergartens were included in this study. Children divided randomly 75 of them to the experimental group, 66 of them to the control group. Thinking Creatively in Action and Movement(TCAM) test developed by Torrance (1981) and adapted to Turkish by Karabulut (2012) was used as a scale for the study. The test includes 4 activities and has a format that provides to evaluate children's in terms of fluency, originality and imagination. 3 of these activities consist of open ended questions and some tests that allows children to answer by moving or orally. These 3 activities evaluate the number of the answers as fluency and individuality as originality. The other activity is designed to measure the children's imagination. The role given to children are asked to answer by movements (for ex; a rabbit running away from the hunter).

The test applied to the children at the beginning as pretest. While control group didn't participate in any planned activity except for standart education, experimental group 2 days a week ,an hour in a day under the guidance of the teacher played educational games during 14 weeks. At the end of the period TCAM test applied as a final test and statistical analysis of all obtained data were done.

FINDINGS

Table 1: Distrubition of the participants according to the ages

	Hakkı Kabaklarlı Kindergarten	Yunus Emre Kindergarten	N (total)
N (4 years old experiment)	19	12	31
N (5 years old experiment)	15	29	44
N (total)	34	41	75
N (4 years old control)	11	12	23
N (5 years old control)	21	22	43
N (total)	32	34	66

Totally 141 children aged 4 and 5 from two different kindergarten are included in the study. From Hakkı Kabaklarlı Kindergarten, 34 children (19 children aged 4 and 15 children aged 5) are in the experimental group and 32 children (11 children aged 4 and 21 children aged 5) are in the control group. Likewise from Yunus Emre Kindergarten 41 children (12 children aged 4 and 29 children aged 5) are in the experimental group and 34 children (12 children aged 4 22 children aged 5) are in the control group. In general distrubition 75 children are in the experimental group and 66 children are in the control group.

Table 2: Comparison of the pretest datas between groups

FLUENCY					
Groups	N	Average	Sd	Average Difference	p
Experimental Group	75	10,67	2,38	,333	,203
Control Group	66	11.00	2,04		
ORIGINALITY					
Groups	N	Average	Sd	Average Difference	p
Experimental Group	75	6,19	3,87	1,065	,070
Control Group	66	5,12	2,90		
IMAGINATION					
Groups	N	Average	sd	Average Difference	p
Experimental Group	75	19,71	4,99	,263	,344
Control Group	66	19,97	4,37		

When the datas obtained from pretest are examined it is seen that average fluency score of the children from experimental group is 10,67 while the score of the children from control group is 11,00. When the originality scores are examined the average of the experimental group is 6,19 while control group average is 5,12. And when we look at the imagination scores we can see that the average of the experimental group 19,71 while the average of the control group is 19,97.

Accordingly, it can be understood from the table it can be said that before starting to the study there is not statistically difference at a level of $p < 0,05$ between two groups depending on obtained datas.

Table 3: Experimental group pretest - final test datas comparison

FLUENCY EXPERIMENTAL GROUP					
Groups	N	Average	Sd	Average Difference	p
Fluency Pretest	75	10,67	2,38	7,21	,000
Fluency Final Test	75	17,88	3,25		
ORIGINALITY EXPERIMENTAL GROUP					
Groups	N	Average	Sd	Average Difference	p
Originality Pretest	75	6,19	3,87	9,34	,000
Originality Final Test	75	15,53	4,92		
IMAGINATION EXPERIMENTAL GROUP					
Groups	N	Average	sd	Average Difference	p
Imagination Pretest	75	19,71	4,99	5,70	,000
Imagination Final Test	75	25,41	3,23		

When Table3 is examined the fluency pretest scores of the children in the experimental group were 10,67, while the final test scores increased to 17,88. When the originality values were examined, the pre-test averages increased from 6,19 to 15,53 in the final test. And finally imagination scores were examined score averages were 19,71 in the pretest results but at the end of the study the score increased 25,41. In the light of these datas it can be said that both observable and statistically significant developments were obtained in terms of each three sub-dimensions.

Table 4: Control group pretest - final test datas comparison

FLUENCY CONTROL GROUP					
Groups	N	Average	ss	Average Difference	p
Fluency Pretest	66	11,00	2,04	6,30	,000
Fluency Final Test	66	17,30	2,29		
ORIGINALITY CONTROL GROUP					
Groups	N	Average	ss	Average Difference	p
Originality Pretest	66	5,12	2,90	7,64	,000
Originality Final Test	66	12,76	3,76		
IMAGINATION CONTROL GROUP					
Groups	N	Average	ss	Average Difference	p
Imagination Pretest	66	19,97	4,37	1,86	,000
Imagination Final Test	66	21,83	3,79		

In the Table 4 there are datas obtained from the comparison of pretest and final test datas of control group in which children didn't involve in well planned, teacher guided educational games during 14 weeks they just kept standart kindergarten education. When these datas are examined it can be said that the children develop completely in fluency, originality and imagination sub-dimensions and this development is statistically significant.

Table 5: Comparison of the final test datas between groups

FLUENCY					
Groups	N	Average	sd	Average Difference	p
Experimental Group	75	17,88	3,25	,58	,003
Control Group	66	17,30	2,29		
ORINGINALITY					
Groups	N	Average	sd	Average Difference	p
Experimental Group	75	15,53	4,92	2,77	,013
Control Group	66	12,76	3,76		
IMAGINATION					
Groups	N	Average	sd	Average Difference	p
Experimental Group	75	25,41	3,23	3,58	,980
Control Group	66	21,83	3,79		

Datas obtained from the study show that children from both control and experimental group showed a statistically significant improvement in all three sub-dimensions of creativity during the 14 weeks. When the final test datas are examined development levels between groups are compared at Table5. Accordingly, based on the statistical datas it can be said that children in the experimental group developed more than the children in control group in terms of fluency and originality sub-dimensions. Although there is observable difference in terms of imaginarity sub-dimension it can be said that statistically there is no significant development.

DISCUSSION AND CONCLUSION

In the light of the datas obtained from the study when table 2 is examined it is seen that at the beginning there is any significant difference between control and experimental groups in terms of fluency, originality and imagination. In other words it can be said that there is a balance in the distrubution of the children participated in the study.

When the results are examined at Table 3 datas of experimental group and at Table 4 datas of control group it has been determined that both group showed development in terms of all fluency, originality and imagination dimensions. This development has been found statistically significant. Because of the improvements in both groups, the developmental differences were compared to find out whether the additional 14 weeks game training programme contributed to the experimental group or not. When Table 5 is examined it can be said that experimental group showed more observably development than the control group in terms of the all three sub-dimensions. But statistically the result is different. While there is a significant difference in terms of fluency and originality, a significant difference cannot be determined in terms of imagination. It can be said that 14 weeks educational game programme has no significant effect on imagination. Activity game education has already takes place in the preschool education programme so it may cause these results.

There are few examples of TCAM test that is less preferred than the other creativity-related scales because of the length and difficulties in implementation. In the Zachopoulou's (2006) study, included 251 pre school children aged 4 and 5, children were practiced movement trainig programme to develop creativity 2 days a week 35-40 minutes a day during 10 weeks and got similar results with this study (Zachopoulou & et al., 2006).

Educational programs should be arranged to allow children to think sophisticatedly and especially in preschool and elementary school period education should include more games (Razon, 1990 & Poyraz, 2003). If the children's imagination is directed positively in these years, the foundation of a enterpreneur generation who can produce creative ideas is laid (Fenc1, 2014 & Torrance, 1981).

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The Effect of in-Service Training on the Teacher Development: The Evaluation of the Teacher Professional Development Program

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ABSTRACT

The teacher has very important roles and responsibilities in reaching the aims of education, which is an important organ in the development of societies. Therefore, it is very important to train teachers who will introduce the desired knowledge, skills, attitudes, and values to individuals in the society and to provide them with the content knowledge, professional formation, and general culture they need. Providing the pre-service and in-service development of teachers is a very important issue. Subjects such as the need-based nature of in-service training, the suitability of the training time for employees, the functionality of the methods and techniques used in teaching, and the teaching period are the key elements that determine the effectiveness of this training, although its importance in the professional development is acknowledged by everybody. The aim of this study is to evaluate the secondary school teachers' perceptions of a professional development program. In this study, an evaluation of the in-service training program consisting of 8 modules of 3 hours for secondary school teachers was performed. The study group of the research, in which the qualitative method was used, consisted of 67 teachers participating in the in-service training. An interview form consisting of 11 questions was used as the assessment tool. As a result of the study, the teachers stated that the in-service training they received contributed to their professional development. Furthermore, the teachers expressed that they had difficulty with the problems related to the time of the in-service training and the room in which the training was provided. The teachers believe that the practical professional training integrating the theory with practice will be more beneficial. Teachers need in-service training in subjects such as the behavioural management, creativity, and problem-solving, educational technologies, and material development. Therefore, it may be more functional to provide the need-based in-service training to small groups rather than providing in-service training to very large and crowded groups. It is beneficial to develop continuous in-service training programs that will provide the participation of all teachers, although they contribute more to teachers who participate in the in-service training voluntarily.

Keywords: Teacher training, in-service training, curriculum development, adult education.

INTRODUCTION

Education, which generally refers to the behavioural changes in the individual, is one of the important means facilitating the adaptation to the rapid change and development in the present day. How to provide a quality education has always been one of the important questions that educators have been seeking an answer for. Throughout the history of education, debates about improving the quality of education have focused more on the teacher education. Teachers have a central role in the development of schools. The efficiency of the school is largely associated with the qualifications of teachers working at the school, the quality of their teaching, and the access of students to a quality education. According to Hoban (2002), this situation that teachers play a central role in the whole school system means that their competence and experiences generally have a great impact on the quality of schools. Therefore, professional qualifications and competence of teachers are important indicators in terms of the quality of education. In terms of providing the continuity and professional efficiency in the professional development, in-service training is also as important as pre-service training (Guskey, 2000; Craft, 2000; Huber, 2011). The development of the qualifications and the acquisition of a professional teacher identity by teachers can be achieved through the integration of pre-service and in-service training processes.

In-service training is a type of training that draws attention in terms of increasing the continuity and quality of education. In-service training is a set of knowledge and skill activities to increase the employee performance and meet the professional needs (Guskey, 2000; Elmore, 2002; Huber, 2011). In today's world, in which the pace of change is very high, educators need continuous training to provide an effective education.

Although teachers work intensively, they have to constantly update their professional knowledge and skills in order to be able to perform their job effectively. When this intensity is taken into account, the necessity for teachers to use their time effectively and efficiently is also clear. Therefore, it is of great importance that in-service training programs are of good quality and need-based. It is necessary for teachers to follow both the technology and developments in different fields and continue their personal and professional development and transfer the knowledge they have acquired to students. For this reason, the in-service training activities for teachers are very important in terms of ensuring the continuity of the training for the personal and professional development of teachers. Through these programs, teachers will develop their knowledge of the lessons they teach and continue their general professional development.

In-service training programs performed within traditional patterns are nothing but a waste of time. It is not possible for the in-service teacher training, which is imposed on teachers, not need-based, out of context, and not implemented in the classroom, to be efficient. In-service training should support and to be considered as the continuation of the pre-service training. There is a need for scientific and functional training based on needs and practice in order to increase the effectiveness of in-service training. The scientific evaluation of the in-service training applied will also provide important contributions to the professional development in terms of offering an insight into future in-service training.

Teacher training programs can be examined and evaluated in different dimensions, such as investigating the effects of the program on teachers, content, skill development, and investigating teachers' perceptions of the program. In addition to providing information about the teachers' perceptions of the in-service training programs and the effectiveness of their components, this study could also give an idea to the program designers designing in-service training programs. Therefore, it is important to evaluate an in-service training program for teachers.

In parallel to the above explanations, in this study, it was aimed to "evaluate the secondary school teachers' perceptions of a professional development program". For this purpose, answers to the following questions were sought:

1. What are the opinions of teachers on the efficiency level of the in-service training program they have participated in, its contribution to their professional development, and on the application environment?
2. According to the teachers, what are the strong and weak aspects of the in-service training program they have received?
3. What are the most challenging and enjoyable dimensions of the in-service training of the teachers?
4. What are the recommendations of the teachers for in-service training programs to be performed?

METHOD

In the study carried out as a qualitative study, interview method was utilized. In qualitative studies, perceptions and incidents are tried to be put forward in a natural setting through a realistic and holistic manner (Yıldırım & Şimşek, 2011). Within the study, the perceptions of teachers regarding the teacher professional development program were tried to be described in an objective and holistic way. The information about the teachers constituting the study group is presented in Table 1 and Table 2 below.

Table 1. The distribution of the teachers constituting the study group by number, branch, and gender

Order	Branch	Gender		Total
		Female	Male	
1	Science	9	2	11
2	Turkish	9	1	10
3	English	8	2	10
4	Mathematics	5	3	8
5	Social Sciences	4	1	5
6	Visual Arts	3	2	5
7	Psychological Counseling and Guidance	4	-	4
8	Religious culture and Moral Knowledge	3	1	4
9	Technology and Design	2	1	3
10	Information Technologies	1	1	2
11	Music	1	1	2
12	Special Education	1	1	2
13	Physical Education	1	-	1
Total		51	16	67

As seen in Table 1, the study group of the research consists of 67 teachers from 13 different branches, 51 of which are female and 16 are male.

Table 2. The distribution of the teachers in the study group by the professional seniority

Professional Seniority	f	%
1-5 years	4	6
6-10 years	16	24
11-15 years	16	24
16-20 years	24	36
21 years and above	7	10
Total	67	100

As seen in Table 2, the study group consists of teachers with a professional experience at different levels. More than half of the participants have a seniority of 10 years and above. Therefore, it can be said that the professional experiences of the teachers participating in the study are high.

The Scope and Implementation of the In-service Training Program

The in-service training program, which is prepared in a modular way for the teachers working in four different secondary schools, consists of 8 modules of three hours each. The training for one module each week in the morning/noon for two groups lasted for 8 weeks in total. The training was provided in a room for 50 people of a

private school in March and April 2017. The subject headings of the modules included in the in-service training are as follows:

- Effective Communication in Class
- Drawing Attention and Motivation in Class
- School Culture and Values Education
- Education of Critical Thinking in Class
- Teaching Methods and Techniques for Active and Meaningful Learning
- Integration of Education and Teaching: The Planning and Evaluation of Extracurricular Educational Process
- Teaching of Concepts and Generalizations
- Applications of Brain-Compatible Teaching in Class

Data Collection and Analysis

An Interview Form consisting of 11 open-ended and closed-ended questions was used as a measurement tool in the study. The interview form was presented to the experts in the educational sciences department and was applied after performing the necessary corrections in line with the feedbacks. The first four questions in the form are closed-ended and scored between 1-5. The other seven questions are open-ended. The graded items in the interview form were interpreted according to frequencies and percentages. The open-ended items were qualitatively described in terms of the sub-aims of the study. The participant teachers were coded as T1 and T2. In the relevant parts of the study, references were made from the teachers' opinions through these codes. In order to provide validity and reliability in the study, the study data were analysed according to the dimensions of Credibility, Transferability, Consistency, and Verifiability proposed by Mills (2003) for qualitative studies. In order to provide credibility, the results obtained from the study data were confirmed by one faculty member and two teachers who participated in the in-service training. In order to provide transferability, the data were described in detail, and the participants were directly quoted, and the quotations were tried to be presented in a way that the reader could understand. In order to increase the consistency of the study results, all of the findings obtained in the study were presented directly to the reader without making any comment and generalization. For verifiability, the raw data of the study are being kept by the researcher so that they could be examined by those concerned.

FINDINGS AND DISCUSSION

In this part, the findings obtained are discussed under 4 sub-headings in parallel with the questions an answer to which is sought in the direction of the aims of the study.

1. Opinions of the teachers on the productivity level, contribution to their professional development, and the application environment of the in-service training program they participated in

Opinions of the teachers on the motivation levels for the participation in the in-service training are presented in Table 3.

Table 3. The motivation levels of the teachers to receive the in-service training

Question: At what level would you like to participate in in-service training to be performed in this way in the future?		
Level	f	%
Never	2	3
Low	1	2
Moderate	11	16
High	31	46
Very High	22	33
Total	67	100

As seen in Table 3, a large majority of the teachers want to participate in in-service trainings at a high level. Some teachers interviewed in this regard expressed the following: *We, educators, received really good*

information (T25). It was very good to take private lessons from expert educators and to apply them (T54). Educators from universities transferred their experiences personally in the training (T47). This can be interpreted as the fact that teachers are satisfied with the training they have received and that their motivation for participating in the new in-service training to be performed is high. In this respect, in a study conducted by Yurttaş (2014), seven of the ten teachers interviewed stated that the in-service training met their needs at certain rates. On the other hand, studies on teachers in our country show that teachers approach in-service trainings positively and they need courses covering new approaches (Akkuş & Kadayıfçı, 2007).

Opinions of the teachers on the contribution level of the in-service training to their professional development are presented in Table 4.

Table 4. The contribution level of the in-service training to the professional development of teachers according to their opinions

Question: At what level did the in-service training contribute to your professional development?		
Level	f	%
Never	-	-
Low	3	5
Moderate	15	22
High	39	58
Very high	10	15
Total	67	100

As seen in Table 4, a large majority of the teachers believe that the in-service training they have participated in makes contribution to their professional development at a high level. Some teachers interviewed in this regard expressed the following: *It gave me the opportunity to think about assessing myself professionally and about the student-centered education (T1). My motivation increased (T2). It reminded me of many applications I forgot... I realized better the importance of empathy in education (T5). I saw my weaknesses (T7). I revised and updated my professional knowledge (T10). My awareness of individual differences increased (T15). My ideas about what I can do as a teacher became clearer (T20). I learned what I can do to increase student motivation (T23). It enabled me to question education (T29).*

When the findings obtained from the opinions of the teachers are examined, it can be observed that “Remembering the previous professional knowledge”, “Updating the professional knowledge”, “Evaluating the self professionally and making self-criticism”, “Understanding the importance of student-centered education and methods”, “The fact that education increases the teaching motivation”, and “Contributing to critical thinking on education” are the points that teachers have emphasized at most for the level of contribution of the in-service training to their professional development. In the study conducted by Yurttaş (2014), the teachers interviewed stated that the in-service training they participated in made positive contributions to them in terms of effective teaching techniques, participant-centered teaching, material development, and collaborative work. Similarly, in the study conducted by Önen, Mertoğlu, Saka and Gürdal (2009) on the effect of in-service training, it was determined that there were significant increases in the knowledge of teachers about teaching methods and techniques and constructivist approach following the in-service training.

The opinions of the teachers on the level of suitability of the environment in which the in-service training was provided are presented in Table 5.

Table 5. The level of suitability of the environment in which the in-service training was provided according to the opinions of the teachers

Question: At what level would you evaluate the suitability of the physical environment in which the in-service training was provided?		
Level	f	%
Not suitable	6	9
A little suitable	10	15
Moderate	20	30
High	26	39
Very High	5	7
Total	67	100

As seen in Table 5, there are 3 different opinions on the level of suitability of the environment in which the in-service training was provided. These are as follows; not suitable or a little suitable (24%), moderately suitable (30%), and highly suitable (46%). Some teachers interviewed in this regard stated the following: *The room was small and the ventilation was inadequate (T14, T19, T46). The physical space was not suitable (T52, T53). Both the team and the environment were quite good (T59). The training environment and offerings were very good (T53).*

Teachers emphasized 2 points at the most in terms of the level of suitability of the environment in which the training was provided. These are not suitability of the room in which the lessons were given and the good quality of the offerings such as “food, tea, coffee, etc.” and services. The quality of the environment in which training is provided is very important. The quality of the education service affects many things about learning and teaching. If the environment is not very suitable for education, both the teacher and students may have problems in concentrating on the lesson, and their motivation may decrease. The fact that one-quarter of the participants have found the classroom in which the training was provided to be physically inadequate, although the majority of teachers participating in the study have found it suitable, is an indication that there are problems in this subject and that measures should be taken. In the study conducted by Karaçalı (2006), it was stated that the number of students, the seating plan of students, temperature, light, and ventilation of the classroom are the most important physical variables in the classroom management in achieving the aims of educational activities. Furthermore, it was emphasized that these variables have a great effect on communication in the classroom environment.

2. Opinions of the teachers on the strong and weak aspects of the in-service training they received

Opinions of the teachers on the strong and weak aspects of the in-service training they received are presented in Table 6.

Table 6. Opinions of the teachers on the strong and weak aspects of the in-service training program

Strong Aspects	Weak Aspects
<ul style="list-style-type: none"> The effective training of experts, all of which are experienced academicians Current, scientific, and functional nature of the subjects and presentations Interactive training Critical thinking-based education 	<ul style="list-style-type: none"> The physical inadequacy of the teaching environment (small and unventilated classroom) The inadequacy of course hours for the provision of the detailed information about the subject The inability of the program to take into account sufficiently the needs of the schools of their own

As seen in Table 6, the facts that the teachers who provide in-service training are experienced and motivated, the topics presented are current and functional, and that the training is interactive and develops critical thinking were expressed by the teachers as the strong aspects of the in-service training. The physical inadequacy of the

teaching environment, the short duration of the teaching period, and the inability of the training to take into account sufficiently the needs of the schools of the participating teachers were expressed by the teachers as the weak aspects of the in-service training.

With regard to the strong aspects of the training program, some teachers stated the following: *The fact that the teachers have given lessons willingly and their good communication with us have made this training effective. This training is really different from the unequipped formators in the seminars we have participated so far (T27). The compatibility of the training with the present conditions was very important for us to apply it (T43).* Regarding the weak aspects of the training program, the teachers also stated the following: *The use of traditional methods in some presentations (T1), the fact that the topics remain mostly in theory, the lack of applications (T5, T17, T19, T24, T25, T30, T31), the smallness of the room in which the training was provided (T14), some topics' remaining superficial due to time constraints (T7, T27, T32) are the weaknesses of the training program. The training with a large number of participants in a small and unventilated environment prevented the use of active methods such as drama (T12, T36, T37, T41, T46, T61).* In the study in which Yurttaş (2014) examined the strong and weak aspects of in-service training practices for teachers, it was determined that the classrooms were suitable in terms of technology and hardware and that the organizational dimension was the strongest aspect of the program. It was observed that the teachers were successful at the point of determining needs in general, but inadequate to identify some needs.

3. Opinions of the teachers on the dimensions they had difficulties in and enjoyed the most within the in-service training process

Opinions of the teachers on the dimensions they had difficulties in and enjoyed the most within the in-service training process are presented in Table 7.

Table 7. Opinions of the teachers on the dimensions they had difficulties in and enjoyed the most within the in-service training process

Challenging dimensions	Enjoyable dimensions
<ul style="list-style-type: none"> • The difficulty of the transportation to the school where the training was provided • Both receiving training and teaching on the same day • Providing education in the midterm • Difficulty in concentrating on lessons due to fatigue 	<ul style="list-style-type: none"> • Actively participating in the lessons • Having the opportunity to have a conversation with the teaching and experienced academicians • Being a student again • Participating in activities in the class • Examples of the teachers from their lives • The friendly and democratic nature of the training environment

When Table 7 is examined, the “transportation” and “fatigue” are the dimensions teachers find challenging and the “effective and efficient communication environment” attracts attention as the dimension teachers enjoy in the in-service training process. Some teacher opinions in this regard are as follows: *The distant location of the school where the training is provided and transportation are important problems (T1, T3, T6, T14, T16, T17, T19, T22, T28, T47). It was very difficult to go to school in the morning and participate wearily in the training after school (T4). It was a little difficult for me to come to training after school because it coincides with my lesson (T12). On Wednesdays, it was a problem for me to find a place to leave my child (T13). School in the morning and training in the afternoon interrupted our other responsibilities (T22). I did not have a car, so I had a lot of trouble coming to and going from the training (T40). I enjoyed the democratic atmosphere of the educational environment, lectures, and conversations with our teachers, the content of the lessons and the lessons we practised (T2, T3, T1, T10, T13, T16, T21, T30). It was good to have an interactive education, to meet and work with teachers working in different schools, and to feel like a student again (T8, T9, T11, T20 T31), (T20). I liked the examples from the experiences the teachers had, it felt familiar to me. I remembered being a student, I saw my obsessions and weaknesses, it was a very friendly environment (T26, T54).*

One of the planning processes that reduce the effectiveness of in-service training is the timing and duration of the seminar. The results of the study conducted by Şahin (2012) show that providing education in the midterm, the need for teachers to delay the current personal plans and the concern of not being able to catch their own program at school are evaluated as problems and that teachers have a problem with focusing in long sessions.

Thus, in-service training provided for a longer period of time during September or June, and in shorter course hours during the day may increase the effectiveness of training.

4. Recommendation of the teachers for the in-service training programs to be performed

When the recommendations for the in-service training practices are examined together, the teachers recommend “the development of an in-service training approach, which is school-based and needs analysis-based, in which teachers participate voluntarily and also their duties and responsibilities outside the training are taken into account”. The opinions of some teachers in this regard are as follows: *The in-service training would be better if it was provided in our own school, according to our needs, and for voluntary teachers (T10, T30, T31, T33, T62). I would like the training to be in the form of workshops specific to the branches (T11, T12, T22, T26, T44, T46). Trainings centred on the problems we experience at school should be provided (T13). It would be better if the seminar was given during the term. It would be very useful to take teacher opinions when the seminars are determined (T31). I would like the practices we have made to be exhibited (T40). It would be good if we were considered to be on-duty and permitted on the days of the in-service training (T49).* It is observed that the emphasis of the teachers on the in-service training recommendations is on the school centeredness, needs analysis, voluntary participation, and functionality. This shows that while in-service training programs are being developed, they must conduct a thorough and detailed need analysis in the first step. The first step of the program development is performing the need analysis (Cekada, 2011). Thanks to this analysis, learning objectives can be determined, and the program is designed and evaluated in the light of the data obtained. Other recommendations of the teachers are “*providing branch-based and workshop-based IST in each teacher’s own school*” and “*providing IST in periods when there are no lessons of teachers such as seminar periods*”.

The subjects that the participating teachers want to be included in the in-service training programs are the education on intervention in unwanted student behaviours (T1), science education through games and time management in education (T5), trainings related to innovation and creativity (T8, T59). The structure of the education systems of countries advanced in education, the Finnish education system (T12, T39), methods of increasing student motivation and problem-solving education (T13), drama, the use of technology in education, and positive examples in education (T22), classroom management and communication (T24), education for increasing the permanence in learning (T37), special education (T43), educational technologies and material development (T54), motivation and personal development (T57), and how a teacher becomes happy (T64). It is observed that the subjects that the teachers recommended to include in the in-service training are parallel to the individual and professional development and the contemporary developments in education. In the study conducted by Yurttaş (2014), it was determined that teachers had similar expectations regarding the subject headings of in-service training. These subjects can be taken into consideration when forming the content of in-service training programs to be planned in the future. On the other hand, providing school-centered in-service trainings draws attention as an important recommendation. The study conducted by Saban (2000) focuses on school-centered in-service training models and the principle that teachers should be responsible for their own education.

CONCLUSIONS

Teachers who have participated in the in-service training are satisfied with the training they have received. Teachers tend to participate in new in-service trainings to be performed at a high rate. Teachers think that the in-service training they have participated in has contributed to their professional development at a high level and is particularly useful in updating their professional knowledge, making self-assessment, and understanding better the student-centered education. There are teachers who find the in-service training environment adequate and inadequate. The strong aspects of the in-service training program according to teachers are the teachers’ providing the training being experienced, and having good professional knowledge and formations, the program content’s being current and functional, and the use of active teaching methods. The weak aspects of the program are regarded to be the physical inadequacy of the teaching environment, the short duration of teaching, and the inability of schools to address their own problems.

In the in-service training process, problems such as transportation to school where training is provided and situations such as the lack of preparation and fatigue arising from the teachers’ obligation to catch up with their own lessons in their schools in addition to the in-service training are the most challenging problems for teachers. The points that teachers enjoy at most are the comfort of the communication environment, meeting new friends who share the same branch and being a student again. The teachers want subjects such as the physical layout of the classroom, planning, communication, behavioural regulation, learning and teaching, educational technologies, critical and creative thinking, and brain-based learning to be included in the in-service training.

In parallel with the results mentioned above, it can be said that in-service trainings, which are school-centered, based on scientific need analyses, planned in the form of workshops with small groups on the basis of branches, are required. Coşkun and Daloğlu (2010) stated that teacher training programs should be in harmony with both theoretical and practical aspects. If in-service trainings are planned as trainings teachers need and voluntarily participate in, rather than a task they have to attend to, they will be more effective. In-service trainings should be provided at the beginning or end of the education period. There will be many problems such as fatigue and insufficient time in trainings to be provided at other times.

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The Effect of Instruction With Augmented Reality Astronomy Cards On 7th Grade Students' Attitudes Towards Astronomy and Academic Achievement

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ABSTRACT

In this study, it was tried to investigate the effect of the augmented reality cards on teaching. For this purpose, the effect of the reality cards designed for astronomy subjects on students' attitudes towards astronomy, the effect on academic achievement and the opinions of students about reality cards were evaluated. Mixed method was used as research method in the study which quantitative and qualitative data were collected together. The study group consisted of 53 students studying in the seventh grade of a state school located in Erdemli district of Mersin province. Within this scope, a branch in the school was defined as experimental group including 26 students, and another branch as control group including 27 students. During the "Solar System and Beyond" unit, the subject was taught with augmented reality cards in the experimental group, while the control group was not intervened. The implementation continued throughout the unit. Attitudes towards astronomy scale and achievement test were applied as pre-test and post-test before and after implementation. In addition, open-ended interviews were held with two lower, middle and upper level students in the experimental group in terms of academic achievement. As a result of the analyzes, it was seen that both groups showed a positive change in their attitudes towards astronomy and an increase in the academic achievement on astronomy when the groups were examined within themselves. When the groups were compared, statistically significant difference was found in favor of the experimental group in both attitude and academic achievement. As a result of the interviews conducted with the students, the results revealed that they liked the augmented reality cards very much, could not really distinguish the images from the real objects, as if the planets were indeed in their classes and they learned much more easily.

Key words: Augmented Reality, Astronomy, Science Teaching, Attitude

INTRODUCTION

Today, technology is manifested in every aspect of our life. The technology that started in the early ages has been constantly changed and developed with imparting and fund of knowledge (Rıza, 2003). In recent years, information technologies have rapidly developed, service production has increased and globalization has accelerated. These developments have also affected the perception of education. Therefore, educational tools and equipment required to be changed in order to respond to today's needs. Societies that cannot catch up with the technology that develops in the field of education are behind in the educational standards (Karasar, 2002).

The increase in information resources, desire to reach and share information quickly and the 21st century skills to be technology-oriented has made it necessary for technology to be used in education, and it has also directed the studies carried out in the field of education in recent years (Wang and Hannafin, 2005; Sonyürek, 2014). As a result of these developments, the organizations that determine the qualifications to be reached in education set out serious policies in order to ensure the integration of information technologies into the teaching process and implement comprehensive projects in this direction (European Parliament and the Council, 2006; UNESCO, 2008; FATİH, 2012). Moreover, the integration of the technology into existing curriculum has become a necessity in responding to the diverse expectations of today's youth, nowadays known as Digital generation or Z generation. It is quite normal to need technology in this kind of learning environment that is intertwined with technology at every moment of their lives (Prensky, 2001; Oblinger and Oblinger, 2005; Kennedy et al., 2008; Sonyürek, 2014). For this reason, it is thought that traditional learning methods and environments are not enough to attract their attention as they were in previous generations. On the one hand, different technological developments have to be transferred to the educational environment in order to attract Z generation's attention and provide an efficient training (Bennett, Maton and Kervin, 2008; Somyürek and Karabulut-Koskun, 2013). A real learning experience is always necessary. Involving more senses into learning makes it easier, effective, stronger and permanent. In this context, augmented reality emerges as a developing technology for education (Walczak, Wojciechowski and Cellary, 2006; Lai and Hsu, 2011; Luckin and Fraser, 2011). Augmented reality (AR), which can be defined as a computer enrichment of the real world, has the potential to be more accessible in recent years with the development of

technology. AR is defined as a blended technology of real world and virtual images, and provided a real-time interaction with the virtual environment (Azuma, 1997). Technology of Augmented reality emerged in the 1970s after Ivan Sutherland and his students began working on computer graphics at Harvard and Utah universities in the 1960s. Officially, the US Air Force and NASA have been able to use this technology for the first time since 1990 (Feiner, 2002).

This technology can easily interact the user with events and objects in natural ways using with a variety of tools such as desktop computers, laptop computers, portable devices, and smartphones (Kirner, Reis and Kirner, 2012; Wojciechowski and Cellary, 2013). The new opportunities for learning and teaching provided by augmented reality have been recognized by the educators over time and coexistence of virtual objects and real environments have been found to help students to understand the complex and abstract concepts (Arvanitis et al., 2007; Wojciechowski and Cellary, 2013). In addition, AR combines learning environments with the real world in which students live, allowing the seamless implementation of knowledge and skill (Lave and Wenger, 1991).

Communication between users and both real and virtual objects allows them to learn through experience and increase their motivation (Singhal, et al., 2012). While AR technology embodies abstract objects and makes invisible events visible, it also removes potentially dangerous situations. For these reasons, it is emphasized that the use of AR technology in education will increase the effect of education on the student (Walczak, Wojciechowski and Cellary, 2006). Moreover, AR applications attract children's interest because they can move and intervene, and make learning fun and permanent (Billinghurst, Kato and Poupyrev, 2001; Bujak et al., 2013; Oh and Woo, 2008; Wojciechowski and Cellary, 2013; Zhou, Cheok and Pan, 2004).

As implied in the literature, it is seen that AR applications provide an important contribution to the education process, but new application examples are also needed (Martin et al., 2011; Wu et al., 2013). In addition, the internal decision-making mechanism, ie, the reaction of learners, is very important in the process of integrating new technologies into the educational process (Venkatesh, et al, 2003). For this reason, students' attitudes towards the topics they learn with the help of AR will give clues about the effectiveness of AR. However, the impact of AR on the success of students needs to be examined (Clark, Nguyen and Sweller, 2005), since it is thought that it is an important variable in determining the effectiveness of the learning of change in students' achievement.

From all these, the study tried to investigate the impact of the AR on the attitudes and success of the students. In this context, the astronomy was chosen as the topic and the "Solar System and Beyond" unit of the seventh classes was chosen as the base. The fact that the subject which is being tried to teach at various stages contains extremely large objects, the concepts that planned to impart cannot be experimented by touching or feeling make it difficult for the students to learn the astronomy. In addition, observes and images remain in 2D, makes difficult to shape concepts in mind for students (Şener, Demirhan and Kalyoncu, 2005). The issue of astronomy has been chosen since AR thought to overcome these difficulties.

METHOD

In the study, the mixed method sequential explanatory research design was used. In sequential explanatory patterns, the researcher first collects and analyzes quantitative data, then collects and analyzes qualitative data to better explain quantitative data (Creswell, 2003).

According to Sönmez (2005); universe and sample should not be selected in the experimental research. For this reason, generalization of the universe was ignored and the study group was chosen. The study group consisted of 53 students studying in the seventh grade of a state school located in Erdemli district of Mersin province. Within this scope, a branch in the school was defined as experimental group including 26 students, and another branch as control group including 27 students. During the "Solar System and Beyond" unit, the subject was taught with augmented reality cards in the experimental group, while the control group was not intervened.

The "Astronomy Attitude Scale" developed by Zeilik et al. (1999) and adapted to Turkish by Canbazoglu-Bilici et al. (2012) was used in the study to determine the astronomical attitudes and the effect of AR on the astronomy attitudes of the students. As a result of the analyzes, data revealed that original scale was different from the adapted scale which had two subscales and and consist of 15 items. The Cronbach alpha internal consistency coefficient of the scale was .80. The Cronbach alpha internal consistency coefficient of the two factors of the scale is .71 and .77.

The "Astronomy Achievement Test" developed by Arıcı (2013) was also used to determine the students' astronomic success levels and the effect of AR on astronomical achievements. In the first phase, after the test consisting of 50 questions with 4 options in multiple choice and 20 questions were given and the reliability coefficient was found .76 .

In addition, open-ended interviews were held with two lower, middle and upper level students in the experimental group in terms of academic achievement. In the interviews, questions were asked to the students about how they found the practice and what the application made them feel.

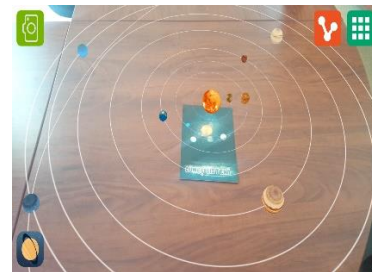
The AR cards used in the study are; developed by ATF studios. On one side there is the object or the visual of the concept, on the other side there are the texts that are voiced when it is opened by the program. The sample images that are opened with the program are as follows:



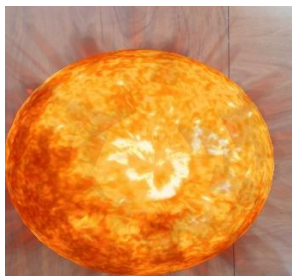
Galaxy



Black Hole



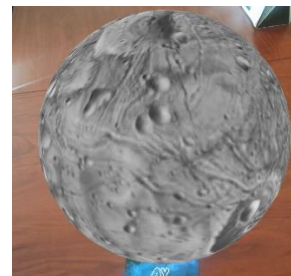
Solar system



Sun



Earth



Moon

FINDINGS

The findings of this study which aims to examine the effects of augmented reality cards on student attitudes and academic achievements are presented and interpreted below. In this context, it was examined whether the scores obtained from the scales were homogeneous and assumptions of normal distribution were checked. The F-test for homogeneity and the Shapiro-Wilk test for normality were used since the groups were smaller than 50. As a result of the analyzes, it was determined that the scores of the groups were homogeneous but not normal. Therefore, non-parametric tests were used for other analyzes.

The analysis of the students' Astronomy Achievement Test scores are given in Table 1 and Table 2:

Table 1. U test Results of the Groups on Astronomical Achievement pre-test

Group	N	mean rank	sum of ranks	U	p
experimental	26	23,87	620,50	269,50	,141
Control	27	30,02	810,50		

The Mann Whitney U-test results of the pre-intervention experimental and control group students' scores on the astronomy achievement test are given in table 1. Accordingly, before the "Solar System and Beyond" unit, there was no statistically significant difference between the astronomical achievement scores of the experimental and control group students, $U = 269,50$, $p > ,05$.

Table 2. U test Results of the Groups on Astronomical Achievement post-test

Group	N	mean rank	sum of ranks	U	p
experimental	26	38,54	1002,00	51,00	,000
Control	27	15,89	429,00		

Mann Whitney U-test results on the astronomical achievement scores of the groups were given in Table 2 after the "Solar System and Beyond" unit was lectured in experimental and control groups. Accordingly, there appears to be a statistical difference between the scores of the experimental and control groups after the astronomical

achievement test was given, $U = 51.00$, $p < .05$. The difference in favor of the experimental group can be interpreted as the use of the augmented reality cards become more effective when the "Solar System and Beyond" unit is being processed. It is also believed that seeing the concepts in three dimensions rather than two dimensions make it easier for students to learn.

The analysis of the students' scores on the Astronomy Attitude Scale is given in Table 3 and Table 4:

Table 3. U test Results of the Groups on Astronomy Attitude Scale pre-test

Group	N	mean rank	sum of ranks	U	p
experimental	26	26,12	679,00	328,00	,680
Control	27	27,85	752,00		

Mann Whitney U-test results on the astronomy attitude scale pre-test scores of the students in experimental and control groups were given in Table 3. According to this, before the "Solar System and Beyond" unit, there was no statistically significant difference between astronomical attitude levels of experimental and control group students, $U = 328.00$, $p > .05$.

Tablo 4. Grupların Astronomi Tutum Ölçeği Son-testlerinden Aldıkları Puanlarının U-Testi Sonuçları

Group	N	mean rank	sum of ranks	U	p
experimental	26	36,02	936,50	116,50	,000
Control	27	18,31	494,50		

Mann Whitney U-test results on the astronomy attitude scale scores of the groups were given in Table 2 after the "Solar System and Beyond" unit was lectured in experimental and control groups. Accordingly, there appears to be a statistical difference between the scores of the experimental and control groups after the astronomical achievement test was given, $U = 116.50$, $p < .05$. The difference in favor of the experimental group can be interpreted as the use of the augmented reality cards increase the positive attitude towards astronomy when the "Solar System and Beyond" unit is being processed. It is also believed that seeing the concepts in three dimensions rather than two dimensions make an positive effect on attitudes towards astronomy.,

As a result of the open-ended interviews made with the students; in general, the results revealed that they liked the augmented reality cards very much, could not really distinguish the images from the real objects, as if the planets were indeed in their classes and they learned much more easily. They also stated that the information they learn is more permanent, appealing to more senses, much fun and very advantageous. Some of the views of the students about the AR are as follows:

"I love it. It was very fun listening to the lesson. I also did not have any interest in these subjects, but after the lessons I made searches about the planets from the web and read new things. "

"Very beautiful lessons. Let's work always this way. I learned very easily and got a high score on the exam. It was so beautiful both telling the subject and showing as if it was real and made me understand easy "

"In this way, our class was a lot of fun. I like these cards very much. Because they were as good as real, we are able to intervene like we want, and we can examine the part we want more easily. "

"These cards were very beautiful. I wish there were more for other lessons too. It was very easy to learn by seeing the planets. It was also very nice to talk about the planet while watching the planet. "

"It seems as if the planets were in our class. They were like real. At first, I was tough, but then I started to enjoy it as I learned. While our teacher was talking about it, I learned quickly because we saw it all the time. "

"The fact that it was three-dimensional affected me very much. I guess it was real. If I were a teacher, I would always use them in my classes. It makes easy to teach and give my lecture. I liked the lesson because it was explained in this way. "

"Everything we see visually provides more permanent instruction. So, this course was very good. It was also very good to use tablets in lessons "

"When our teacher first showed us, I was very interested. I think should be used in every lesson. I would use them if I were a teacher. Because technology is remarkable, which is unusual. "

"We both heard and intervened. That's why it appealed many of our senses. Since it was three-dimensional, we have seen and understood better. And everyone participated in the class. I think these issues were difficult but we understood it easily. "

CONCLUSIONS

Experts who focus on how advanced technologies can be used to add value in teaching today are treating technology of augmented reality as an effective environment / method (Dunleavy, Dede and Mitchell, 2009; Clarke and Dede, 2007; Kozma and Anderson, 2002). Augmented reality technology, which enables the real world to be supported and enriched with information created in the virtual environment, provides opportunities for digital generation who was surrounded by computers, video cameras, smart devices in order to supply entertaining and participatory learning experiences (Somyürek, 2014).

In this study, the impact of the AR on the attitudes and academic achievements of the students was examined. In this context, AR cards developed by ATF studios were used. The implementation lasted for one month during the process of unit. At the end of the research, the changes in attitude and achievement levels of AR cards were examined.

When the attitudes of the students were examined, it was seen that there was a statistically significant difference between the students' pre-test and post-test attitude scores. In other words, the attitudes of the students were positively affected by AR. In addition, results indicate that, students who used AR cards were very happy to use these applications, wanted to use even in other lessons, and had fun while using AR. This can be expressed as an attentive learning environment for the students, and a positive attitude of the students. In addition, the students' first encounter with the application and their interaction with the application also positively affected their attitudes. This situation is also supported by some other researches in the literature (Klopfer and Squire, 2008; Wei and Elias, 2011; Vate-U-Lan, 2012; Mahadzir and Phung 2013; Wu, et al., 2013).

When the success levels of the students are examined, they show similar results with attitude levels. It has been found that the students' academic achievement levels increase more with the education provided by AR cards. The fact that the students have more fun, the interaction with the application in the teaching process, the visualization with the three dimensions and intervention, providing the individual learning have positively affected the success of the students. Since the AR cards are attractive and lead to an increase in the motivation of the students. This result is similar to some other studies in the literature (Bradford, 2011, Wojciechowski and Cellary, 2013, Bujak et al., 2013, Küçük, Yılmaz and Göktaş, 2014).

As a result; It was noticed that secondary school students were satisfied with AR cards and they had a lot of fun while learning astronomy. Also, students stated that AR cards should be used in other subjects and lessons. The students' progress in fun, easy learning, interactively participating in lessons and enabling individual learning have improved positive attitudes, which has reduced the anxiety level of the students, and increased their success. From all these, it is thought that AR is an effective material in teaching and should be used.

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The Effect of Learning Leadership on Professional Learning Community in Thai Secondary Schools

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ABSTRACT

This study aimed to examine the learning leadership and professional learning community and the impacts of the two variables in Thailand Secondary Schools. A total of 600 samples were selected using stratified random sampling. This study employed quantitative survey design using questionnaire as an instrument and analyzed by structural equation modeling. Results indicated that the relationship model between learning leadership and professional learning community was consistent with empirical data, with $X^2 = 38.811$, $df = 31$, $p = .158$, $X^2/df = 1.625$, $RMSEA = .020$, $SRMR = .007$, $CFI = .999$ and $TLI = .997$. Finally, the overall effect of learning leadership towards professional learning community was 88.30 percent.

INTRODUCTION

Learning leadership is defined as a strong determinant of directive outcomes at the micro and macro level of school operation (Kouzes & Posner, 2016). As it is prominent, and because of the fundamental importance of education, the nature and formation of leadership instinctively is also essential for anyone concerned with shaping practice and policy (CERI Board Report, 2013). Since learning is the core business of education, this represents the dominant form of disseminated associated activities and relationships. Therefore, learning leadership is able to prepare school principals and others for continuous success and provides school principals with a 'play and win' approach to respire new life into the team performance. Learning leadership boosts school principals' understandings of their individual leadership strengths and weaknesses (Somprach, Tang & Popoonsak (2017). Subsequently, school principals will master new ways of approaching challenges and overcoming obstacles. This improves interactions with their team members by building strong bonds. In addition, they manage conflicts through successful leadership transactions and coach their team members to develop their potential. Learning leaders develop resilience in the face of adversity (Kohlreiser, 2013). In short, learning leadership is focused on creating and sustaining environment that are conducive to good learning. Innovation is an essential part of the exercise of learning leadership in setting new directions and designing learning environment (Somprach & Tang, 2016).

Professional learning communities can produce resources such as lesson plans, worksheet, and other teaching aids for furthering pedagogical innovation, yet the dynamics and level of success differ among teachers because of the varying support provided by school principals. Based on the report from Office of National Education Commission (2002), Thailand's basic education depends on a growing number of effective school principals to promote professional learning community practice as one of the shared responsibilities and collaborative actions for both teachers and students. The findings of Somprach et al. (2017) showed that knowledge representations that guide the practice of professional learning communities are rich and openly accessible to all teachers under the facilitative guidance of school principals who exhibit learning leadership. Their finding breaks the new ground in suggesting that school principals should focus on learning leadership style as the most significant predictor to promote participation of teachers in professional learning communities. On this line of reasoning, professional learning communities which was associated with learning leadership and the performance of the school principals, it is critical for school principals to consider and enhance learning leadership behavior appropriately in the workplace.

LITERATURE REVIEWS

Somprach and Tang (2016) employed grounded theory as a systematic methodology to construct the learning leadership theory. A total of six outstanding principals from two different levels of primary and secondary education were selected as informants. Their findings revealed that learning leadership of school principals are comprised of 10 dimensions. These 10 dimensions are creativity and courage, powerful environment for learning, flexibility, integration, technologies application, team learning, self-directed learning, transformation process and tailor made, sufficiency economy philosophy, and research. Their findings implied that learning leadership of principals would improve the efficiency of management as well as teaching and learning of school community thus developing a learning community. Hence, the implication of their study is congruent with the

National Education Plan of Thailand (2009-2016).

Learning leadership as a term is not regularly used but it give emphasis to how important leading and designing for learning is, yet to make a distinction from related concepts such as team learning, technology, innovative learning, environment, evaluation, collaboration, research, creativity, and vision (Tubin, 2013). The basic concept of learning leadership had further supported by Salavert (2013). Salavert studied on learning leadership behaviors which are comprised of shared learning, team learning, innovative learning, and instructional development that are directly connected to improved student outcomes underscore the importance of promoting, supporting, and participating in professional learning by setting strategies for instruction and designing learning models. Subsequently, Halbert and Kaser (2013) included a complete description of this learning leadership approach with examples British Columbia schools, made conclusion of key characteristics on 21st century learning leaders is the relentless focus on the experiences of the learners to frame and inform the process.

According to Somprach, Ariratana, and Tang (2013), professional learning community practice has been widely promoted in most of the high schools in Thailand. The professional learning community model included development, use, and discussion of common formative assessment processes as a core activity. Besides, the works of in-building mentors have to integrate in professional learning community practice to provide job-embedded professional development to teachers (Borman, 2012). As a result, the continuing adoption and natural discrepancy across schools and teachers offer the potential to observe variation in schools' and teachers' adoption of the professional learning community practice in Thailand.

RESEARCH OBJECTIVES

The main objective was to study the linear structural relationship model of the learning leadership and professional learning community practice in secondary schools. Specifically, researchers identified the learning leadership implemented school principals before examining the factors of learning leadership that affecting the professional learning community practice.

METHOD

A survey questionnaire was employ as a method to collect quantitative data. Sample size was determined based on Hair, Black, Anderson, and Tatham's (2016) rules of thumb. Hair et al. proposed that the ratio between the samplings and the parameters or variables in a factor analysis should be at a minimum of 50 but not less than 100 in proportion with the variables. Since there were 60 parameters and the ratio was 10 to 1, the sample size was identified as 600. Stratified random sampling was employed to select the samples according to school size after considering the secondary school consortiums in proportion with the total population of school principals and teachers who affiliated to the schools under the Office of Secondary Educational Service Area 25. The unit of analysis was school and a five-point Likert scale questionnaire was used as a mode of data collection.

Structural Equation Modeling (SEM) was utilized in order to fit the model with empirical data. SEM is a combination of factor analysis and regression or path analysis. SEM is a comprehensive statistical modeling tool for analyzing multivariate data involving complex relationships between and among variables (Hoyle, 1995). In addition, SEM is a powerful technique that can combine complex path models with latent variables (factors). Using SEM can specify the relationships between variables using two main sets of equations namely measurement equations and structural equations. Measurement equations are used to examine the accuracy of proposed measurement by considering relationships between latent variables and their respective indicators. The structural equations are used to drive the assessment of the hypothesized relationships between the latent variables, which permit testing the statistical hypotheses of the study (Byrne, 2010). In addition, SEM considers the modeling of interactions, nonlinearities, correlated independents, measurement error, correlated error terms, and multiple latent independents each measured by multiple indicators. On this line of reasoning, the interest in SEM is often on the theoretical constructs are represented by the latent factor.

The relationships between the theoretical construct are represented by regression or path coefficients between the factors. The structural equation model implies a structure for the covariance between the observed variables. Nowadays structural equation models need not be linear, and possibilities of SEM extend well beyond the original LISREL program or Mplus program. SEM provides a very general and convenient framework for statistical analysis that encompasses several traditional multivariate procedures, for example factor analysis, regression analysis, discriminate analysis, and canonical correlation, as special case. Structural equation models are often visualized by graphical path diagram. The statistical model is usually represented in a set of matrix equation. Mplus utilized in this study allows the model to be specified in a graphical way, by allowing the user draw the path diagram directly in an interactive command window.

The Chi-Square value (χ^2) is the traditional measure used for evaluating overall model fit and, assesses the magnitude of discrepancy between the sample and fitted co-variances matrices' (Hu and Bentler, 1999: 2). According to Kenny and McCoach (2003), the Chi-Square statistic would lack of power when small samples are used. Thus Chi-square values may not discriminate between good and poor fitting models. Owing to the restrictiveness of the Model Chi-Square, Wheaton, Muthen, Alwin and Summers (1977) suggested the other alternative statistic that can minimizes the impact of sample size will be relative/normed chi-square (χ^2/df)

Confirmatory factor analysis (CFA) is part of SEM and plays an important role in measurement model validation in path or structural analysis. Therefore, CFA tests a prior hypothesis about relations between observed variables and latent variables or factors. Hence, CFA is a powerful statistical tool to examine the nature and relations among latent construct (Brown, 2006; MacCallum & Austin, 2000). CFA was used to evaluate the initial measurement model whether the measured variables accurately reflecting the desired constructs or factors before assessing the structural model. As a result, in this study SEM not only used to obtain estimates of the parameters of the model such as the factor loading, the variances and covariance of the factor, and residual error variances of the observed variables but also used to assess the fit of model, for example to assess whether the model itself provides a good fit to the data.

The RMSEA tells us how well the model, with unknown but optimally chosen parameter estimates would fit the population covariance matrix (Byrne, 1998). Recommendations for RMSEA cut-off points have been reduced considerably in the last fifteen years. Up until the early nineties, an RMSEA in the range of 0.05 to 0.10 was considered an indication of fair fit and values above 0.10 indicated poor fit (MacCallum, Browne, & Sugawara, 1996). It was then thought that a RMSEA of between 0.08 to 0.10 provides a mediocre fit and below 0.08 shows a good fit (MacCallum et al, 1996). However, more recently, a cut-off value close to 0.06 (Hu and Bentler, 1999) or a stringent upper limit of 0.07 (Steiger, 2007) seems to be the general consensus amongst authorities in this area. One of the greatest advantages of the RMSEA is its ability for a confidence interval to be calculated around its value (MacCallum et al, 1996). This is possible due to the known distribution values of the statistic and subsequently allows for the null hypothesis (poor fit) to be tested more precisely (McQuitty, 2004). It is generally reported in conjunction with the RMSEA and in a well-fitting model the lower limit is close to 0 while the upper limit should be less than 0.08.

The Goodness-of-Fit statistic (GFI) was created by Jöreskog and Sorbom (1993) as an alternative to the Chi-Square test and calculates the proportion of variance that is accounted for by the estimated population covariance (Tabachnick & Fidell, 2007). This statistic ranges from 0 to 1 with larger samples increasing its value. When there are a large number of degrees of freedom in comparison to sample size, the GFI has a downward bias (Sharma, Mukherjee, Kumar, & Dillon, 2005). Related to the GFI is the Adjust Goodness-of-Fit statistic (AGFI) which adjusts the GFI based upon degrees of freedom, with more saturated models reducing fit (Tabachnick & Fidell, 2007). In addition to this, AGFI tends to increase with sample size. As with the GFI, values for the AGFI also range between 0 and 1 and it is generally accepted that values of 0.90 or greater indicate well-fitting models. Given the often detrimental effect of sample size on these two fit indices they are not relied upon as a stand-alone index, however given their historical importance they are often reported in covariance structure analyses.

The Root Mean square Residual (RMR) and the Standardized root mean square residual (SRMR) are the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. The range of the RMR is calculated based upon the scales of each indicator. The standardized RMR (SRMR) resolves this problem and is therefore much more meaningful to interpret. Values for the SRMR range from zero to 1.0 with well-fitting models obtaining values less than 0.05 (Byrne, 1998; Diamantopoulos & Siguaw, 2000), however values as high as 0.08 are deemed acceptable (Hu & Bentler, 1999). The Comparative Fit Index (CFI: Bentler, 1990) is introduced by Bentler (1992) and subsequently included as part of the fit indices in his EQS program (Kline, 2005). This statistic assumes that all latent variables are uncorrelated (null/independence model) and compares the sample covariance matrix with this null model. A cut-off criterion of $CFI \geq 0.90$ was initially advanced however, recent studies have shown that a value greater than 0.90 is needed in order to ensure that miss-specified models are not accepted (Hu & Bentler, 1999). From this, a value of $CFI \geq 0.95$ is presently recognized as indicative of good fit (Hu & Bentler, 1999).

RESULTS

The identification on the levels of variables in this study are indicated in Table 1 as proposed by Glass and Hopkins (1984).

Table 1. Interpretation of variable level based on mean score

Mean score range	Interpretation
4.50 – 5.00	Highest
3.50 – 4.49	High
2.50 – 3.49	Medium
1.50 – 2.49	Low
1.00 – 1.49	Lowest

Learning leadership and its dimensions implemented by school principals

Table 2 shows the mean scores and standard deviations of learning leadership dimensions namely sufficiency philosophy, transformational process and tailor making, ICT for learning and management, creativity, integration, team learning, self-directed learning, flexibility, and powerful environment for learning and innovation. As indicated in Table 2, the mean score for all the nine learning leadership dimensions from school principals' practices ranged from 4.12 to 4.24. Average mean score of learning leadership from school principals' practices was 4.17. Generally, respondents' perceptions on their school principals' overall learning leadership practice were high.

The result of the study revealed that all the learning leadership dimensions from school principals' practices were at high level. Considering the first three orders, found that the highest level was in the sufficiency philosophy dimension ($\bar{x} = 4.24$, $SD = .57$). The second order was ICT for learning and management dimension ($\bar{x} = 4.21$, $SD = .51$). The third order was transformational process and tailor making dimension ($\bar{x} = 4.19$, $SD = .54$). This is followed by creativity dimension ($\bar{x} = 4.17$, $SD = .56$). There were three learning leadership dimensions included integration, team learning, and self-directed learning dimensions at the same level of practices ($\bar{x} = 4.15$) with the different standard deviation values as 0.58, 0.53, and 0.50 respectively. Next was flexibility dimension ($\bar{x} = 4.13$, $SD = .52$). The learning leadership dimension with the lowest level of average value was the powerful environment for learning and innovation ($\bar{x} = 4.12$, $SD = .58$).

Table 2. Learning leadership and its dimensions practiced by school principals

Learning leadership dimensions	\bar{x}	SD	Interpretation
Sufficiency philosophy	4.24	0.57	High
ICT for learning and management	4.21	0.51	High
Transformational process and tailor making	4.19	0.54	High
Creativity	4.17	0.56	High
Integration	4.15	0.58	High
Team learning	4.15	0.53	High
Self-directed learning	4.15	0.50	High
Flexibility	4.13	0.52	High
Power environment for learning and innovation	4.12	0.58	High
Total	4.17	0.46	High

Professional learning community practice and its attributes

Table 3 shows the mean scores and standard deviations of professional learning community practice and its attributes namely supportive and shared leadership, supportive conditions, collective learning and application of learning, shared values and vision, and shared personnel practice from respondents' perceptions. As indicated in Table 3, the mean scores for all the five professional learning community attributes ranged from 4.07 to 4.21. Average mean score of professional learning community practice from respondents' perceptions was 4.17.

Table 3. Professional learning community practice and its attributes

Professional learning community practice	\bar{x}	SD	Interpretation
Supportive and shared leadership	4.21	0.49	High
Supportive conditions	4.20	0.46	High
Collective learning and application of learning	4.19	0.48	High
Shared values and vision	4.17	0.53	High
Shared personnel practice	4.07	0.64	High
Total	4.17	0.42	High

The results of the study revealed that all the professional learning community attributes from respondents' perceptions were at high level. Considering the first three orders, found that the highest level was in the supportive and shared leadership attribute ($\bar{x} = 4.21$, $SD = .49$). The second order was supportive conditions attribute ($\bar{x} = 4.20$, $SD = .46$). The third order was collective learning and application of learning attribute ($\bar{x} = 4.19$, $SD = .48$). This is followed by shared values and vision attribute ($\bar{x} = 4.17$, $SD = .53$). The attribute with the lowest level of average value was shared personnel practice ($\bar{x} = 4.07$, $SD = .64$). The overall mean score for professional learning community practice from respondents' perception was at high level ($\bar{x} = 4.17$, $SD = .42$).

Factor loading and validity of observable variables in the relationship model

As indicated in Table 4 below, factor loading values of all the learning leadership dimensions ranged from 0.761 to 0.909 are statistically significant at 0.01. Factor loading is the importance of standard factors of each dimension or attribute in the relationship model of learning leadership and professional learning community practice of the school principals that have been taken into consideration. The co-variance with learning leadership was from 57.90 to 82.50 percent. The dimension with the highest factor loading was self-directed learning. This is followed by flexibility, powerful environment, technology for management and learning, integration, team learning, transformational process and tailor making, and sufficient philosophy dimensions respectively. The dimension that had the lowest factor loading was creativity. As a result, all the dimensions are found to be important construct of learning leadership.

On the other hand, as for construct of professional learning community practice showed the factor loading values from 0.490 to 0.795 are statistically significant at 0.01. The co-variance with professional learning community was from 24.00 to 63.20 percent. The attribute with the highest factor loading was supportive conditions, followed by supportive and shared leadership, and collective learning and application of learning respectively. The attribute receiving the lowest factor loading was the shared personnel practice. All constructs were important as the attributes of professional learning community practice.

Table 4. Factor loading and validity of observable variables in the measurement model

Factors	Matrix of Factor loading			R ²
	β	SE	t	
Learning leadership dimensions				
Self-directed learning	0.909	0.011	0.000	0.825
Flexibility	0.832	0.016	0.000	0.693
Power environment for learning and innovation	0.831	0.017	0.000	0.691
ICT for learning and management	0.826	0.017	0.000	0.682
Integration	0.821	0.015	0.000	0.674
Team learning	0.820	0.018	0.000	0.673
Transformational process and tailor making	0.818	0.016	0.000	0.670
Sufficiency philosophy	0.769	0.029	0.000	0.591
Creativity	0.761	0.019	0.000	0.579
Professional learning community attributes				
Supportive conditions	0.795	0.021	0.000	0.632
Supportive and shared leadership	0.774	0.021	0.000	0.599
Shared values and vision	0.759	0.027	0.000	0.576
Collective learning and application of learning	0.715	0.025	0.000	0.511
Shared personnel practice	0.490	0.038	0.000	0.240

Findings from Table 4 reveals that the correction between the factors of professional learning community could be assessed in the standard component score (β) which indicated significantly high and positive correlations at 0.01. Besides, it was found that the measurement model of professional learning community factors has goodness fit with evident data, with $X^2 = 38.811$, $df = 31$, $p = .158$, $X^2/df = 1.625$, $RMSEA = .020$, $SRMR = .007$, $CFI = .999$ and $TLI = .997$. Result shows that not only the degree of correlation between the professional learning community factors was statistically high at significant level of 0.01 but also the relationship model of professional learning community factors were consistent with empirical data.

The effect of linear structural relationship model

CFA was used to validate at the preliminary stage to identify the causal relationships among the latent variables. Referring to causal relationship as shown in Table 5, result show that latent variables of learning leadership was affecting professional learning community practice with a factor loading as 0.883. In conclusion, learning

leadership of school principals had an influence on school's professional learning community practice, accounted for 88.30 percent.

Table 5. The effect of linear structural relationship model

Professional learning community	Matrix of Factor loading		
	β	SE	t
Learning leadership	0.883	0.018	0.000

Results of assessing of model fit

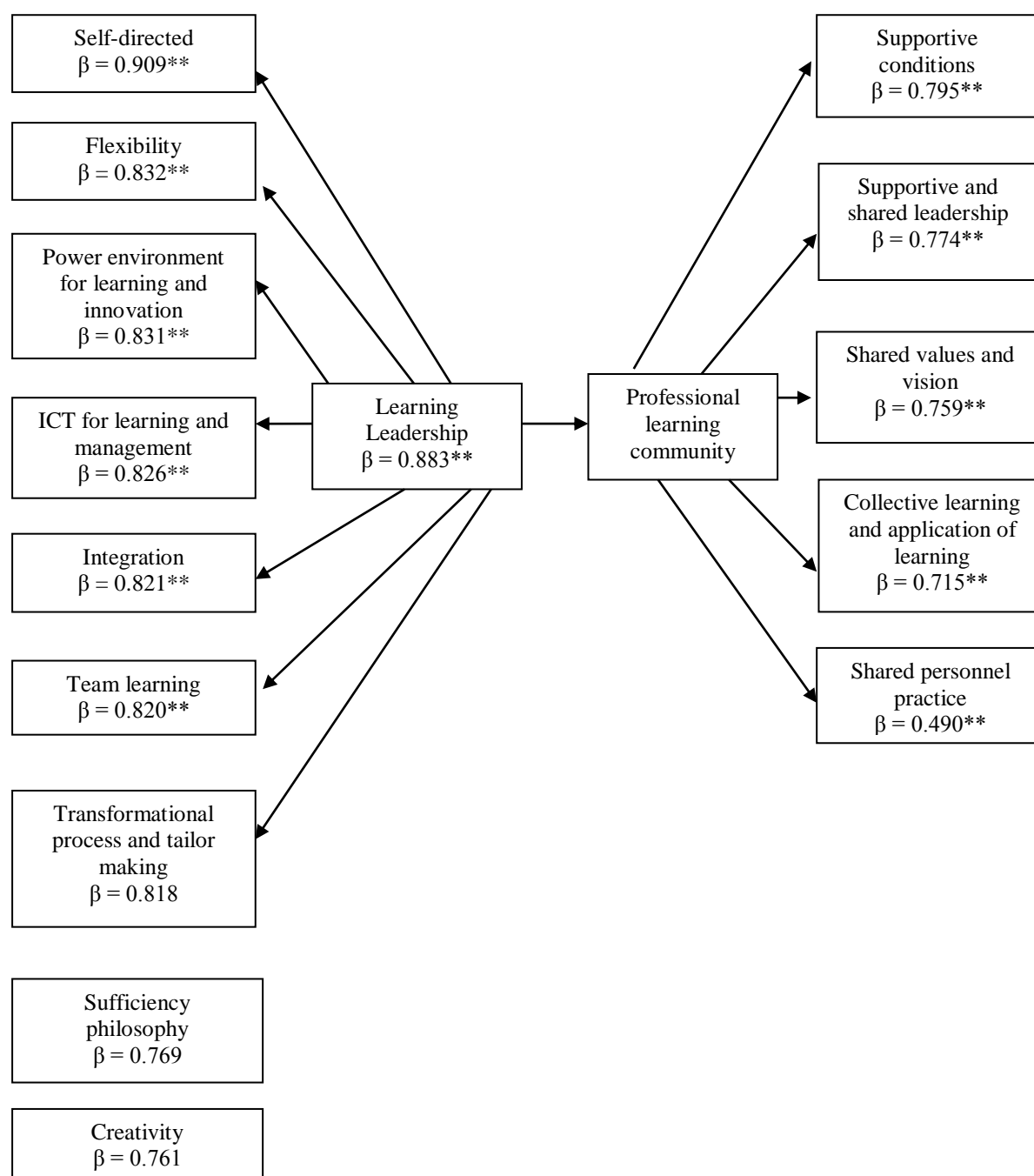


Figure 1. A Linear Structural Relationship Model of Learning Leadership and Professional Learning Community

Results of assessment of model fit indexes would be used to explain the relationship between the latent variables which were the defined variables from the measurement models as correlations, means, and standard deviations

among the latent variables. Subsequently, predicted correlations or co-variances were compared to the observed correlations or co-variances and if fit statistics are poor the model should be re-specified and modification indices should be followed. The final modified model with acceptable model fit statistics should be used for testing the hypotheses related to the statistical significance of the structure coefficient or path in the model. A careful assessment of the structure coefficient, standard error, t-value, and p-value will indicate if the null hypotheses should be rejected or not (Carvalho & Chima, 2014). It is concluded the null hypotheses should be significantly rejected at significant level as 0.01. Figure 1 above shows the results of the linear structural relationship model has goodness of fit with evident data.

DISCUSSION

The main focus of this study was looking into the importance of standard factor loading of each variable in the relationship model of learning leadership and professional learning community practice of the school principals under the Secondary Educational Service Area 25. Results of the study revealed that all the synthesized factors of learning leadership correlate well with the empirical data with statistical significance (Tuksino, 2009). Hence results also implied that all the six dimensions of learning leadership namely sufficiency philosophy, transformational process and tailor making, ICT for learning and management, creativity, integration, team learning, self-directed learning, flexibility, and powerful environment for learning and innovation are important for school principals if they would like to implement learning leadership style. As a result, overall result seems to be in accordance with the theory (Somprach et al., 2013) and also previous research findings such as Somprach and Tang (2016) and Somprach et al. (2017).

In addition, the key finding indicated that the degree of correlation between learning leadership and professional learning community practice was indicated by the standard factor loading as $\beta = 0.883$, which was high and positive with statistical significance at 0.01. Moreover, it was found that the relationship model of learning leadership and professional learning community practice correlated very well with the empirical data with statistical significance. This implies that the more school principals implemented learning leadership the professional learning community practice in their schools will be higher. Nevertheless final result revealed that this model of relationship between learning leadership and professional learning community practice was found to be consistent with empirical data with $\beta = 0.883$, $X^2 = 38.811$, $df = 31$, $p = .158$, $X^2/df = 1.625$, $RMSEA = .020$, $SRMR = .007$, $CFI = .999$ and $TLI = .997$ as what has been suggested by researchers. In conclusion, this means that learning leadership and professional learning community practice relationship model can explain well the two observed variables.

CONCLUSION

This study initiated the above mentioned dimensions of learning leadership supported the proposition that learning leadership associated with professional learning community practice. Learning leadership dimensions emerged as supporting the process of professional learning community practice in the context of this study. The general results of this study are useful for the policy maker, educational administrators, educators, and practitioners. Empirical development in the secondary schools largely neglects to recognize learning leader as an element of professional learning community practice. This study has successfully provided empirical justification that learning leadership is crucial in the construction of professional learning community practice. Such results establish school organization as a social process rather than as cost-effective judgment. The richness and justification of data reveals its valuable contribution of knowledge from an academic perspective. On top of that, this study also contributes to school principals' work in several ways. The results highlighted the important of learning, thus acknowledge the managerial implications of incorporating learning process based professional development into the Thailand educational administration system.

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The Effect of Programming Language Learning by Using Game Comprehension

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ABSTRACT

The purposes of this research were to assess the learning effectiveness of programming language by using games in class, and evaluate the satisfaction of the students learning the programming language with games. The sample included 40 students in high school 1 at School in Prachin Buri Province. The samples were 40 high school students selected by cluster random sampling. Experimental results showed that the efficiency of programming language learning using games in class for was higher than the standard of 70/70 and the students were satisfied with programming language learning using games, at a high level, the highest percentage was that they understand and enjoyed learning programming language better. The results suggest that programming language by using games can be exploited as effective and motivational learning environments.

INTRODUCTION

Currently, when technology is a part of life and more active, the question of how children use and learn technology wisely and intelligently is more importance. Children are growing up using a variety of digital devices (Penn State, 2014). A programming language is a language for describing instructions of computer to solve a problem and learning programming language is considered to be a difficult subject to learn. There are many students experienced with fail to understand the significant concept of programming.

Much of previous research reveals that students face with the problems of coding and designing a computer language program (R. Lister et al, 2004, A. R. Mohamad Gobil et al, 2009). The McCracken group presented the problem of the student's performance in problem solving ability (R. Lister, 2011). Student learned the concept of object-oriented programming using the static visualization in the first stages of learning (Ragonis and Ben-Ari, 2005).

Game is one of the significant innovations in education and teacher acknowledges that game can motivate students for learning activities. Learning through play a game is one of the important principles of education for children and teacher acknowledges that gaming activity can use for learning activities and act as a significant medium that makes fun as a skill tool. According to Sébastien et al (2016), the gamification process increases in motivation and engagement of the learners and the design process in game-based learning was presented feedback, goals, and interaction (Z. Alaswad and L. Nadolny, 2015). A game model was created including three parts as input, process and outcomes in order to evaluate educational computer games (Ak O., 2012). Also, game based learning has been used for a number of studies; for example, Kambouri and colleagues (2006) assessed basic literacy skills and Kiili (2005) engaged players by using direct experiences with the game world.

Therefore, learning programming language is considered difficult subject to learn for students and to achieve the learning effectiveness of programming language, this project studies and conduct research by using game based learning to engage and motivate student to learn programming language.

OBJECTIVES

The research aims to assess the learning effectiveness of programming language by using games in class, and evaluate the satisfaction of the student's learning in the programming language with games.

RESEARCH METHODOLOGIES

In the preliminary stage, the literature of this subject was examined and a deductive approach was applied with a quantitative method. The research aims to assess the learning effectiveness of programming language by using games in class, and evaluate the satisfaction of the students learning the programming language with games. The research consists of six steps:

1. Design and development of teaching materials. Instructors designed and developed the content from the curriculum for analysis as a learning unit, each consisting of behavioral objectives, content, tests and summaries.
2. Assessment the appropriateness of the instructional media and the media is used to understand concept and develop learning activities including introduction, variables, statement and condition concept.
3. Test the lesson divided into 2 parts; the pretest and posttest.
4. Experiment with the sample.
5. Collect data by trial with students.
6. Summary and conclusions

The samples of the research were 30 students in high school 1 at School in Prachin Buri Province. The samples were 30 high school students by purposive sampling. The in-depth interviews were conducted after the training session and the samples were required to give the explanation and describe the learning situation. The collected data were analyzed by the statistical means, and standard deviation (S.D.). The level of the significance was $p = 0.05$ that formed the basis for or rejecting or not rejecting each of the hypotheses. To evaluate the effectiveness of learning material collected data from test and post-test was analyzed and measured by using E1/E2 effectiveness with 80/80 condition.

$$E_1 = \frac{\sum x}{N} \times 100 \quad (1)$$

$$E_2 = \frac{\sum F}{N} \times 100 \quad (2)$$

When
 E1 = the efficiency of the developed material
 E2 = the efficiency of performance result
 $\sum X$ = total score from lesson testing
 $\sum F$ = total score from post-test
 A = Total score of lesson testing
 B = Total score of post-test
 N = total number of students

Moreover, this research took questionnaires to test and evaluate the satisfaction of the student's learning in the programming language with games and a 5-point Likert scale was utilized to range from "strongly satisfaction" to "strongly dissatisfaction".

EMPIRICAL STUDY AND RESULTS

The results of this study are presented to 2 sections: assessing students' learning achievements; and evaluating the satisfaction of the student's learning.

Table 1 the results of assessing students' learning achievements

	Group	Score		E1/E2
		\bar{x}	S.D.	
Pre-test	30	16.13	1.44	80.67
Post-test	30	17.36	2.41	86.12

Testing during class, the mean score was 16.13 from the 20-point scale and the standard deviation of 1.44 was 80.67 and the average score of posttest was 17.36 from the 20-point scale and the standard deviation of 2.41 was 86.12. Also, the performance of the game, the efficiency of E1 / E2 is 80.67 /86.12, indicating that the game lessons effective 80/80 criteria.

A questionnaire adapted was applied to evaluate the satisfaction of the student's learning. The sample consisted of 30 students (number of boys =19 and number of girls =11). Data are presented in terms of descriptive statistics.

Table 2 the results of the satisfaction of the student's learning

	\bar{x}	S.D.	Level
Teaching technique	4.39	0.55	High
The personality of the instructor	4.50	0.49	Very high
Teaching material	4.29	0.53	High
Quiz and evaluation	4.25	0.50	High
Total	4.36	0.52	High

Table 2 was shown the level of student satisfaction toward teaching and learning management and the overall is high (Mean = 4.36). When considering each aspect, it was found that the highest mean was the personality of the instructor and followed by teaching technique, teaching material, and measurement and evaluation respectively. In teaching technique aspect, the level of student satisfaction toward teaching and learning management in the course presented that teacher used techniques to teach students to understand them more easily, including the use of questions, debates, presentations, and etc.

Table 3 the results of the satisfaction of the student's learning in teaching technique

	\bar{x}	S.D.	Level
Teacher uses a variety of teaching methods appropriate to the subject matter.	4.55	0.49	Very high
Teacher uses techniques to teach students to understand them more easily	4.28	0.56	High
Students have the opportunity to ask questions, express opinions, discuss, give advice and listen to their ideas.	4.38	0.59	High
Teachers use language to teach that students can understand. It's easy and appropriate for content.	4.33	0.55	High

Table 4 was shown the results of the satisfaction of the student's learning in the personality of the instructor and

Table 4 the results of the satisfaction of the student's learning in the personality of the instructor

	\bar{x}	S.D.	Level
Teacher teaches students by applying moral / ethical / professional ethics.	4.42	0.49	High
Teacher uses a polite language to teach students.	4.70	0.45	Very high
Teachers can control emotions while teaching.	4.39	0.54	High

Also table 5 and 6 were described the results of the satisfaction of the student's learning in teaching material and quiz and evaluation sections.

Table 5 the results of the satisfaction of the student's learning in teaching material

	\bar{x}	S.D.	Level
Teacher uses modern technology media.	4.27	0.56	High
The media is easily to understand and learn.	4.48	0.50	High
Teacher uses e-learning to help in class effectively.	4.13	0.53	High

The media easily to understand and learn was the highest score of the satisfaction of the student's learning in teaching material and teacher informing the test results after the exam finished was the highest score of the satisfaction of the student's learning quiz and evaluation.

Table 6 the results of the satisfaction of the student's learning in quiz and evaluation

	\bar{x}	S.D.	Level
Teacher sets the assessment criteria to meet the behavioral objectives	4.04	0.42	Very high
Teacher informs the test results after the exam finished	4.47	0.55	High
Teacher reviews the content after teaching.	4.23	0.52	High

CONCLUSIONS AND FUTURE WORKS

The experimental group had significantly better performance in learning achievements. This learning activity can be beneficial to use in different courses so that students can enhance and improve their ability and also this system supports teachers in handle and manage their course. However, in term of the future experiments, we are looking forward to advanced technologies to support in learning preferences and interest of learners based on social networks and to create adaptive learning for learners.

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The Effect of Publishing Anatomy Laboratory Videos Online on Success of the Students at School of Medicine

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ABSTRACT

Anatomy is one of the basic lessons at the schools of medicine. It takes an important place on the first and the second term syllabi. Because of its terms are latin, heavy schedule of theoretical lessons, despite anatomy lecturers have many images on their slides, experiencing difficulties on three dimensional thinking and imagining; learning anatomy is evaluated as difficult by the students.

To overcome these difficulties, anatomy laboratory lessons that are paralelly to the theoretical lessons are performed. In these laboratory lessons, the better learning is targeted by making use of models and cadavers. The aim of our study is measuring how much effect of the videos on anatomy laboratory exam scores.

For this aim, anatomy laboratory exam scores of the second term students of the school of medicine this year whom we shared the laboratory videos that were started to record in 2016 (Group 2) and that of the second term students of the school of medicine last year whom we didn't share the laboratory videos(Group 1) are compared. Group 1 students consist of 294 students(146 male, 148 female) and group 2 students are made up of 330 students(171 male, 159 female). Mean of these two groups' anatomy laboratory exam scores in Circulation and Respiration, Digestion and Metabolism, Urogenital and Endocrine committees are compared. The students in group 2 were also filled in a questionnaire that is related with feedback of their pleasures from the laboratory videos. The mean of Group 1 students' anatomy laboratory exam scores in Circulation and Respiration Committee is 51.04 ± 25.911 and that of group 2 is 57.82 ± 22.739 . The mean of Group 1 students' anatomy

laboratory exam scores in Digestion and Metabolism Committee is 56.51 ± 24.737 and that of group 2 is 62.50 ± 23.055 . The mean of Group 1 students' anatomy laboratory exam scores in Urogenital and Endocrine Committee is 72.73 ± 25.485 and that of group 2 is 78.71 ± 18.313 . When the means are compared statistically, there are significant differences in Circulation and Respiration ($p < 0.001$), Digestion and Metabolism ($p = 0.001$), Urogenital and Endocrine Committees ($p < 0.05$). In conclusion, it is found that these laboratory videos contribute to the scores of anatomy laboratory exams of the school of medicine students. Our opinion is that these laboratory videos will be useful for better anatomy knowledge which is in order to be a good doctor.

Keywords: school of medicine, anatomy, videos, laboratory, exam scores

INTRODUCTION

Human anatomy is a basic lesson in health field. To be successful and good doctor, human anatomy should be learned truly and permanently. Anatomy is a lecture that is difficult to learn and remember, because Anatomy is a science that is based on Latin. Theoretical knowledge must be combined with imagery. Because of this, Anatomy laboratory courses must be applied in addition to the theoretical lectures.

With the opening of the new schools of medicine, number of cadavers is not enough for the laboratory courses. Therefore, Anatomy laboratory courses are learned on mock-ups (Sabancıoğlu et al. 2016). The crowd of the classes, insufficient number of mock-ups and cadavers, the environmental problems of laboratory (sound system, air conditioning etc.) reduce the efficiency of the course.

Applying of new information technologies on university teaching has made a breakthrough on traditional education methods (Paalman, 2000. Greenhalgh, 2001). In the recent days, to cope with these problems, varied educational methods like on-line content, social media, tablet and mobile phone applications, virtual reality, video education, e-book with multimedia content etc. has come to the fore.

Chen et al. made a study on 1181 students of University of Central Florida. In this study 95 percent of the students have a smart phone and 57 percent of them have a tablet. The majority of the students can access to mobile phone and tablet applications, e-books with multimedia content easily. However, in these methods, the level of the information detail and information reliability may be lower than the wanted level. On the other hand, there are studies declaring as innovative methods, these methods are helpful for the education with the traditional education methods (Lewis et al. 2014, Stirling & Birth 2014, Briz-Ponce et al. 2016). From this, we considered that students use technological devices frequently. After recording the Anatomy laboratory videos, we shared the videos with students. With this, we wanted to combine innovative education method with the traditional one.

Recently, video education is used not merely in Anatomy, but also in other science fields as a supporting method. It is used especially in seminars. Because of the insufficiency of the education materials and crowd of the classes, they are used instead of the practical courses. There are many studies stating video education has effects on the success of the students. (Saxena et al. 2008, Topping 2014, Saberski et al. 2015)

Considering the benefits of Anatomy laboratory videos, first of all, students can clearly see the mockup or organs of the cadaver and focus on the subject. After the first watching, if the student thinks his/her knowledge isn't enough, he/she may replay the video. The video isn't affected by the crowd or negative environmental laboratory conditions. They can be watched with a smart phone, a tablet or a computer everywhere, every time. They also can contribute to studying theoretical subjects.

In 2016-2017 educational year, as Anatomy Department Kocaeli University School of Medicine we started to record videos of Anatomy laboratory courses. The videos include not solely mock-ups but also organs of the cadaver. If any error is determined, lecturers check videos and then videos are fixed. The aim of this study is exploring the effect of video education on Anatomy laboratory exams and level of the students' pleasure.

MATERIAL-METHOD

The scores of two student groups in Kocaeli University School of Medicine are examined. One of these groups who didn't watch Anatomy Laboratory Videos compose of 2015-2016 second term students. (n:294) The other group who watched these videos consisted of 2016-2017 second term students (n:330).

Anatomy Laboratory scores of Respiratory and Circulatory System, Gastrointestinal System and Metabolism, Urogenital System and Metabolism committees of the two groups are taken from Registrar's Office of Kocaeli

University School of Medicine. Taken scores are not comparable because of the difference of Anatomy Laboratory exam percentage of the committees between the two years. Therefore, these scores calculated again from 0 to 100. The SPSS package (SPSS for Windows, version 20.0, SPSS, Chicago, IL, USA) for personal computers is used for the statistical analyses. The means, standard deviations and normality tests are performed. The data that are not fit with the normal distribution are analyzed with Mann-Whitney U test.

Furthermore, we have taken feedback surveys from the 2016-2017 second term students (n:255). Percentage of watched videos to all of the videos, how many times they watched the videos, how much effect on their theoretical and practical exams, if the videos are beneficial for understanding the related subject, if they re-watched the videos after the committee exam are the questions of this survey. From these surveys, descriptive statistics are done with SPSS package program.

FINDINGS

The Anatomy laboratory scores of Kocaeli University School of Medicine Second Term Students in 2015-2016 (n:294) and 2016-2017 (n:330) educational years are examined. Furthermore, some of the students in 2016-2017 educational year (n:255) filled out feedback surveys willingly. Although, the students of the 2016-2017 educational year could access the Anatomy laboratory videos that comprised mock-ups and cadaver organs, the students of the 2015-2016 educational year didn't access the videos. Because these videos were started to record in 2016-2017 educational year. When the Anatomy Laboratory exam scores of these two groups are compared, 2016-2017 group that had access to the videos, statistically had higher scores than the 2015-2016 group that didn't have access to the videos. Respectively, p values of Respiratory and Circulatory System Committee, Gastrointestinal System and Metabolism, Urogenital System and Metabolism are $p < 0,001$, $p = 0,001$, $p < 0,05$.

Committees	2015-2016	2016-2017	p value
Respiratory and Circulatory	51,04 ± 25,911 (n:294)	57,82 ± 22,739 (n:330)	$p < 0,001$
Gastrointestinal and Metabolism	56,51 ± 24,737 (n:294)	62,5 ± 23,055 (n:327)	$p = 0,001$
Urogenital and Metabolism	72,73 ± 25,485 (n:288)	78,71 ± 18,313 (n:328)	$p < 0,05$

Table – 1 Means ± Standard Deviations of the Anatomy laboratory scores of the two groups to the committees are shown in the table. P values in 5 percent significance level calculated with Mann Whitney U test.

When the willingly filled out surveys are examined, (n:255 114 boys and 131 girls and 10 of them didn't state their genders. Mean of ages: $20,13 \pm 1,26$) 78,8 percent of the students stated that they had watched all of the videos. 16,9 percent of the students watched more than half. %39,6 of the students answered as 2 times, %27,5 of them answered as 3 times, %16,9 of them answered as 5 or more times to "How many times did you watch the videos" question. 60,8 percent of the students marked 9-10 points, 26,3 percent of them marked 7-8 points, 9 percent of them marked 5-6 points for the beneficial effect of the videos on understanding the related subject. %31,4 of the students pointed 9-10 points, %27,5 of them pointed 7-8 points, %19,2 of them pointed 5-6 points for influences of the videos on theoretical exams. Furthermore, %65,1 of the students replied as 9-10 points, %22,4 of them replied as 7-8 points, %5,5 of them replied as 5-6 points for the impact of the videos on Anatomy practical exam. Additionally, only 19,2 percent of the students stated that they had watched the videos of past committees and 79,6 percent of them stated that they hadn't watched.

	The beneficial degree of the videos on understanding the related subject	The beneficial degree of the videos on theoretical exam	The beneficial degree of the videos on laboratory exam
No, the videos aren't beneficial.	n:4 (%1,6)	n:1 (%0,4)	n:3 (%1,2)
1-2 points	n:1 (%0,4)	n:17 (%6,7)	n:2 (%0,8)
3-4 points	n:5 (%2)	n:38 (%14,9)	n:13 (%5,1)
5-6 points	n:23 (%9)	n:49 (%19,2)	n:14 (%5,5)
7-8 points	n:67 (%26,3)	n:70 (%27,5)	n:57 (%22,4)
9-10 points	n:155 (%60,8)	n:80 (%31,4)	n:166 (%65,1)
Total	n:255	n:255	n:255

Table – 2 The data in this table are taken from the feedback surveys. The beneficial degrees of the videos on understanding the related subject, theoretical exam and laboratory exam classified to points.

When considering the effectuality of the videos with comparing the scores and feedback surveys, it's clearly found out that the videos are beneficial. Furthermore, students stated that these benefits are more on the practical exams than the theoretical exams.

Students also indicated that they had replayed the videos majorly two or more times. Replaying the videos is effective for that students can comprehend the subjects that haven't been understood after first watching.

The students answered mostly "No, I didn't watch" to the question of watching the videos of past committees. It is also a notable issue. This point expresses that exams have positive contribution to learning of students. However, after the exam, students lose motivation for learning of the subjects of past committees.

Moreover, the other information from the surveys is that the contribution is not only to practical exams, but also to theoretical exams. However, this contribution is less than to the practical exams.

DISCUSSION

Each lecturer has a special educational style and method. Anatomy has an important role in medical education (Sabancıoğlu et al. 2016; Erbay et al. 2015; Tuygar et al 2015). Not merely for Anatomy, but also for the other medical sciences, there are a lot of media such as figures, animations, videos, three dimensional visuals on the internet. However, these materials are beneficial only if they're used with the traditional educational method. The place of the subjects of the lecturers who manage the students' educational steps to the assessment and evaluation cannot be replaced with the information from the internet.

Anatomy laboratory education has a crucial role in Anatomy education as well (Green & Whitburn 2016; Dinsmore, Daugherty & Zeitz, 1999). When preparing these laboratory videos, it is considered that these videos are prepared in parallel with both Anatomy laboratory courses and theoretical lectures. After preparing, our lecturers control them and their acceptability is provided. This reason why the level of reliability of the information in these videos are higher than the free internet sources.

Green & Whitburn (2016) did a study with 461 physiotherapy students in second term for Gross Anatomy lecture. They investigated the differences of success levels between mixed education and face to face education. For this aim, they classified these students as three groups that consisted of 150 students (year 2013), 160 students (year 2014), and 151 students (year 2015). The year 2013 group had only face to face education. The year 2014 group had face to face education that was supported with some online videos. The year 2015 group had online video once a week and face to face education. In the results, the success levels of year 2014 and year 2015 groups (mixed education) were higher than the classic face-to-face education. Also, in our study video education with classical education ends with more success.

Mahmud et al. (2011) performed a study on 287 first term students in school of medicine about whether the dissection videos were beneficial. There wasn't any significant difference between the group that watched the dissection videos and the other group that didn't watch them. We think that learning isn't possible only watching the videos of dissection of cadavers or mock-ups. Students must have sufficient knowledge on the related subject. Touching has a role on learning as well.

Peeler et al. (2016) made up an exploration on 93 medical students. 54 of them had pro-section based and 39 of them had dissection based practical courses. The two groups also had the same the theoretical lectures. There wasn't any significant difference between the scores of the two groups. Besides this, students filled out surveys about which educational method was the best. Majority of the students answered this question with case based and medical imaging. Therefore, students are eager to learn the subjects with innovative methods. If the traditional education method is supported with the innovative methods, students will remember easily the information which is supported with more than one method. In the long process, this will turn into the success.

Topping (2014) managed an investigation about the effect of gross anatomy educational videos on the first term medical students' success. 40 participants watched the videos, the other 40 participants that consisted of a year before the first group didn't watch. The first group who watched the videos had the higher scores. The increasing is 4 percent. In our study the increasing percentage is %6 approximately for all committees.

Saberski et al. (2015) did a research about effectuality of using laparoscopic videos on gross anatomy education. In this research, 75 percent of the students found beneficial these videos. There was an increase on understanding the abdominopelvic anatomy in 62 percent of them statistically ($p < 0,01$). Although %10 of them didn't have an eager to the surgical branches, after the videos, they considered a surgical career as well. The results also resemble with outcomes of our study.

RESULT

In this research, we want to show how much effect of the video education on the Anatomy exam scores when it's used with traditional education. Independent two groups are investigated. Anatomy laboratory scores of these two groups in the same three committees are analyzed. The group who watched the videos have higher scores statistically in all three committees. The information from feedback surveys show the pleasures of the students. They stated in the surveys that videos are beneficial for not only practical exams, but also theoretical exams.

For the reason that attentions and interests of the students are on mobile devices and both learning and understanding Anatomy is a difficult lecture because of it is Latin, diverting to new educational methods is a requirement. Consequently, in this study video education is beneficial for Anatomy practical courses. However, for determining whether the video education is absolutely beneficial and whether it is the best, more researches should be done.

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The Effect of Teacher Candidates' Episodological Beliefs or Beliefs Regarding the Nature of Science on the Pseudo-Scientific Beliefs

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ABSTRACT

Theories of the nature of science and epistemological belief approaches allow the individual to distinguish between scientific and non-scientific knowledge. Despite the accumulation of knowledge which is the product of scientific studies, many false beliefs still exist. One of the basic dimensions of scientific literacy, the nature of science, is a broad field that includes the beliefs and values inherent in scientific knowledge and considers human efforts in their development. It also tries to find answers to questions such as "What is science?", "How does it work?", "How do scientists work as a social group?", "How does society guide science and how does society react to scientific works?" (McComas and Olson, 2000).

These false beliefs that are believed to be true, which are also named as pseudo-science, consist of beliefs that are not supported by scientific research and only based on hypotheses, that doesn't go through the phases of scientific methods, that are made up of personal explanations and examples or based on religious beliefs, and practices based on these beliefs (Çetinkaya, 2013).

In this research, we tried to determine the epistemological beliefs and beliefs towards the nature of the science of teacher candidates studying in different programs of the education faculty. And it was investigated that how much of an effect these beliefs of the teacher candidates have on their pseudo-science beliefs. Thus, in this study we have worked with 202 teachers in total studying at the Education Faculty of Pamukkale University. 46 of the teachers were Science Teachers, 51 of them were Elementary Mathematics Teachers, 49 of them were Computer and Instructional Technologies Teachers and 56 of them were Primary School Teachers. Combined method design based on the principle of combining the quantitative and qualitative studies and the data regarding them is used in this study. "Scientific Epistemological Beliefs Scale", "Nature of Science Beliefs Scale" and "Science, Pseudo-Science Differentiation Scale" were applied to the teacher candidates. In addition, a semi-structured interview was conducted with a total of 12 prospective teachers, three teacher candidates from each area, to examine the mentioned effect more deeply.

As a result of the research, it is seen that there are certain differences and similarities in the beliefs of the prospective teachers towards epistemological and scientific nature and that these differences and similarities are reflected in the pseudo-science beliefs of the teacher candidates in a similar way. The findings are also discussed in the light of the literature of the area.

1. INTRODUCTION

As it's in their nature, mankind has always tried to understand the world they live in and the universe. And they tried to solve their mysteries. The struggles they had to overcome their fears, to discover what they don't know or just to have a better life has turned into a more systematic and regular fashion and thus, the concept what we call science today has appeared. Questions such as what science is, what is its functions and what methods should science include have always been topics that are highly discussed among the scientists. Yet considering the constantly changing dynamic structure of the science, this comes as no surprise.

Even though there are many different perspectives regarding the nature of science, that the scientific knowledge should be experimental and subjective, based on human inference, imagination and creativity and that it should come out by means of getting affected by social and cultural elements have always been the factors embraced by many scientists (Lederman, 1999). Accordingly, the nature of science includes the characteristics of scientific knowledge, the views of scientific committees and the conceptual inventions, values and assumptions in science (Aikenhead, Ryan, 1992).

All these determinations and definitions are important in order that the efforts to reach knowledge can be carried out on a more accurate and productive ground, in other words, to distinguish non-scientific ones. It was otherwise observed that some findings suggested as scientific lead to confusion, infollution and conceptual

fallacies. Thus, they prevent people from finding the facts. The concept of pseudoscience, which has been frequently encountered in recent years, is an example of this.

Pseudo-science is generally means "so-called" or fake science in a negative sense. Despite of the fact that the concept of pseudo-science has been in use since the eighteenth century, Karl Popper was the one who revived the use of the term in contemporary philosophy of science Popper (1962) defines the term of pseudo-science as disciplines or systems which asserted to be scientific and to explain facts in other words and which pretend to be based on the scientific methods or to have the epistemic status the scientific facts have, but in fact are extremely against falsifying and testing. Tutar (2014) has generally expressed pseudo-science as ethically problematic mental struggles that doesn't conform to the scientific criteria even though they look as if they were in accordance with the scientific norms. Pseudo-scientific theories are usually described using fictitious, rhetorical and mythical words rather than using verifiable, valid and grounded systems that are case based and objective (Tutar, 2014). In other words, even though the owners of the pseudo-scientific claims say that their claims are scientific, these claims often do not conform to scientific standards and do not have the chance to be verified either experimentally or theoretically (Jahoda, 1969; Preece and Baxter, 2000; Finn, Bothe and Bramlett, 2005). In order to distinguish pseudo-science elements from scientific phenomena, it is of great importance to know the nature of science well. In this context, the importance of science education emerges once again. In general terms, science is defined as examining the creatures and entities in nature and making an effort to foresee the events in the future by generalizing or founding principles (YÖK/World Bank, 1997). Hodson (1993) stated that teaching the nature of science is one of the main aims of science education and training. Lederman (2004), however, stated that in order for students to be able to make conscious personal and social decisions using scientific knowledge, it is necessary to first understand how scientific information is structured and, accordingly, to deeply understand the source and boundaries of this information.

Not only the beliefs of the individuals towards the nature of science but their epistemological beliefs affect their approach to information as well. Epistemological beliefs are expressed as the individual's subjective beliefs regarding the acquisition of knowledge, the nature of science and knowledge. Mentioned beliefs consist of individual's core beliefs about how one identifies knowledge, what are the boundaries of knowledge, how it is obtained and stored (Hofer and Pintrich, 1997; Schommer, 1994). In the same vein, it was emphasized over and over that the epistemic profiles of the science teachers are highly influential on both learning a new subject and distinguishing scientific and pseudo-scientific concepts (Hashweh, 1996; Abd-el-Khalick, 2003; Olafson and Scraw, 2006; Yılmaz-Tuzun and Topçu, 2008; Liu et al., 2011).

Starting from this facts and points of view, the study was aimed at determining the epistemological beliefs and beliefs towards the nature of science of the teacher candidates studying in different departments of Pamukkale University, Faculty of Education. After the determination process, it was examined that how much effect these beliefs have on the teacher candidates' pseudo-science beliefs.

2.METHOD

In the study, one of the combined method designs, sequential explanatory design, was used. Predominantly, qualitative data is gathered after the quantitative data is collected and analyzed in this study. Priority is usually the quantitative data. Qualitative data fundamentally is collected to enhance the quantitative data. Data analyses are related to each other and they come together in the discussion chapters (Creswell, 2003). One of the reasons why the approach of using the qualitative and quantitative data collection tools together in this study is because it enables examining the complicated structure which emerges as a result of investigating the pseudo-science beliefs of the participants as well as their epistemological beliefs and beliefs towards the nature of science profoundly.

In the quantitative dimension of the study, the scientific epistemological and pseudo-scientific beliefs of the participants and their beliefs towards the nature of science are revealed using "Scientific Epistemological Beliefs Scale", "Beliefs towards Nature of Science Scale" and "Science, Pseudo-Science Separation" scales. In qualitative dimension, however, semi-structured interviews were conducted with the participants to be able to examine the mentioned effect profoundly.

In table 1, information about the participants worked with in the quantitative dimension are shown.

Table 1. Participant Information for Quantitative Work

Program	Class	f	&
Science Teachers	1	8	22.78
	2	12	
	3	11	
	4	15	
	Total	46	
Teachers of Elementary Mathematics	1	9	25.25
	2	11	
	3	11	
	4	20	
	Total	51	
Teachers of Computer and Instructional Technologies	1	7	24.25
	2	10	
	3	14	
	4	18	
	Total	49	
Primary School Teaching	1	12	27.72
	2	11	
	3	16	
	4	17	
	Total	56	
	Grand Total	202	100.00

The choice of the teacher candidates to participate the semi-structured interview conducted in the qualitative dimension of the study were based on their score average in the scales of "Scientific Epistemological Beliefs Scale" and "Beliefs towards Nature of Science Scale" which were applied beforehand. Depending on the scores in those scales, 3 voluntary participants were chosen from highest, middle and lowest score groups in each department. In the semi-structured interviews conducted with a total of 12 teacher candidates, five questions regarding the separation of science and pseudo-science and prepared by researchers were directed to participants.

"Scientific Epistemological Beliefs Scale" used in the study is a scale consisting of 5 Likert choices changing between "Strongly Agree" and "Strongly Disagree" and it includes 50 items. It was developed by Pomeroy (1993). In the factor analysis adjusted to Turkish by Deryakulu and Bıkmaz (2003) and conducted to determine its validity and reliability, it was observed that the scale is in a single factor structure and consists of 30 items. And Chronback Alpha factor is calculated as 0,91.

50-item original version of the scale in English consisted of three sub-dimensions:

- Traditional science understanding,
- Traditional science education understanding,
- Non-traditional understanding of science.

Developed by Özcan and Turgut (2014) to determine the beliefs of teacher candidates regarding the nature of science, "Beliefs regarding the Nature of Science Scale" consist of 37 items developed in a 5-point Likert type ranging between "Strongly Agree" and "Strongly Disagree". The sub-dimensions of the scale are as follows:

- Change in Scientific Knowledge
- Difference between Observation-Deduction
- Scientific Method/Methods
- Creativity and Imagination
- Socio-Cultural Impact
- Scientific Laws and Theories
- Scientific Acceptance and Limits

"Science Pseudo-Science Scale" developed by Oothoudt (2008) was localized for Turkish by Çetinkaya et al. (2003). As a result of explanatory and confirmatory factor analysis of the scale, linguistic equivalence of which was achieved, it was found appropriate to reduce the original scale of 32 items to 23 items and the items were found to be collected in four sub-dimensions:

- Pseudo-Science
- Scientific Method
- Science, Pseudo-Science Separation
- Pseudo-Scientific Beliefs

Items seen in the Science, Pseudo-Science scale are actualized using the high grading of the scientific beliefs and low grading of the pseudo-scientific beliefs.

The study conducted in the 2017-2018 academic year was completed in two months. Primarily the scales regarding the respective subjects were applied to the teacher candidates participated in the study. The responses the participants provided for these scales in the quantitative dimension of the study were coded using the SPSS 22.0 package software. While descriptive statistics were used in the general evaluation of the participants' opinions, Unilateral Variance Analysis statistics were used in the comparisons as the research data has shown a normal distribution according to the Kolmogorov Smirnov test. In interpreting regression analyzes, standardized Beta (β) coefficients and t-test results on their significance were taken into account. Significance level of .05 was considered as the basis in the data analysis. As an absolute value, the correlation coefficient between 0.70–1.00 was considered as a high; between 0.69–0.30 was considered as a medium; and between 0.29–0.00 was considered as a low relation (Büyüköztürk, 2009).

After analyzing the scales, semi-structured interviews were conducted. The responses of the participants were interpreted and transformed into codes, and the themes were formed considering the relations between these codes. The aim was to reveal the participant opinions more clearly with this process. This process was performed manually by the researchers. Then interpreted considering the quantitative and qualitative data together.

3. FINDINGS

3.1. Findings Related to the Quantitative Data

In this part of the research, teacher candidates' opinions regarding the Scientific Epistemological Beliefs, Nature of Science and Science, Pseudo-Science beliefs were determined and compared accordingly with the variable of the program they are studying to begin with. Afterwards, the relation between these candidates' Scientific Epistemological Beliefs, Nature of Science and Science, Pseudo-Science beliefs included. The descriptive statistics on teachers' Scientific Epistemological Beliefs, Beliefs Regarding the Nature of Science and Science Pseudo-Science Beliefs depending on the program variable they have are shown in Table 2.

Table 2. Descriptive Statistics Regarding the Scientific Epistemological Belief, Nature of Science and Science,

Chapter	Scientific Epistemological Beliefs			Beliefs Regarding the Nature of Science			Pseudo-Science Beliefs		
	n	X	Ss	n	X	Ss	n	X	Ss
1. Science Teachers	46	106.13	17.40	46	143.83	15.441	46	90.74	7.698
2. Elementary Mathematics Teachers	51	98.61	7.416	51	138.59	14.286	51	84.78	7.072
3. Computer and Instructional Technologies Teachers	49	89.41	6.000	49	127.51	13.635	49	79.31	7.015
4. Primary School Teachers	56	87.23	8.023	56	124.54	12.850	56	75.04	8.321
Total	202	94.94	12.79	202	133.20	15.992	202	82.11	9.546

Pseudo-Science Beliefs

At the end of the unilateral variance analysis, a statistically significant difference at the meaningful level of 0.05 was found in the Scientific Epistemological Beliefs of the teacher candidates studying in different programs ($F=34.36$; $p<0.05$). The acquired findings are shown in the following Table 3.

Scientific Epistemological Belief	Sum Squares	of Degree of Freedom (DF)	Sum of Squares	F	p	Difference
Between groups	11272.97	3	3757.65	34.36.	0.00	1-2, 1-3,1-4, 2-3,2-4
In Groups	21653.19	198	109.360			
Total	32926.16	201				

Table 3. Results of Unilateral Analysis of Variance According to Program Variable of Scientific Epistemological Belief

When the POST HOC process, recommended by Tukey to determine which program this difference is in favor of, it was concluded that scores of Scientific Epistemological Belief of the Science Teacher candidates ($X_f=106,13$) and teacher candidates studying in the elementary mathematics teaching department ($X_m=98,61$) are higher than the scores of the teacher candidates studying in Computer and Instructional Technologies department ($X_b=89,41$) and teacher candidates studying in Primary School Teaching department ($X_s=87,23$).

At the end of the unilateral variance analysis, a statistically significant difference at the meaningful level of 0.05 was found in the Nature of Science beliefs of the teacher candidates studying in different programs ($F=21.127$; $p<0.05$). The acquired findings are shown in the following Table 4.

Belief Regarding the Nature of Science	Sum Squares	of Degree of Freedom (DF)	Sum of Squares	F	p	Difference
Between groups	12464.944	3	4154.981	21.127	0.00	1-3,1-4, 2-3,2-4
In Groups	38939.135	198	196.662			
Total	51404.079	201				

Table 4. Results of One-Way Analysis of Variance According to Program Variability of Belief regarding the Nature of Science

When the POST HOC process, recommended by Tukey to determine which program this difference is in favor of, it was concluded that scores of Scientific Epistemological Belief of the Science Teacher candidates ($X_f=143,83$) and teacher candidates studying in the elementary mathematics teaching department ($X_m=138,59$) are higher than the scores of the teacher candidates studying in Computer and Instructional Technologies department ($X_b=127,51$) and teacher candidates studying in Primary School Teaching department ($X_s=124,54$).

At the end of the unilateral variance analysis, a statistically significant difference at the meaningful level of 0.05 was found in the Nature of Science beliefs of the teacher candidates studying in different programs ($F=6.294$; $p<0.05$). The acquired findings are shown in Table 5.

Science Pseudo-Science	Sum Squares	of Degree of Freedom (DF)	Sum of Squares	F	p	Difference
Between groups	6977.770	3	2325.923	40.619	0.00	1-2, 1-3,1-4, 2-3, 2-4, 3-4
In Groups	11337.834	198	57.262			
Total	18315.604	201				

Table 5. Results of One-Way Analysis of Variance According to Program Variability of Pseudo-Science - Science Belief

When the POST HOC process, recommended by Tukey to determine which program this difference is in favor of, it was concluded that scores of Science - Pseudo-Science Belief of the Science Teacher candidates ($X_f=90,74$), teacher candidates studying in the elementary mathematics teaching department ($X_m=84,78$) and the teacher candidates studying in Computer and Instructional Technologies department ($X_b=79,31$) are higher than the scores of teacher candidates studying in Primary School Teaching department ($X_s=124,54$).

Table 6. Regression analysis results on the predictions of Scientific Epistemological belief

Variable	B	Sh	β	T	p	Binary	Partial
Constant	,483	,235	-	2.062	.03	-	-
Science Pseudo-Science	0.561	,060	,483	9.380	.00*	,482	,482

$p<.01$, $R=.48$, R^2P $P=.231$

As seen in Table 6, there is a moderately significant and meaningful relationship between the teacher candidates' Science-Pseudo-Science Beliefs and Scientific Epistemological Beliefs ($R=.48$, $p<.01$). It is observed that the

Science-Pseudo-Science Beliefs of the teacher candidates' can explain 23% of the total variance in the Scientific epistemological beliefs of the candidates'. Science-Pseudo-Science ($\beta=.483$, $p<.01$) is seen to predict the Scientific epistemological beliefs of the teacher candidates on a positive and meaningful level. When the bilateral and partial correlations between Science-Pseudo-Science beliefs and Scientific Epistemological Beliefs are examined, it is observed that there is a positive and moderate relationship ($r=.48$) between these two variables. When the results of the t-test on the meaningfulness of the regression coefficients are examined, it can be said that the Scientific Epistemological Beliefs of the teacher candidates predict the variable of Science-Pseudo-Science Beliefs on a meaningful level.

Variable	B	Sh	β	T	p	Binary r	Partial r
Constant	0,347	,199	-	1.774	.06	-	-
Science Pseudo-Science	0.664	,050	,612	13.162	.00*	,612	,612

Table 7. Regression analysis results on the predictions of belief regarding the nature of science
 $p<.01$, $R=.612$, R^2P $P=.376$

As seen in Table 7, there is a moderately significant and meaningful relationship between the teacher candidates' Science - Pseudo-Science Beliefs and Nature of Science Beliefs ($R=.61$, $p<.01$). The Science Pseudo-Science Beliefs of the teacher candidates' can explain approximately 37% of the total variance in their Nature of Science Beliefs. Science Pseudo-Science ($\beta=.612$, $p<.01$) is seen to predict the Nature of Science beliefs of the teacher candidates' in a meaningfully positive way. When the bilateral and partial correlations between Science Pseudo-Science beliefs and Nature of Science Beliefs are examined, it is observed that there is a positive and moderate relationship ($r=.61$) between these two variables. When the results of the t-test on the meaningfulness of the regression coefficients are examined, it can be said that the Nature of Science Beliefs of the teacher candidates predict the variable of Science-Pseudo-Science Beliefs on a meaningful level.

3.2. Findings Related to the Qualitative Data

In semi-structured interviews conducted at the qualitative dimension of the study, the participants were addressed a total of six questions, including the sub-dimensions of the Science, Pseudo-Science Separation Scale, in various scenarios. The answers provided by the participants were examined separately by the researchers along with the literature analysis in the regarding field. Firstly, the codes were created and then themes were discovered by determining the relations between these mentioned codes. Then the required rectifications were made upon examining the analyses conducted separately.

3.2.1. Findings Related to the First Question

In the scenario presented with the first question of the semi-structured interview, the dilemma of an individual who has seen a large number of doctors because of their chronic illness but never was able to find a solution was referred. Should this person continue to remain within the borders of the medical sciences despite of their negative case and go on seeking a cure with the doctors or should they try alternative solutions? Participants were asked to step themselves into this person's shoes and explain how they would act in such a situation. Using leading and deepening questions, the participants were led to explain various solutions using examples and to share anything themselves or anyone they knew experienced should they ever went through something similar. Findings related to these responses are presented in Table 8.

Table 8. Findings regarding the first interview

Themes	Science (f)	Percent %	Prim. Scho. Math. (f)	Percent %	BÖTE (f)	Percent %	Class (f)	Percent %
Never trying to find an alternative	8	38.09	7	36.84	5	18.52	5	19.23
Experimenting with alternative medicine (homeopathy, acupuncture, magnetic field therapy ...)	6	28.58	6	31.59	8	29.63	8	30.77
Searching for solutions by means of spiritual methods (prayer, amulet, sacrifice...)	5	23.80	4	21.05	7	25.93	6	23.07
Trying folk remedies or what they hear from other people	2	9.53	2	10.52	6	22.22	6	23.08
Asking for help from supernatural beings (djinn, angel, ghost ...)	0	0	0	0	1	3.70	1	3.85
Total	21	100	19	100	27	100	26	100

When Table 8 is examined, it was seen that the science programs and elementary mathematics programs were dominant in the group saying that "they'd never be in pursuit of alternative methods" with respectively 38.09% and 36.84%. The rates of the ones who share this idea in BÖTE and primary school teaching programs are, however, seen to be low with 18.52% and 19.23% respectively. After examining the opinions of the teacher candidates studying in BÖTE and primary school teaching programs, it was observed that the themes of "alternative medicine" and "spiritual solutions" are the most common ones.

3.2.2. Findings Related to the Second Question

In the scenario included in the second question of the semi-structured interview, the participants were asked to interpret an event, where something happens to an individual who was so eager to visit a fortune teller. In the case study, participants were expected to answer how they would explain the things that happens this individual after the fortune teller told them that they would happen. While emphasizing this, they were also expected to explain their ideas using their own experiences in similar cases if any. Findings related to these responses are presented in Table 9.

Table 9. Findings regarding the second interview

Themes	Science (f)	Percent %	Prim. Scho. Math. (f)	Percent %	BÖTE (f)	Percent %	Class (f)	Percent %
Probability of accidentally making the correct guess	12	52.17	14	63.64	10	40.00	8	36.36
Due to assumptions based on psychological or social experience	8	34.78	6	27.28	9	36.00	7	31.82
Being able to foresee the future with the help of supernatural entities	2	8.70	1	4.54	3	12.00	4	18.18
The ability to foresee the future due to special powers of the individual	1	4.35	1	4.54	3	12.00	3	13.64
Total	23	100	22	100	25	100	22	100

When the answers to the second question are examined, it is observed that the most common idea is the one that the things happening after the fortune teller in the scenario told they would are completely a coincidence and that they are connected to psychological and social experiences. Also, the number of participants with thoughts relating the event with the non-scientific elements is observed to be higher in BÖTE and primary school teaching programs. While 9.08% of the ones in elementary mathematics teaching program and 13.05% of the ones in the

science teaching program tried to explain the event using non-scientific solutions, this rate goes up to 24% in BÖTE teaching program and 31.82% in primary school teaching program.

3.2.3. Findings Related to the Third Question

In the scenario presented in the third question, the participants were expected to be included in the efforts of a couple who experienced a mysterious event. In the mentioned event, the participants try to explain how objects mysteriously disappears or found in different places. Using the ideas they propose trying to explain this case, the aim was to determine their approach to the science and scientific methods. Findings related to these responses are presented in Table 10.

Table 10. Findings regarding the third interview question

Themes	Science (f)	Percent %	Prim. Scho. Math. (f)	Percent %	BÖTE (f)	Percent %	Class (f)	Percent %
Observing the event by experimenting in different ways	12	28.58	10	24.40	7	16.28	6	15
Trying the probable solutions one by one	11	26.20	12	29.27	11	25.59	6	15
Observing with the assistance from different observers	8	19.05	9	21.95	6	13.95	4	10.00
Thinking that there's a supernatural explanation	3	7.14	2	4.88	3	6.98	4	10.00
Even though knowing that there's a scientific solution, still fearing or feeling anxious	6	14.29	7	17.07	13	30.23	15	37.50
Fear and anxiety arising from the failure to explain the events	2	4.77	1	2.44	3	6.98	5	12.50
Total	42	100	41	100	43	100	40	100

It was observed that the participants from science and elementary education fields were relatively more successful in coming up with methods that might be considered within the boundaries of scientific methods than the ones in other programs. The significant point here is that while the participants from BÖTE and primary school teaching programs mostly guess that "there is a scientific explanation" to the event, they still express the themes of "fear and anxiety" (30.23% and 37.50% respectively).

3.2.4. Findings Related to the Fourth Question

In the fourth question, participants were asked to share their views on a scenario where the probability of extraterrestrial life was discussed. Upon elaborating what an individual who reads news about aliens on a web page feels like or how they behave, the participants were asked to put themselves into this individual's shoes. What they would feel upon reading such news or how they would act are discussed and the responses are shown in Table 11.

Table 11. Findings regarding the fourth interview question

Themes	Science (f)	Percent %	Prim. Scho. Math. (f)	Percent %	BÖTE (f)	Percent %	Class (f)	Percent %
Curiosity, interest	12	33.33	11	28.20	12	36.36	8	25.80
Joy, hope	8	22.22	10	25.64	10	30.30	7	22.59
Concern, unrest	4	11.11	6	15.39	4	12.12	6	19.35
Fear, panic	3	8.33	4	10.26	2	6.06	3	9.68
Not believing, not caring	9	25.00	8	20.51	5	15.15	7	22.59
Total	36	100	39	100	33	100	31	100

When Table 11 is examined, it is seen that the themes of "Curiosity, interest" and "Joy, hope" are prominent among all the teacher candidates from all fields when it comes to the probability of extraterrestrial life. It was observed that the most commonly encountered "Curiosity, interest" theme was highest in BÖTE program (36.36%) and this is followed by science teaching programs (33.33%). the themes of "Anxiety, feeling restless" and "Fear, panic" were proportionately scored less in all programs.

3.2.5. Findings Related to the Fifth Question

In the fifth question of the semi-structured interview, a scenario was created in order to reveal the participants' ideas on astrology. In this scenario, the behavior of someone who reads an extremely negative interpretation of the astrological sign they belong to in the morning is mentioned. The finding consisting of the answer given when the participants were asked how they would feel or how they would act if they were going through the same event are suggested in Table 12.

Table 12. Findings regarding the fifth interview

Themes	Science (f)	Percent %	Prim. Scho. Math. (f)	Percent %	BÖTE (f)	Percent %	Class (f)	Percent %
Moving on without caring for it	12	41.38	11	39.28	9	30.00	10	32.26
Finding it ridiculous, making fun of it, doing the opposite of recommendations	6	20.69	8	28.58	7	23.33	6	19.35
Even if feeling restless, still not taking any precautions	7	24.14	6	21.43	8	26.67	8	25.80
Fearing and being uneasy about it and trying to take precautions	4	13.80	3	10.71	6	20.00	7	22.58
Total	29	100	28	100	30	100	31	100

When the findings regarding the last interview question were examined, it was observed that the participants opining about the astrology, one of the pseudo-science elements, have the tendency to "moving on with their lives without caring" when it comes to the zodiac signs or horoscopes mentioned in the provided scenario. Besides this, it is seen that there are remarkable rates in both "even if feeling restless, still not taking precautions" and "fearing and being uneasy about it and trying to take precautions" themes. It was observed that especially the candidates studying in primary school teaching program have presented opinions regarding these two themes at the rate of 48.38% in total. the rate of the opinions of the ones studying in BÖTE programs regarding these two themes was 46.67% in total. It is seen that this rate is 32.14% in elementary mathematics program and 37.94% in science teaching program.

4.CONCLUSION AND DISCUSSION

The effect of teacher candidates' epistemological beliefs or beliefs regarding the nature of science on the pseudo-scientific beliefs were investigated in this study. When the quantitative data of the study was examined primarily, it was seen that the epistemological beliefs and nature of science beliefs rates of the participants in science teaching and elementary mathematics teaching programs are higher than the rates of the candidates studying in primary school teaching programs. When the average scores of science and pseudo-science separation scale are examined, it is seen that science teacher candidates have the highest average (90.74). It is observed that the elementary mathematics teacher candidates have the second highest average score with 84.78 and they are followed by BÖTE with 79.31. While the primary school teaching candidates have the lowest average score of 75.04.

The quantitative dimension of the research explicitly suggest that scientific epistemological beliefs and nature of science beliefs have a direct relationship with science, pseudo-scientific beliefs. This relation was profoundly examined in the qualitative dimension of the study and supportive data for the quantitative findings were acquired.

Participants in science and elementary mathematics programs were found to be more successful than participants in BÖTE and primary school teaching programs when it comes to separating the science and pseudo-science. It was also observed that the science and elementary mathematics teacher candidates are more successful in trying

to solve various events they came across in the provided scenarios by adhering to the scientific methods and producing a scientific way of thinking than the candidates studying in other programs.

It can be said that the courses the candidates took when they were undergraduates may have an impact on the fact that the epistemological, nature of science and science, pseudo-science separation beliefs of the candidates are consistent in both quantitative and qualitative data and they provide mutual support for each other within these data sets. To exemplify, while science teacher candidates take "Scientific Research Methods" course in the fifth semester of their education as an undergraduate and "Nature of Science and History of Science" in the sixth semester; elementary mathematics teacher candidates take "History of Mathematics" course in their third semester, "History of Science" in fifth semester, "Scientific Research Methods" in seventh semester and "Philosophy of Mathematics" course in their eighth semester. On the other hand, the candidate teachers in BÖTE program take "History of Science" course in the fifth semester and "Scientific Research Methods" in the seventh semester; yet the primary school teacher candidates take only "Scientific Research Methods" in their fourth semester.

In these courses they take, teacher candidates both get the chance of working with some fundamental philosophical problems and questions regarding not only the knowledge but the knowledge generation as well (Matthews, 1998) and they have the opportunity to attend discussions regarding how the scientific knowledge is produced and created (Bartholomew, Osborne and Ratcliff, 2004). The fact that the participants in an environment where there is a philosophy of science lecture with boundaries created using the concepts from the nature of science are determined to be able to develop a more coherent nature of science beliefs support the mentioned claim as well (Abd-El Khalick, 2005).

It was also observed that the candidates in primary school teaching programs with no courses regarding the nature, history or philosophy of science are the least successful in areas related to these concepts. Similarly, the presence of a great deal of practices in the physics, chemistry, biology and laboratory classes in science teaching programs may also be pointed out as the reason why science teacher candidates are successful in the mentioned fields.

The study conducted by Turgut et al. (2010) is remarkable as it shows similarity with this study. A context structured upon science and pseudo-science separation was provided in the study. And during the process based on astrology case study and conducted through an academic year, a form consisting of open ended questions was used as both pre-test and proof positive. Finally, the data gathered using this form was analyzed qualitatively. The results of the research show that the planned context is influential as the candidates could improve their beliefs in sub-dimensions such as science as an endeavor and the role of experiment, observation, theories, laws, models, scientific method and sociocultural values in science.

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The Effect of Working Memory Training on the Behavioral, Electrophysiological and Achievement Change

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ABSTRACT

This study was aimed to examine the effects of constructionism, metacognition and neurocognitive-based (CMEN) through working memory training and traditional (TM) teaching models on veterinary medicine students' behavioral, electrophysiological and achievement change in a Thailand public university. A total of 40 students equally distributed into experimental and control groups and attended to the two different teaching models respectively. An experimental research pretest and posttest control group design was employed and analyzed using 2X2 multivariate analysis of variance. Results indicated that the effect of CMEN model used in the working memory training was greater than TM model and proved to be an innovative teaching model to enhance working memory.

Keywords: Constructionism, metacognition and neurocognitive-based teaching model; working memory

INTRODUCTION

Working memory is defined as our ability to process and remember information which is interconnected to a range of cognitive activities from cerebral tasks to verbal communication (Kane & Engle, 2002). Cowan (2012) defined working memory as the small amount of information kept in mind at any time as it is needed for various types of learning such as comprehension, problem solving, and goal-directed thinking. In addition, working memory has a central role in learning and thinking and is conceptualized as the main cognitive system stores and processes information (Dahlin, 2013). Dahlin further emphasized that working memory upkeeps learning through the abilities to concentrate on the task in hand, hinder irrelevant information and assimilate information from several sources, including long-term memory. Therefore, it is an important cortical construct acts as the translator between sensory input and long-term memory (Dehn, 2008). As a result, the information must first be processed in working memory in order to remember the information (Cowan, 2005). In short, working memory is an active system of storing information and information processing, and is essential for correct functioning of other complex cognitive functions (Sanchez-Torres, Elosua, Lorente-Omenaca, Moreno-Izco & Cuesta, 2015). Past researchers had proved that there is growing evidence for the relationship between working memory and academic attainment (Alloway & Alloway, 2010; Engel de Abreu, Conway, & Gathercole, 2010).

The n-back is a chronological letter memory task commonly used in neuroimaging research (Perlstein, Dixit, Carter, Noll, & Cohen, 2003; Ragland et al., 2002). According to Miller, Price, Okun, and Bowers (2009), n-back is a working memory training which parametrically fluctuates working memory load and task difficulty as well, while keeping whole task procedures persistent across conditions. Miller et al. further stated that the promising aspect of the n-back is there appear to be distinct neural substrates associated with task performance. Neuroimaging studies have exhibited that increased working memory load on the n-back is associated with poorer performance in healthy participants and increased activation of the dorsolateral and inferior frontal regions of the prefrontal cortex (Ragland et al., 2002). Miller et al. suggest that n-back performance may be profound to the integrity of the frontal lobes, with grander working memory loads retaining greater demand upon frontally mediated cognitive functions. As a result, Miller et al. concluded that the n-back is a useful task for assessment of working memory ability within the context of clinical neuropsychological evaluation.

The behavioral performance is measured according to the n-back tasks accuracy and reaction time. The

behavioral measures will be taken toward the participants during two separate testing sessions that is pretest versus posttest. The behavioral measures are part of a larger test battery because they assess working memory or processing speed as the two constructs thought namely accuracy and reaction time to underlie n-back performance. In short, those participants who can perform in a higher level of accuracy and react with lower reaction time will be considered as positive behavioral change.

Event-related potentials (ERPs) have been used to examine the maintenance of information in working memory in human (Drew, McCollough & Voge, 2006). According to Drew et al., visual working memory has a limited capacity system to maintain the information about objects in the immediate visual environment. Psychophysical experiments have showed that majority of people are able to actively maintain 3 or 4 items in visual working memory at any point of time. Drew et al. further emphasized that an ERP component known as the negative slow wave has been used to measure the maintenance of information in working memory ‘online’ during a given trial. The P300 event related potential is considered as a positive potential that occurs approximately 300 milliseconds (ms) after presentation of any stimulus that requiring detection, counting or cognitive processing by participant. This represents a higher cognitive function of information processing, working memory or stimulus categorization (Thakur, Koushik Ray, Anand & UshaPanjwani, 2011).

In addition, P300 wave is an ERP component stimulated in the human’s decision making process and considered as an endogenous potential. ERP’s occurrence links not only shown as the physical attributes of a stimulus but also indicated as human’s reaction on it. More precisely, the P300 wave is thought to reflect processes involved in stimulus evaluation using P300 amplitude and P300 latency. P300 amplitude refers as the voltage difference between a pre-stimulus baseline and the largest positive-going peak of the ERP waveform within a latency range such as 250-400 ms, although the range can differ depending on subject characteristics, stimulus modality, task conditions, etc (Polich et al., 1997). Therefore, P300 amplitude is the thought to brain activity index that is required in the maintenance of working memory when the context is updated (Polich & Hersbt, 2000).

On the other hand, P300 latency is defined as the time from stimulus onset to the point of maximum positive amplitude within the latency window (Polich et al., 1997). P300 latency is the thought to classification speed index, which is proportional to the time required to detect and evaluate a target stimulus (Polich, 2007). On this line of reasoning, the ERPs will provide an idea about the time course of information processing which encompasses expectancy, attention, cognition search, decision making and memorization. A distributed anterior-posterior cerebral network is used specifically for updating, involving prefrontal cortex (e.g., BA 10 and BA 9/46) and parietal cortex as core regions in updating (Jonides et al., 1997; Salmon et al., 1996).

Achievement performance of veterinary medicine students is measured by their abilities in learning medical terminology and anatomical knowledge. This is because an effective teaching in learning medical terminology in health sciences would assist those veterinary medicine students to understand the origin of words, rules of creating words from etymology, memorization, radical, and finally connected words to ease the troubles and complication of their learning (Uopasai & Bunterm, 2012; Uopasai, 2015). This is further supported by Veach and Holtsberry (2009) and Anderson (2009). Furthermore, medical terminology and anatomical knowledge can assist students to understand the relationships between the terms with anatomy, physiology and clinical significance (Veach and Holtsberry, 2009). Consequently, Anderson (2009) stated that a process of reorganization of current knowledge has to be adequate in line with the dissemination of new experience to give students an idea on the arising of terminology association. In conclusion, the medical terminology and anatomical knowledge achievement has to be vigorously generated through interface with sensory and to be relatively exceptional to the cultural and educational memorable events of the veterinary medicine students.

Uopasai (2015) had developed this constructionism, metacognition and neurocognitive-based teaching model (CMEN) utilizing three emergent fields, namely the constructivist philosophy of science teaching and learning, neurocognitive learning theory and metacognitive knowledge. This CMEN is composed of six phases: i) perception and attention, ii) objective planning and monitoring, iii) multisensory integration, iv) linking, v) rehearsal and practice, and vi) summary and evaluation. Furthermore, the CMEN had been proved by Sripongwiwat, Bunterm, Srisawat and Tang (2016) to be an effective teaching model that promotes secondary school students’ science learning outcomes, including nanotechnology content knowledge, science process skills, scientific attitudes and also creative thinking. In addition, Srikoorn, Bunterm, Nethanomsak, and Tang (in press) had successfully explored how a neurocognitive-based teaching model to accelerate the mechanisms of learning and development relate to group differences in educational attainment thus educational intervention could be optimized. Srikoorn et al. found that the neurocognitive-based contextualization had more effect on attention,

working memory, and mood of Grade 9 students than conventional model 5E consisted of five phases namely engage, explore, explain, elaborate, and evaluate.

The traditional model (TM) is the teaching model recommended by Thailand Quality Framework manual of veterinary medicine in this research public university. The TM model composed of three phases namely introduction, instruction, and summary. The TM teaching model was used to the control group. Working memory training is intended to improve an individual's working memory capacity. Working memory training has been claimed to be effective to improve intelligence and to enhance cognitive functioning in typically developing children and healthy adults (Melby-Lervag & Hulme, May 2012). Besides, there are many possible transfer effects from working memory training. Klingberg et al. (2005) emphasized that working memory training can make individuals to be more likely to take on tasks that have a higher working memory load, such as mathematics and other challenging academic. Additionally, Holmes, Gathercole, and Dunning (2009) reported that an improvement occurred in mathematical reasoning even six months after the working memory training was completed.

AIM OF THE STUDY

The aim of this study is to investigate whether working memory training with constructionism, metacognition and neurocognitive-based (CMEN) teaching model will influence veterinary medicine students' achievement in canine anatomy, their accuracy and reaction time while working on n-back tasks as well as their peak amplitude and latency of ERP.

METHOD

A total of 40 healthy, right-handed second year undergraduate students age ranged within 19 to 20 years old with corrected-to-normal vision and no history of neurological or psychiatric conditions from Faculty of Veterinary Medicine, a public university located at Khon Kaen province, Thailand were selected as participants. These 40 participants were recruited via announcements on the notice board at Department of Anatomy. The 40 participants equally distributed into experimental and control groups respectively. Each group consisted of 10 males and 10 females. A 2 (CMEN vs traditional teaching model) x2 (time of measure: pretest vs posttest) design was utilized in this study. On top of that, the experiment group was assigned to attend to working memory training while the control group was not.

At the initial stage, all the participants attended to two sets of pretest namely n-back tasks and anatomical test. The students in the experimental group followed working memory training every day for four weeks. They attended the CMEN teaching model including 15 minutes of daily working memory training which related to the topic of 'dog bone'. However, students in the control group received the traditional teaching model which is the teaching model recommended by Thailand Quality Framework were not attending the working memory training. After four weeks of intervention period, a posttest was then conducted. The reason for this working memory training was to investigate whether it would have any significant impact on the results at the posttest for the 20 participants who completing this CMEN teaching model coupled with the working memory training compared to the rest. The control group received regular TM teaching model and underwent the same basic content knowledge measures within the same time intervals as the experimental group, but they did not complete measures in neuropsychological tasks.

Participants were administered the n-back task and anatomical test during the two separate testing sessions namely pretest and posttest. Task and stimulation procedures working memory was assessed using an visual N-back task, in which subjects were presented a sequence of the pattern pictures which had different number of dots and the position in the grid 2x2, and had to determine whether the currently displayed stimulus at any given time had been already displayed in the previous presentation (1-back condition, low working memory load); or in the second-to-previous presentation (2-back condition, high working memory load) in a 21" CRT monitor and press the keyboard number (1-4) corresponding to the answer on the screen.

The anatomical test was used to measure students' ability in medical terminology and anatomical knowledge of dog skeletal system which was comprised of 60 multiple-choice items. The reliability (KR20) of this medical terminology test was 0.91 and the discrimination index was ranged from 0.27 to 0.61, and the difficulty index was ranged from 0.27 to 0.79. On the other hand, the anatomical knowledge test was used to measure the understanding about the canine skeletal anatomy. The reliability (KR20) was 0.86; discrimination index was 0.22 to 0.46, and difficulty index was 0.26 to 0.79. Specifically, both tests mentioned above consisted of 30 multiple choice items of each and was selected from the Department of Anatomy, Faculty of Medicine, Khon Kaen University, Thailand.

Besides, researchers collected the electrophysical data by specifically recorded the electroencephalogram (EEG) with DC-amplifiers (Neuroscan® EEG Nuamps device) from 32 positions referenced to linked mastoids using an Quik Cap system (Neuroscan® Inc) that placed according to the 10-20 international system. Impedance values were kept at 5 K Ω for all electrodes. Researchers used three external flat electrodes to monitor eye movements (two above and below the left eye and the other one was 3 centimeters next to the outer canthus of the right eye). Data were recorded continuously and stored for off-line analysis with SCAN 4.3 - Vol. I (Compumedics-Neuroscan®) software. Next, researchers segmented continuous EEG into 500 ms. and the baseline used for the ERP analysis was 100 ms prior to the previous appearance as the target stimulus. Regarding the accuracy of ERP, researchers eliminated the undesired eye movements and eye blink artifacts waveform by using a semiautomatic and manual block rejection procedure. This can be included only corrected or match stimuli in our analysis. We then quantified ERP components, at each recording site for each participant and probe type, by selecting the amplitude and latency of the largest deflection within a specified latency range around the peak. EEG and electrooculographic (EOG) were peached off-line into periods of 500 ms, starting 100 ms prior to stimulus onset. To investigate the influence of serial position on recognition, researchers examined the accuracy and reaction time of participants' responses to probe items followed by the amplitude, latency, and topographic scalp amplitude distribution of the P300 at Pz electrode site

At the initial stage, all the variables were analyzed using descriptive statistic mean score and standard deviation. This is followed by utilizing repeated measures multivariate analysis of variance (Repeated MANOVA) to analyze the effects of the intervention in terms of three aspects (i) behavioral change including the accuracy and reaction time of participants' responses toward the probe items; (ii) electrophysiological that is the ERP components encompassing the amplitude and topographic scalp amplitude distribution of the P300 at Pz electrode site, and (iii) achievement in their ability in medical terminology and anatomical knowledge. Wilks' lambda, a direct measure of the proportion of variance in the combination of dependent variables that is unaccounted for the group variable (Everitt & Dunn, 1991), is used to test whether there are differences between the means of identified groups of students on a combination of dependent variables.

RESULTS

Results are presented according to the aim as mentioned above. The results demonstrate in two parts as descriptive and inferential results. The initial results highlight the mean score and standard deviation of each category of change (behavioral, electrophysical, and achievement) from different student groups (experimental group versus control group). This is followed by evaluating the differences between these two groups on each of category of change.

Results of Behavioral Change

Behavioral change was measured based on the accuracy and reaction time of the students toward the working memory tasks. The mean score and standard deviation of accuracy and reaction time measured by each working memory task between experimental group and control as indicated in Table 1 below.

Table 1. Mean score and standard deviation of students' behavior before and after intervention

		Before intervention				After intervention			
		Experimental Group		Control Group		Experimental Group		Control Group	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Accuracy	1 back	65.50	9.99	66.00	11.42	77.50	19.55	61.50	12.26
	2 back	38.50	13.48	43.50	14.61	63.00	15.59	44.50	17.61
Reaction time	1 back	510.70	97.21	503.46	106.46	420.46	61.06	522.38	87.02
	2 back	608.66	107.86	592.01	110.70	473.70	108.05	616.43	99.61

The effects of CMEN teaching model and working memory training on the students' behavioral change was measured using 2x2 multivariate analysis of variance (MANOVA). Results revealed that pretest versus posttest of their behavioral change in term of accuracy and reaction time in 1-back and 2-back tasks were found to be improved. In other words, students in experimental group showed a better accuracy behavior and using shorter time while performing the working memory tasks such as 1-back and 2-back tasks. The behavioral change of both experimental and control groups as shown in Table 1 above indicate that the posttest results show the improvement compared to the pretest results after intervention only happened to experimental group.

Furthermore, repeated-measures MANOVA analysis indicated that there was a significant multivariate effect between-subjects factor and load (1-back and 2-back tasks) across the groups (regardless their reaction time): Wilks' $\lambda = .804$, $F(2, 37) = 4.511$, $p < .05$, partial $\eta^2 = .196$. Besides, result shows that there was also a significant multivariate effect within-subject factor and load (regardless student group): Wilks' $\lambda = .690$, $F(2, 37) = 8.294$, $p < .01$, partial $\eta^2 = .310$. On top of that, result further shows that there was a significant multivariate effect across the interaction between student group and reaction time: Wilks' $\lambda = .575$, $F(2, 37) = 13.688$, $p < .01$, partial $\eta^2 = .425$. This is followed by performing the univariate test. Result of the univariate test shows that experimental group performed more accurately in 1-back task compared to the control group regardless their reaction time: $F(2, 37) = 7.611$, $p < .01$, $\eta^2 = 0.167$ at 0.01 significant level. However, there was no significant difference between the two groups ($F(2, 37) = 2.128$, $p > .05$, $\eta^2 = .053$) while they performed the 2-back task in regard to accuracy.

Another behavioral change variable that researchers considered was participants' reaction time. Repeated-measures MANOVA analysis indicated that there was a significant multivariate effect between-subjects factor and load (reaction time on 1-back and 2-back tasks) across the groups: Wilks' $\lambda = .900$, $F(2, 37) = 2.065$, $p = .041$, partial $\eta^2 = .100$. Besides, result shows that there was also a significant multivariate effect within-subject factor and load (regardless student group): Wilks' $\lambda = .846$, $F(2, 37) = 3.372$, $p < .05$, partial $\eta^2 = .154$. On top of that, result further shows that there was a significant multivariate effect across the interaction between student group and their reaction time: Wilks' $\lambda = .773$, $F(2, 37) = 5.441$, $p < .01$, partial $\eta^2 = .227$. This is followed by performing the univariate test. Results of the univariate test show that experimental group only performed faster in performing 1-back with the result as $F(2, 37) = 4.185$, $p = .048$, $\eta^2 = .100$ at .05 significant level. However, there was no significant difference between the two groups ($F(2, 37) = .050$, $p = .824$, $\eta^2 = .001$) while they performed the 2-back task in regard to their reaction time..

Results of Electrophysical Change

The electrophysical change was measured based on the P300 peak amplitude and P300 latency Pz of the students toward the working memory tasks. P300 peak amplitude was largest at parietal, decreasing through central and frontal electrode sites and decreased progressively from 1-back to 2-back task. Means and standard deviation of P300 peak amplitude and P300 latency Pz were measured by each working memory task by experimental and control group are shown in Table 2 and Table 3 as well as Figure 1

Table 2. Mean score and standard deviation of P300 peak amplitude (microvolts) while implementing tasks

		Pretest				Posttest			
		Experimental Group		Control Group		Experimental Group		Control Group	
n-back		Mean	SD	Mean	SD	Mean	SD	Mean	SD
1-back	Fz	11.63	1.13	11.83	1.34	15.06	1.52	12.04	1.21
	Cz	12.01	1.17	12.36	1.35	15.39	1.48	12.51	1.18
	Pz	12.46	1.26	12.52	1.37	15.66	1.47	12.77	1.07
2-back	Fz	9.68	1.04	9.84	1.25	12.07	1.21	9.96	1.27
	Cz	10.22	1.06	10.31	1.23	12.68	1.06	10.44	1.24
	Pz	10.55	1.08	10.78	1.16	12.96	1.05	10.88	1.21

Table 3. Mean score and standard deviation of P300 latency Pz (ms) while implementing tasks

		Pretest				Posttest			
		Experimental Group		Control Group		Experimental Group		Control Group	
n-back		Mean	SD	Mean	SD	Mean	SD	Mean	SD
1-back		357.48	8.99	360.39	9.30	349.56	5.85	361.08	7.49
2-back		376.89	7.29	378.03	9.54	363.56	7.53	374.77	6.67

By analyzing the P300 latency Pz, repeated-measures MANOVA analysis indicated that there was a significant multivariate effect between-subjects factor and load Pz latency while participants were implementing 1-back and 2-back tasks across the groups (regardless their reaction time): Wilks' $\lambda = .753$, $F(2, 37) = 6.072$, $p = .005$, partial $\eta^2 = .247$. Besides, result shows that there was also a significant multivariate effect within-subject factor and load (regardless student group): Wilks' $\lambda = .370$, $F(2, 37) = 31.470$, $p < .001$, partial $\eta^2 = .630$. On top of that, result further shows that there was a significant multivariate effect across the interaction between student group

and reaction time: Wilks' $\lambda = .499$, $F(2, 37) = 18.607$, $p < .001$, partial $\eta^2 = .501$. This is followed by performing the univariate test. Result of the univariate test shows that experimental group performed PZ latency shorter than control group in 1-back task regardless their reaction time: $F(2, 37) = 9.014$, $p = .005$, $\eta^2 = .192$ at 0.01 significant level as well in 2-back task regardless their reaction time as $F(2, 37) = 7.630$, $p = .009$, $\eta^2 = .167$.

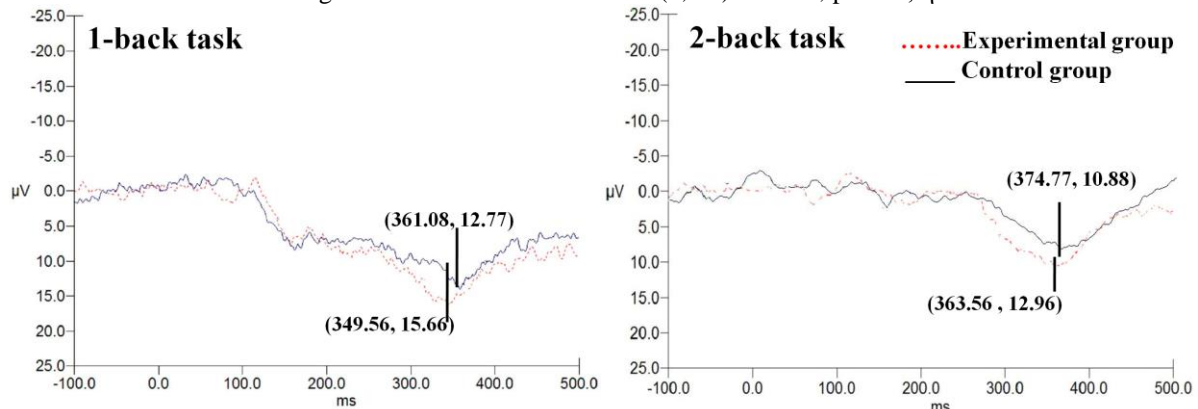


Figure 1. Grand average ERP for correct trials for 1-back and 2-back tasks at midline parietal Pz sites after working memory training

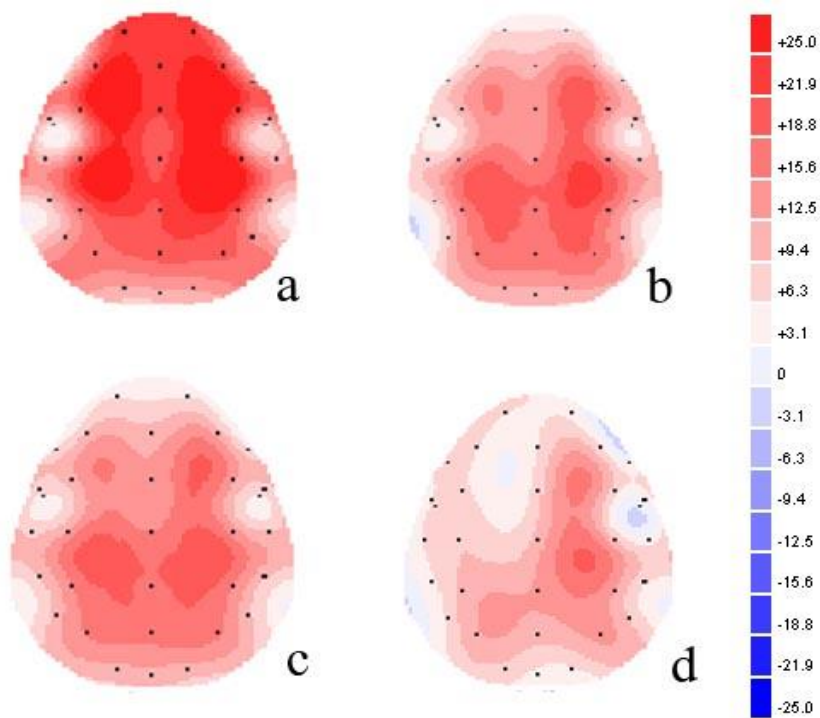


Figure 2. Two dimensional topographical distribution of the evoked P300 potentials at midline parietal Pz sites of experiment group elicited by 1-back task (a) 2- back task of (c) and 1-back task (b) 2-back task (d) after working memory training.

Repeated-measures MANOVA analysis once again confirmed that there was a significant multivariate effect between-subjects factor and load P300 peak amplitude (FZ_1_back, CZ_1_back, CZ_2_back, PZ_1_back, and PZ_2_back) while students were implementing 1-back and 2-back tasks across the groups (regardless their reaction time): Wilks' $\lambda = .358$, $F(2, 37) = 9.865$, $p < .001$, partial $\eta^2 = .642$. Besides, result shows that there was also a significant multivariate effect within-subject factor and load (regardless student group): Wilks' $\lambda = .192$, $F(2, 37) = 23.152$, $p < .001$, partial $\eta^2 = .808$. On top of that, result further shows that there was a significant multivariate effect across the interaction between student group and reaction time: Wilks' $\lambda = .205$, $F(2, 37) = 21.365$, $p < .01$, partial $\eta^2 = .795$. When univariate were performed on the dependent variables, results indicate that the amplitude of all electrode when performing n back tasks were higher than control group (regardless their reaction time) as shown in Table 4.

While students were implementing the 1-back task, results show that the experimental group had larger positive amplitudes over the para median parietal, central, and occipital especially frontal sites compared to the control group who had lower voltage especially frontal site. While participants were implementing 2-back task, results show that they had lower voltage compared to the 1-back task. However, the experimental group exhibited a larger positive voltage compared to the control group. Subsequently, both groups of participants either in experimental or control groups were at higher voltage in the right hemisphere compared to the left hemisphere. Figure 2 above shows the two dimensional topographical distribution of the evoked P300 potentials at midline parietal Pz sites of experimental group elicited by 1-back task (diagram a), 2-back task (diagram c), and control group in 1-back task (diagram b), and 2-back task (diagram d) after the working memory training.

Table 4. Univariate test of midline P300 peak amplitude when implementing 1-back and 2-back tasks

Dependent variables	SS	df	MS	F	p	η^2
FZ_1_back_amp	39.847	1	39.847	15.444	.0008*	.289
FZ_2_back_amp	19.120	1	19.120	8.729	.005**	.187
CZ_1_back_amp	32.030	1	32.030	12.453	.001**	.247
CZ_2_back_amp	23.134	1	23.134	11.176	.002**	.227
PZ_1_back_amp	40.073	1	40.073	15.605	.000**	.291
PZ_2_back_amp	17.150	1	17.150	8.375	.006**	.181

**p<.01

Results of Achievement Change

Participants' achievement were measured from two aspects namely their ability in medical terminology and anatomical knowledge. A 2x2 multivariate analysis of variance (MANOVA) was used to examine whether the working memory training was able to enhance students' achievement particularly to understand the medical terminology and anatomical knowledge about the skeletal system of canine anatomy. The Box's M test for equality of variance-covariance matrices was not significance indicating that the assumption of homogeneity across the groups was met ($p>.05$). MANOVA analysis shows that there was a significant multivariate effect across the interaction between student group and their reaction time: Wilks' $\lambda = .031$, $F(2, 37) = 40.61$, $p<.01$, partial $\eta^2 = .69$. Besides, result shows that there was also a significant multivariate effect of between-subjects (medical terminology and anatomical knowledge achievement) across student groups regardless their reaction time: Wilks' $\lambda = 0.82$, $F(2, 37) = 4.11$, $p<.05$, partial $\eta^2 = .18$. In addition, we also found that there was a significant multivariate effect within-subjects regardless of student group: Wilks' $\lambda = .99$, $F(2, 37) = 1,212.26$, $p<0.01$, partial $\eta^2 = 0.98$. Finally, result shows that there was a significant difference in their anatomical knowledge achievement between the experimental and control groups but there was no significant difference between the two groups in term of their achievement in medical terminology. Nevertheless, the experimental group possessed higher scores compared to the control group as shown in Table 5.

Table 5. Mean score and standard deviation of students' achievement before and after intervention

	Before intervention				t	After intervention				t
	Experimental Group	Control Group	Mean	SD		Experimental Group	Control Group	Mean	SD	
Medical terminology	5.50	2.48	7.25	2.92	2.01	23.15	1.98	20.70	1.78	4.11**
Anatomical knowledge	5.80	1.64	7.65	2.78	2.56*	23.65	2.56	18.10	4.01	5.22**

*p<.05

**p<.01

DISCUSSION

This study has hypothesized that the four weeks working memory training coupled with the CMEN teaching model would make significant change among the veterinary medicine students while implementing working memory tasks and achievement in medical terminology and anatomical knowledge. The results have been successfully proved that students in the experimental group had better performance compared to the control group. It seems that the working memory training may yield the impacts that related to the specific teaching model that is CMEN model and not to the traditional teaching model. A conclusion is working memory capacity is improved and working memory training has positive effect, as shown in the three dependent variables measures. This is in line with the hypothesis, suggesting that memory capacity is flexible (Erisson, 2010) and

that working memory training seems to affect students' behavior and achievement (Caviola, Mammarella, Cornoldi, & Lucangeli, 2009; Holmes et al., 2009).

P300 wave is recognized as neurophysiological measure to examine human brain process (Drew et al., 2006; Thakur et al., 2009) underlining working memory operations. The current results provide new evidence that experiment group performed higher amplitude P300 and shorter latency P300 compared to control group in operating working memory tasks. This implies that the information processing of the cortical networks in the brain of the experiment group have improved in correspond to encoding, retention, and retrieval of information held in working memory. The brain area that involving working memory was found around midline frontal, central, posterior parietal cortices (Figure 2) is in accordance to the past researchers (Drew et al., 2006; Gaspar et al., 2011; George & Coch, 2011). Moreover, result of higher voltage on right than left hemisphere implies that the lateralization on right hemisphere especially parietal area appeared to be strongest with an intermediate retention interval and early in the working memory process that affected by more general processes like spatial working memory, spatial attention, and the temporal dynamics of the task at hand (van der Ham, 2010). The two categories of P300 wave as P3a reflecting frontal lobe activity related to the hippocampus that associated with stimulus novelty processing (Friedman et al., 2001) stimulated by an infrequent distracter stimulus inserted randomly into the target/standard sequence (Polich, 2007) while P3b relating to allocation of attentional resources for updating of working memory contents (Polich, 2007) activity of parietal lobe related to context updating operations and subsequent memory storage. Only two dimensional topographical distributions of the evoked P300 potentials at midline parietal sites were used in order to illustrate the updating of working memory contents (Friedman et al., 2001; Polich, 2007). In the 2-back task, result showed that the latency P300 increased while the amplitude decreased when compared to 1-back task, reflecting the reallocation of attention and processing capacity of working memory activity. In 2-back task, an increase in difficulty transforms the structure or actual content of the flow of information in the processing systems, thereby interfering with the very processes that underlie P3 generation (Evans & Pollak, 2011).

In summary, we find that working memory in higher education can be a more powerful predictor of subsequent academic success thus represents a dissociable cognitive skill with unique links to their learning outcomes. In fact, results of this study are successfully reinforced the uniqueness of neurophysiological measures as P300 component whereby the information of working memory that widely accepted to examine the human brain processes that underline the operations of working memory (Drew et al., 2006; Thakur et al., 2009). On this line of reasoning, results imply that the information processing of the cortical networks in the brain of the experimental group had improved in encoding, retention, and retrieval of information held in their working memory. The practical implications suggest that the CMEN teaching model should be integrated into working memory training in order to upgrade the working memory capacity and transfer effect in academic achievement.

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The Effectiveness of the 3D Animation for Transferring Knowledge to the Junior High School Kids: The Water Reservoir for Small Island in Indonesia

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ABSTRACT

3D animation becomes a media of choice for the technology information dissemination to people in rural. Previous researches showed that people in rural prefer to the information conveyed orally. 3D animation, which consist of text, sound and picture make adult people more understanding the content. Moreover, the media might encourage them to read the written version. However, the number of research about the 3D animation usage for transferring knowledge to the teens is still a few. The aim of this study was to evaluate the effectiveness of 3D animation to convey knowledge for the junior high school students. 3D animation about a water reservoir was made by collaboration between animation developer and researchers in the field of water technology and information science. The number of participants are 46 consisted of 8th and 9th grade junior high-school students living in the sub-district of Sedanau, the district of Natuna, Indonesia. Data are collected using open-ended questionnaire and analyzed with the content analysis. The result showed that 30 students understand the information conveyed by the animation, however 20 of them did not write down the explanation about the information. Most students also said that reservoir is necessary to be built in Sedanau. The significance of this research is that an appropriate media is required to transfer knowledge to the people including teens in the remote area.

Keywords: 3D animation, reservoir, knowledge transfer, school student, Natuna, Indonesia,

INTRODUCTION

People in rural especially in developing countries prefers oral rather than in written information. They choose village head, colleagues and friends as their sources of information (Daudu & Mohammed, 2014). For a certain field of information they are comfortable using media, which produce sound such as radio (Daudu & Mohammed, 2014; Rodriguez et al., 2015; Yoganingrum, 2016). Even in developed country such as US, oral tradition on science education is still maintained in rural. It takes into account the fact that the oral traditions are embedded in place, people, memory and culture (Avery & Hains, 2017). Likewise, (Stapleton, 2017) argued that oral traditions in science education give positive impacts such as connecting between youth and older generations in the families and the family traditions.

3D animation is one of media to convey information. Texts, images and sounds in an animation help people to understand the information content. Yoganingrum et al., (2016) showed that 3D animation could be a prospective media for transferring appropriate technology such as a manufacture of a dryer cabinet for people in Indonesian rural. Furthermore, 3D animation was helpful to improve the understanding of people aged 60 to 75 years old to the nutrition information (Ali, Norizan, & Shahar, 2013). Meanwhile (Zahra, 2016)(Chiou, Tien, & Lee, 2015) proved that multimedia learning animation has the finest and positive impact to understand a concept easily and memorable.

Likewise, 3D animation, which consists of sound, picture and text, makes students more understanding the content of the information. Sinthamrongruk et al. (2013) employed the media of 3D animation to evaluate the knowledge of students grade 8th, 9th, and 10th on the definition and importance of biogas. The result showed that their score is on the level of 3.5 out of 5. The score means that 3D animation is a media, which could give a good knowledge about biogas to junior high school students. It has been reported by Guo et al., (2014) that the 3D animation in a multimedia environment improve grade 12th students' mathematical spatial ability. Additionally, Yeh et al. (2012) showed that the animation-based instruction was effective to teach the 'Principles of Earthquakes' of 10th grade high-school students. Others study also provided evidence that animation effectively conveyed the obesity risk to young African American Girls (Thompson et al., 2013) and about the microcosmic particle conceptions to develop the Junior High School Students' Cognitive (Chang et al., 2008).

The aim of this study was to evaluate the effectiveness of the 3D animation-based knowledge for the junior high school students living in a small island (a remote area). The knowledge conveyed is about the water reservoir for the small island in Indonesia. Some small islands in Indonesia suffer fresh water lacking during the long dry season. Therefore the technology to keep fresh water as a stock for long dry season should be introduced to the

dwellers. The significance of this research is that information service providers need an effective media for transferring knowledge to communities including teenagers, who living in remote areas. The Indonesian people live scattered in many small islands. Therefore, the media, which can overcome the obstacles of the distance, cost and time in conveying information is required.

LITERATURE REVIEW

There 4 aspects should be considered for the success of the information dissemination in rural, namely the inclusiveness of the provider, the availability of the information media and communication channel, the accuracy of the information content, and the characteristic of the user (Ambar Yoganingrum, 2016). This review would be focus on the development of the media for disseminating information to the people in rural, especially in the developing countries like in Indonesia. In the area of Library and Information Science, the development of the media for disseminating information is also called the information repackaging.

Repackaging of information is a kind of the library services. Initially the service was providing the abstracts collection of a specific disciplines (Frome and Caponio, 1963). This service was triggered by the dispersing of the literatures in the various form of publications, therefore the researchers need plenty of time to acquire, search and evaluate. This kind of service eased the reserachers in collecting the appropriate literatures. Currently, information repackaging is developed for the various needs and problems. Among others were for disseminating information to the people with the low level of the information literacy skills (Maryati and Yoganingrum, 2015) or for improving their literacy skills (Gathoni, 2012), for increasing civic information awareness in the remote areas (Nwofor and Ilorah, 2015), for promoting user characteristic, such as the true democracy (Kargbo, 2014), and for knowledge sharing (Namdev Dhamdhere, 2015). Following are the kinds of media for disseminating information in rural, namely liquid-crystal display (LCD) (Salim, 2013), model of a technology in the actual size (Yoganingrum et al. 2015), pictures (Miss & Njoku, 2013), posters (Yoganingrum et al. 2015), movie (Ravallion et al., 2015), and animation (Sinthamrongruk et al., 2013; Yeh et al., 2012; Yoganingrum et al., 2016).

Catts & Lau (2008) said that people in rural may prefer to the information conveyed orally and other kinds of non-written sources. It was likewise with Indonesian people, who live in rural (Yoganingrum & Hantoro, 2015). There were several media that fit those characteristics, those are movie and animation. The both media have been used for disseminating information to increase awareness, mitigation and adaption of people to the climate change impacts (Ballantyne et al., 2016; Lieske et al., 2014; Roberts & Nicol, 2011). Mayer & Moreno (2002) argued that animation can be used to improve deeper understanding in a learning process. Meanwhile, (Rosen, 2009) conveyed that the usage of animation for on-line learning can improve the ability to construct, adaptation with the scientific and technological knowledge and motivation to learn science and technology. Moreover, Yoganingrum et al. (2016) assumed that 3D animations containing detailed and focus information, according to the information needed and using the local terms can be a tool for transferring appropriate technology to the rural communities.

Some researchers developed the animation as a tool to convey the scientific information to the children school and for learning process of them. In Thailand Sinthamrongruk et al. (2013) combined between media of animation and game to disseminate the knowledge of energy conservation in student grade 8th, 9th, and 10th. They designed the picture with the round-shape characters and pastel-color technique to attract the attention of the children. The authors did not mention the reasons in choosing the media of 3D animation and games for disseminating knowledge to the children school. The result showed that the students were more satisfaction in using the game than that of the 3D animation. The author employed questionnaire to collect the data. However, the authors did not describe the shape of the questionnaire and the technique to analysed it. Moreover, Guo et al., (2014) used some types of the 3D animation namely Virtual Environment, Interface, and Static Illustrations Interface. The animation was completed by the narration and text in the multimedia applications. The research aimed to measure, which kind of 3D animations provides higher contribution in improving the mathematical spatial ability of the grade 12th students. The authors employed questionnaire, which is analysed by non-parametric test. The result showed that 3D virtual environment was the most effective animation for the learning process. On the other hand, Yeh et al. (2012) used animation-based instruction to convey knowledge about the 'Principles of Earthquakes' to 10th grade students. They divided respondent to two groups. The first group received an assessment of their prior knowledge before getting appropriate feedback mechanism. The students, who join group one can reduce perceived cognitive loads making them easier to reconstruct their cognitive structure in subsequent learning using the correct information. Based on the results of an open question, animation-based instruction is an effective tool for reducing perceived cognitive burden and improving learning.

METHODOLOGY

3D animation about the building of a water reservoir was made by the collaboration among the animation developer and the researchers, who have expertise on water technology and information science. The number of participants are 46 consisted of 8th and 9th grade junior high-school students living in the village of Sedanau, the district of Natuna, Indonesia.

Data collecting and analyzing

Data were collected using open-ended questionnaire. This technique was used by (Yeh et al., 2012) to evaluate the learning outcomes and feedback provision of the animation-based earthquakes instruction for 10th grade high-school students. Then we analyzed the data with the content analysis. The questions are following:

- Can you understand the information? Is the information concise and clear? Please explain
- Does reservoir need to be built in your village? Please explain

The students could interact one to another while answer the questions. The steps of data collecting are following:

- We collected the student of grade 7 and 8 on a room
- We showed the 3D animation for 2 times
- The students wrote and answered the questions

FINDINGS

Can you understand the information? Please explain about the information

The Table 1 showed the various answers of the students.

Table 1: The answer of the students to the question number 1

No	Answer	Explanation	Amount
1.	Yes	None	20
2.	A little	None	4
3.	No	None	2
4.	Yes	1. 'But the detail information is not clear' 2. 'About the usage and building of a reservoir appropriately' 3. 'The water in Sedanau will be available on any season' 4. 'To overcome the problem in lacking of water in Sedanau' 5. 'But the need of reservoir is depend on the awareness of the dwellers' 6. 'About closed reservoir for storing water' 7. 'I can imagine the building of a reservoir' 8. 'But the detail information is not clear' 9. 'The dwellers will not be hard to get water if a reservoir is built in Sedanau' 10. 'Although the animation tempo is too fast'	10
5.	A little	1. 'The animation is too fast. It will be good if the animation is repeated until 3 times' 2. The explanation about the reservoir is too fast and not clear' 3. 'I cannot write down the summary of the story' 4. The explanation is too fast 5. The explanation is too fast 6. We cannot find the tools for building the reservoir in Sedanau. However the information is useful for the region, which is lacking of water'. 7. 'The animation is too fast' 8. 'The explanation is too fast' 9. 'The explanation is too fast'	9
6.	No	'Because the kind of reservoir in the animation is different with the one in Sedanau'	1
Total			46

Does reservoir need to be built in your village? Please explain

The Table 2 showed the various answers of the students.

Table 2: The answer of the students to the question number 2

No	Answer	Explanation	Amount
1.	None	<ol style="list-style-type: none"> 1. 'It is better to be built at Kurak' 2. 'Can be built at Kurak' 3. There is already reservoir in Sedanau. But the reservoir is not similar to the reservoir on the animation. The water on reservoir in Sedanau is very cloudy and lots of garbage. So, we must manage it, or we made again with the location in front of the high school and maintenance it therefore it cleaner and healthier. 4. 'At the highland, like at Gayam' 5. 'It is better built at Kurak' 6. 'In front of the high school' 7. 'At Semarus' 	7
8.	Very necessary	None	1
9.	Very necessary	<ol style="list-style-type: none"> 1. 'Because there is a dry season in Sedanau and Sedanau is tropical area' 2. 'At Pering' 3. 'Because here lack of clean water. I propose on the plateau like in front of the second high school in Natuna' 4. Sedanau is categoried as a place that lack of water, and we can build in the location of the shortage of water like in Penyong' 	4
10.	Necessary	<ol style="list-style-type: none"> 1. 'At Chinese cemetery' 2. 'Built at Pering' 3. 'In a humid place like Kurak' 4. 'On the plateau, that is in Kurak' 5. 'At Pering. Also at Samarus' 6. 'At Penyong' 7. 'So, we do not lack of water. It is suitable at Pering or in front of the high school, because there is very wide land there'. 8. 'On the open area, in the highlands like in front of the high school' 9. 'On the open area and do not disturb the community' 10. 'Built at a bit far from the residential area, so the reservoir is clean and not polluted, for example in the coastal area, at Samarus' 11. 'At Kurak' 12. In a place away from the homes of the residents, so that the residents do not contaminate the reservoir or water....On a higland in the Kurak area' 13. 'At Kurak, an open area so do not disturb the residents' 14. 'An open area so do not disturb the residents' 15. 'Built in lowland and upland areas' 16. 'Built in the main island' 17. 'In front of the high school' 18. 'During the dry season, Sedanau experiences water drought, and it is necessary to have a reservoir, so that poor families get water easily in the dry season' 19. 'In the areas where there is a rotting soil to make a perfect embung' 	32

		20. 'Sedanau experiences water drought during the dry season. The appropriate place is at Pering. There is already reservoir there' 21. 'At Penyong or in front of the high school' 22. 'Sedanau experiences water drought during the dry season' 23. 'At Peqeng' 24. 'At Peqeng' 25. 'At the open area, under the plateau' 26. 'At Kuraq' 27. 'At the highland' 28. 'in front of the high school' 29. 'At Pering/Apak' 30. 'At Pering' 31. 'At Pering' 32. 'Sedanau is area of water shortage'	
11.	Not necessary	1. There is already reservoir in Sedanau. However, it is not similar to the information on the animation. The water is very cloudy. 2. There is already reservoir in Sedanau, the location is beside the Futsal field'	2
Total			46

The result on the table 1 showed that most students understand the information conveyed by the animation. However, most respondents did not explain the content of the information. Meanwhile, Table 2 showed that most students have opinion reservoir is necessary to be built in Sedanau. But only a few respondents answer the reasons why their village needs reservoir. The result in table 2 showed that most of them imitate the answer of other. We assumed that those results are affected by the technique applied for the data collecting in this research.

Table 1 shows that 30 students answer 'yes' but 20 (twenty) students did not give the explanation. There is only 10 (ten) students give explanation on their answer sheet. Seven students said that the tempo of animation is too fast. It is similar to table 2. Most students only mention the name of the area for building the reservoir. It seems that the students have difficulty in describing and writing down their opinion. The form of answer on the class promotion test in Indonesia is generally the multiple choices or filling the blank. Probably this cause the students are not familiar with the form of the open-ended question, which they should write down the answer.

Animation-based learning improved the abstract conception of the student effectively (Yeh et al., 2012). However, the technique chosen to measure the abstractive concept of school students is critical. This research decided to use open-ended questions since one of the results of Yeh et al.(2012) showed that the result of open-ended question performed better than those of multiple choice result. (Araya & Aljovin, 2018) argued that the word of "explain" had a significant effect on the response of the students on written responses to open-ended questions of science, technology, engineering and mathematics (STEM) platform. For future research it may take a simpler phrase that encourages students to write down their opinion. Furthermore use of a motivation text and the small of answer boxes on the answer sheet affected the answering of open-ended questions in a web survey (Zuell et al., 2015). This research used a blank sheet for respondents to answer the questions. Although the technique of data collecting is different, in the future it could be considered to provide a question sheet with a motivation text written on it and use a small answer boxes to increase the willingness of respondent to write down the explanation.

It is necessity to build student's prior knowledge and learning environment before improving the cognitive structure of school kids regarding a particular topic (Yeh et al., 2012). Those processes will make the students easier to recreate cognitive structure in subsequent learning using the correct information. The steps of this research did not conduct those processes. Therefore, it is possibly the students finding difficulties when they are trying to understand and construct the concept about the building of the reservoir. One of students at Table 1 answered that he/she cannot write down the summary of the information from the animation. It is probably he/she is failure to reconstruct the cognitive structure. It is also happened to the 20 students on Table 1, who are only able to write yes, but difficult to write down the explanation.

CONCLUSIONS

This research result indicated that animation could be an effective media to convey the information regarding reservoir to the school kids of grade 7th and 8th. However most students showed the difficulties to write down the

explanation, which is indicated the low level of the cognitive structure regarding the topic. It caused by the tempo of animation is too fast, also caused by they are not familiar with writing answer on open-ended question. In the future, we will compare to the form of multiple choice question, and open ended question using answer sheet completed by motivation text and small answer box, as well as building student's prior knowledge and learning environment before testing.

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The Effectiveness of Using Virtual Simulation and Analogy in the Conceptual Change Oriented-Physics Learning on Direct Current Circuits

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ABSTRACT

This research investigated the use of cognitive conflict strategy aided with virtual simulation and analogy in conceptual change oriented-physics learning on Direct Current Circuits. Thoughis pre-experimental method involved 38 pre-service elementary teachers at a university in the Riau province, Indonesia. They were taught by using cognitive conflict strategy aided with virtual simulation media and analogy. Virtual simulation by using media was done at conception and scientific explanation stages. And then analogy was done at new concept reinforcement stage. The research instrument used was a direct current circuit concept test in Three-Tier Test format. The test was used before and after the cognitive conflict strategy implementation. The results show that

before treatment the majority of college students have misconceptions about parallel electrical circuit, battery functions in an electric circuit and the bulbs lighting process in an electric circuit. The results also show that the application of cognitive conflict strategy aided with virtual simulation and analogies is highly effective in reducing the quantity of students who have misconceptions on three reviewed direct current circuit concepts.

Keywords: Conceptual change, virtual simulation, analogy, direct current circuits

INTRODUCTION

Students' understanding of the key concepts related to the physics topic has become an interesting research area and has been studied by researchers in the physics education field (e.g. Mulhall, McKittrick & Gunstone, 2001). The facts show that the students come to class with a variety of views or conception and most of them are different from scientific conception (Treagust & Duit, 2008). The students' experiences in the environment, peer influence, the influence of media and learning activities can trigger the formation of such conceptions in their minds (Chu, Treagust & Chandrasegaran, 2009).

There are a variety of terms to express students' erroneous answers, unscientific students' interpretations and students' conceptions that do not correspond with the scientific conception, include "preconception" (Celement, 1982), "misconception" (Engelhardt & Beichner, 2004) or "alternative conceptions" (Gilbert & Watts, 1983). In this article the state of students' conception that does not correspond with a scientific conception hereinafter will be referred as misconceptions. Misconception is the cognitive structure that is stable and robust embedded in the minds of students that can hinder them in accepting new concepts (Treagust & Duit, 2008). It is very difficult to change or need time consuming a lot, especially by using traditional teaching method (e.g. McDermott & Shaffer, 1992; Samsudin et al, 2016; Samsudin et al, 2017).

There are two implications of misconceptions towards the teaching and learning process (Demirci, 2005). First, if misconceptions are not immediately detected and corrected, it will cause mistake in understanding the concept, and will ultimately affect the achievement of students' learning outcomes. The second implication is the students will learn a concept meaninglessly since they only learn up into memorizing stage and not into the understanding stage.

The preliminary study results of some pre-service elementary teachers in one of the colleges in Riau province showed that most students still have misconceptions about the concepts covered in direct current circuit. Several misconceptions found are in the concepts: K1) parallel electrical circuit concepts, K2) battery concepts and its functions in an electric circuit and K3) the concept of a lighting bulb.

Misconceptions in a lecture content can be overcome if it can be detected as early as possible. Special methods are needed to overcome students' misconceptions. The whole process to deal with students' misconception starts from the disclosure of students' conception and proceed with the transformation and accommodation process of scientific conception through the cognitive conflict strategy known as a conceptual change method (Kabaca, Karadag, and Aktumen, 2011). Most studies about conceptual change that have been done are emphasizing on cognitive perspective (Kabaca et al, 2011; Limo, 2001). The students are triggered to feel dissatisfied with the views or conception that they believe, and then the more reasonable and understandable new views or conception are presented (Hewson & Hewson, 1984). To optimize students' concept understanding and reduce their misconceptions, various approaches/learning strategies oriented towards altering the conception have been proposed (Treagust & Duit, 2008). Various approaches/strategies are proposed based on Kuhn's philosophy of science and Piaget's theory of cognitive development (Zhou, 2010).

One of the strategies that can be used in the conceptual change approach is cognitive conflict strategy. Cognitive conflict is a strategy or a way to release the wrong conception that has adhered strongly in students' mind by ramming it with the actual physical fact. When the prediction/conception expressed by students about a phenomenon or a physical concept does not correspond to the actual phenomena and concepts that they have seen, there will be dissatisfaction with that conception and their belief of that conception will begin to fade. When their faith has faded, it will be easier to modify it. The effectiveness of using cognitive conflict in learning strategies aimed at instilling concept understanding cannot be denied because there are lots of research that have been conducted in various subjects. For example, cooperative learning by using cognitive conflict strategy can improve students' critical thinking and creativity (Rahim, Noor, & Zaid, 2015). Furthermore, using cognitive conflict strategies in learning physics is proved to further improve students' understanding of physics concepts than using traditional learning (Baser, 2006).

To trigger a cognitive conflict in students' mind, media demonstration or visualization of physical phenomena is required. For abstract or microscopic physics phenomena, virtual simulation media can be used to modeling the invisible microscopic phenomenon so it will become an observable phenomenon.

To reconstruct a new conception in the students' minds to replace the former erroneous conception, it is necessary to do the exploration and explanation of scientific conception involving students directly. Thus, they will be able to construct their own new conception in their mind. This process can be done by various methods, including interactive demonstration method or investigation method. This activity is also required the appropriate media support or laboratory equipment. For learning microscopic physics phenomena such as the movement of electrons in a circuit, simulation or virtual labs media is more appropriate to be used.

Simulation is a computerized version of the physical models that can be run over a period of time that has been set (Baser, 2006). Physics teaching with use the media simulation can be used as an alternative of exploration activities using real lab (Ronen & Eliahu, 2000). With virtual laboratory, it is possible for students to directly manipulate the independent variables and can immediately see the effect of dependent variables in the virtual probe (Zacharia, 2005). Results of other studies indicate that learning physics using simulations media makes physics content easier to be understood (e.g. Jaakko & Nurmi, 2008; Wibowo et al, 2017; Samsudin et al, 2016; Kaniawati et al, 2016), and can provide constructive feedback to overcome students' misconception (e.g. Samsudin et al, 2016; Wibowo et al, 2016; Ronen & Eliahu, 2000).

To strengthen the new conception which has been embedded in the learners' minds, the conception reinforcement process needs to be done. This process can be done by using an analogy. Analogy is one of the most common methods used to overcome misconceptions in learning physics. Analogies can be defined as a process of physical phenomena explanation that is not known by using other similar physical/non-physical phenomena that have been known previously. In this case, the physical phenomena that have been known is called as the source, while the physical phenomena that we want to know is referred as a target. In using analogy, it is very important to clarify what and where is the similarity between the target and the source (Selcukand Ozkan, 2012).

Duru (Selcuk and Ozkan, 2002), in his survey, states that the majority of physics teachers acknowledge the importance of using analogy in learning physics. They agree that the analogy can facilitate the learning process, make learning more meaningful, and correct misconceptions very effectively. Every time analogy is used dynamically, it is proved to improve students understanding of the physics concepts. The students learn certain subject step by step, by adding new knowledge to former knowledge, and because new knowledge is almost always associated with former knowledge, the analogy can be a very valuable learning tool. The symmetrical source and target situation enables them to exchange roles (Treagust et al, 1992).

This paper describes the effectiveness of using a combination of virtual simulation media and analogy method in physics learning process oriented for conceptual change by using cognitive conflict strategies in teaching direct current circuit.

THE STUDY

The method used in this study is a pre-experimental method with one group pre-test post-test design. It is used because this study is a preliminary research conducted to assess the effectiveness of using conceptual change by applying cognitive conflict strategy aided with virtual simulation and analogy in reducing the quantity of students who have misconceptions. The research subjects are 38 elementary school pre-service teachers at one of the universities in Riau province. The subjects are selected by purposive sampling technique, because the purpose of this study is to remediate students who have misconceptions so the research subjects chosen are the students who have attended the direct current circuit material subject organized by the lecturer in charge. The research instrument used is a direct current circuit concept test in the format of Three-Tier Test (TTT). To determine the state of students' conception based on TTT result, the guideline as shown in Table 1 is used (Katlacki and Didis, 2007).

Table 1. The analysis guidelines for state of students' conception based on the TTT results

Answer (tier 1)	Reason (tier 2)	Confidence Level (tier 3)	Category
True	True	Sure	Scientific conception
False	True	Sure	Error
True	False	Sure	
False	False	Sure	Misconception
True	True	Not Sure	Lack of knowledge, including guessing.
False	True	Not Sure	
True	False	Not Sure	
False	False	Not Sure	

The quantity decrease of students who have misconceptions, ΔM , on every concept in direct current circuit content is determined by a formula in equation (1) which is an adaptation of the N-gain definition developed by Hake (Hake, 1998):

$$\Delta M = \frac{M_{pre} - M_{post}}{M_{pre} - M_{ideal}} \quad (1)$$

with ΔM decrease criteria as shown in Table 2.

Table 2. The criteria of quantity decrease of students who have misconception

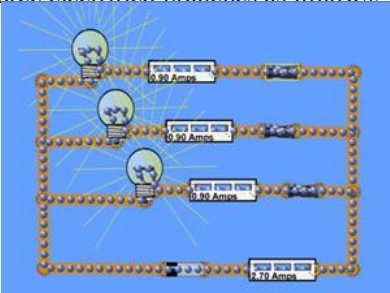
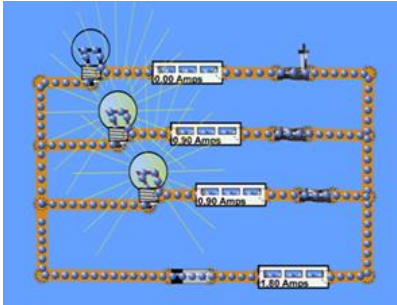
ΔM Range	Decrease category
$\Delta M < 0,3$	Low
$0,3 \leq \Delta M < 0,7$	Medium
$0,7 \leq \Delta M < 1,0$	High

The simulation software used in this study to conduct virtual laboratory is Circuit Construction Kit (CCK). CCK is developed by the Physics Education Technology (PheT) project at the University of Colorado, United States (<http://phet.colorado.edu/web-pages/index.html>). By using CCK, students can perform virtual experiments similar to the real experiment (Perkins et al, 2006).

Conceptual change method by using cognitive conflict strategy used in this study is a process disclosed by Posner et al (1982); it starts with the disclosure process of the current concepts owned by the students. The next step is confrontation activities of the conception believed by students to create a cognitive conflict situation in their minds. After that, the reconstruction of the former conception with the new conception through scientific explanation and the final stage is the strengthening and expansion process of concepts. At the scientific explanation process, interactive demonstration method is used; it is based on the consideration that this method allows the concept construction to be discovered by the students through the demonstrations presented by

lecturer. Zimrot and Ashkenazi (2007) states that interactive demonstration is a student-centre learning method, so that students can construct their own new conception to replace the former erroneous conception through demonstration of physical phenomena that are presented and discussed in an interactive teaching. Table 3 shows an example of process carried out in a students' conceptual change-oriented learning in parallel electrical circuit concept by using cognitive conflict strategies in interactive lecture demonstrations.

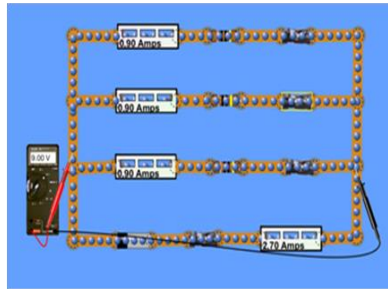
Table3. Examples of steps in the students' conceptual change-oriented learning on the parallel circuit concept

No	The stages of conceptual change-oriented learning	The facilities provided by lecturer	Questions asked
1	The disclosure of students' conception (prediction) on a physical phenomena	The presentation of real parallel electrical circuit completed with ammeter, switches, batteries and bulbs as well as the simulation of parallel electrical circuit consisting of three electrified branches as follows: 	Please observe carefully the reading of electric current flowing in each branch circuit on each ammeter mounted on each branch. If the top most branch of the parallel circuit is terminated, in which branch will the electric current be constant and changed? How is the change? Is the electric current enlarged or shrunk? Explain why you have such thoughts! Write down your answers on the worksheets provided!
2	Disclosure of students' confidence of conception (prediction) filled at stage 1	The presentation of real parallel circuit and parallel circuit's simulation consisting of three branches electrified as above.	Are you sure of the statements/ opinion that you have given in answering question number 1? Write down your answers on worksheets provided!
3	Confrontation of students' confidence on conception (prediction) filled on phase 2 to bring up the cognitive conflict	Lecturer disconnect one of the three branches of parallel circuit and ask students to observe the changes in the electric current on ammeters installed at each branch after one of the branches is cut off. 	Is the electric current flowing in each branch after the top branch is disconnected in accordance or different with your prediction (conception)? When you see that your prediction (conception) is not consistent with the fact that actually happen, are you starting to doubt the truth of the parallel circuit conception that you believed?

- 4 Scientific explanation for accommodating the new conception

Lecturer presents the interactive demonstration process with the help of real and virtual simulations media to facilitate the construction of scientific conception in the students' minds about the characteristics of parallel circuit as a current divider and not a voltage divider.

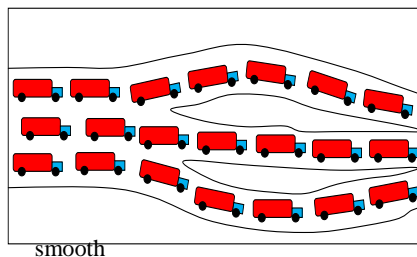
After following the activities of the scientific explanations through interactive demonstrations and class discussion, can you adopt a new conception to replace the conception that had been embedded in your mind associated with parallel circuits that are not really in accordance with the scientific conception?



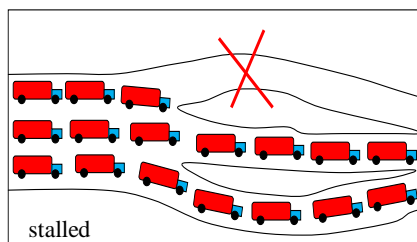
- 5 Reinforcement of new conception resulted from accommodation (stage 4) in the students' minds by using the analogy

Lecturer presents parallel circuit analogy in the form of the forked road. When all three branches can be passed by vehicles, the traffic on the main road before the forked branches will be smooth.

After listening to the analogy presented by the lecturer, do you have more confidence in the new conception's truth as the replacement for the former wrong conception?



But when one branch of roads is cut off and cannot be passed by the vehicles, the traffic condition on the main road before the branches will be stalled, and the condition of the other two branches will be the same as when the branch has not been cut off.



FINDINGS AND DISCUSSIONS

Table 4 shows the number of students in each direct current circuit conception state analysed in both pre-test and post-test.

Table 4. The quantity of students in each conception state in the pre-test and post-test

No	Types of concept	Conception state in pre-test				Conception state in post-test			
		Scientific conception	Error	Misconception	Lack of knowledge	Scientific conception	Error	Misconception	Lack of knowledge
1	K1	2	0	29	7	29	0	6	3
2	K2	4	0	27	7	29	0	7	2
3	K3	3	0	27	8	29	0	6	3

Based on the data in Table 4, it can be seen that most college students have misconceptions on the third direct current circuit concepts reviewed. Only a small proportion of students who have a scientific conception, and another small portion of them can be categorized into lack of knowledge state. It indicates that the learning process which is commonly used by lecturers fail to inculcate scientific conception in the students' minds, and even generate misconceptions. It is assumed that the processes and activities carried by lecturer in the electrical circuit material do not support the construction process of understanding the concept in students' minds. Several misconceptions identified to be owned by the majority of students at all three direct current circuit concepts are: M1) misconception that electric current flowing in each branch of the electrical circuit of parallel will change if the number of parallel branches on the circuit is added or reduced, M2) misconception that the batteries in an electric circuit is functioned as a source of electric current or electron source, and M3) misconception that a bulb mounted on the circuit is lighting because the bulb emits electrons.

After the treatment in the form of conceptual change-oriented learning, there is an increase in the quantity of students who have a scientific conception. This increase is the compilation of the decrease in the quantity of students who have misconceptions and in lack of knowledge category. If it is specifically reviewed from the misconceptions category, then there is a decline in the quantity of students who have misconceptions in pre-test and post-test as shown by Table 5.

Table 5. The decrease in the quantity of students who have misconceptions as the result of conceptual change-oriented learning application

No	Types of misconception	The quantity of students who have misconception before the treatment (M_{pre})	The quantity of students who have misconception after the treatment (M_{post})	The quantity decreased of students who have misconception, ΔM . (Category)
1	M1	29	6	0,79 (High)
2	M2	27	7	0,74 (High)
3	M3	27	6	0,78 (High)

Based on the data in Table 5, there is a significant decline in the quantity of students who have misconceptions in all direct current circuit concepts reviewed. It shows that the use of virtual simulation media and analogy in cognitive conflict strategies are highly effective in remediate misconceptions that occur in the students' minds.

The following is an example of student responses to the questions in conceptual change-oriented learning process recorded in one of the students' worksheets whose student's number 8. It appears that student with student's number 8 experienced conceptual change from misconceptions state into the scientific conception state by first experiencing cognitive conflict when there was a difference between what he saw with what he was thinking during that time. The process of scientific explanation presented by lecturer seemed reasonable, so he can understand the error in his former conception and he can accommodate the new conception to replace it. The analogy presented by lecturer can strengthen the belief that the new conception that he perceives is true.

<p>Students' Worksheet.</p> <p>Parallel Circuit Concept</p> <ol style="list-style-type: none"> 1. <i>When the top branch of a parallel circuit is disconnected, the amount of electric current that does not change is at the main branch that contains the battery, while other two parallel branches will turn out to be larger than their original amount of value.</i> <i>The explanation: when one branch of the parallel circuit is disconnected, electric current flowing into the branch will move to other branches that have not been cut, so that the of electric current in the branches that have not been cut will increase in size as they get additional large from the disconnected branch. The total electrical current power which was originally divided into three now only divided by two, so that the electric currents' value in the two branches that have not been cut will increase.</i> 2. <i>I am really sure that the conception that I believe is true.</i> 3. <i>The thing in my mind and the thing I observed were different. I began to doubt the truth of thoughts I had during this time related to parallel circuit concept.</i> 4. <i>After listening to the explanation given by the lecturer through interactive demonstration activity, I can understand parallel circuit concept well and I realize the error conception that I had so far in parallel circuit concept. I will discard the wrong conception I had and replace it with the new conception in accordance with scientific conception.</i> 5. <i>The analogy presented by the lecturer is very logical in describing electric current in parallel circuit so the faith that the new conception that I get is true is getting stronger and firm.</i> 	<p><i>Student's number: 8</i></p>
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The evidence of conceptual change occurred to the student with student's number 8 can be seen from the results of the post-test related to parallel circuit concept. The analysis of his post-test are resulted by using the TTT analysis guidelines that have been put forward shows that the student has a scientific conception (scientific knowledge) related to the parallel circuit concept.

Although most students have experienced concept modification, but there is still a small fraction of students whose conception has not changed and remains in a state of misconceptions. This situation seems to be related to the facilities provided by lecturers in which simulation media or analogy cannot effectively assist the new conception construction in these students' mind, even though they have already experienced cognitive conflict. Another thing assumed to be the cause of ineffective remediation of some students' misconceptions is the lack of enrichment activities or expansion into other physical situations (phenomena) that can strengthen the new conception embedded in their minds, so that when they are confronted with a new physical situation, they still feel confused. These results are consistent with the result of research conducted by Çepni (2009) on the use of CSIM (computer supported instruction material) in learning optical material. The results showed that the learning activities using CSIM is effective in building scientific conception in students' minds. However,

despite the alternative conception in the minds of most students can be changed with the help of CSIM, it turns out there are a number of students who are resistant to concept modification. Students have difficulty in changing their former conception into the new scientific conception allegedly due to the fact or physical phenomena that are presented in the learning process are not so logically acceptable for them. It is closely related with the fact that each student has a learning style and intelligence of their own which can differ from one another, so that there is possibility of any individual cannot get the same results or benefits from the learning process carried out by the lecturer.

CONCLUSION

The application of cognitive conflict strategy aided with virtual simulation and analogy in conceptual change-oriented learning can reduce the quantity of students who have misconceptions on the three concepts of direct current circuit proved by decrease in high category. It shows that the application of cognitive conflict strategy aided with virtual simulation in concept modification-oriented learning are highly effective in remediate misconceptions that occur in pre-service elementary teachers' minds.

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The Elements of Knowledge, Personality and Motivation Among Teachers of Arabic Language Model in National Schools of Malaysia

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ABSTRACT

This paper discusses the empowerment of teaching Arabic Language in National Schools of Malaysia. It focuses on 3 elements in a teacher of Arabic Language Model, namely, i) knowledge, ii) personality and iii) motivation. In Malaysia, not all teachers of the Arabic Language Model are given specialized training to teach it. Thus, it is important to identify or determine the teacher's readiness or preparedness in teaching the language. This paper only reports results of quantitative research which involves distribution of questionnaires to teachers of the Arabic Language Model. Data are analyzed by using descriptive statistical method and displayed as frequency, percentage, mean and deviation. Research is conducted on 344 teachers aged between 25 – 45 years and with teaching experience of between 1-12 years. Each question has a 5-point Likert scale, namely, "strongly agree (SA)", "agree (A)", "slightly disagree (SDA)", "disagree (DA)" and "strongly disagree (STDA)". There are 8 questions on the elements of knowledge and personality, and 5 questions on motivation. Research finds that: i) teachers' knowledge is at a good level with mean average of 4.00, ii) personality is also good at mean average of 4.15, and iii) motivation is also good with an overall mean of 4.12. Overall, research finds that teachers' readiness, in terms of the elements in teaching Arabic Language, is good except for some matters which need improvement by the administration, and the need for specialized training to teach Arabic Language in order to empower and produce trained teachers in this field.

Key Words: Personality, Motivation, Language Learning

INTRODUCTION

Arabic language education in National Schools in Malaysia is one of the Models introduced through the j-QAF Program. Historically, formal teaching of Arabic language was clearly visible in the Malay society, particularly with the emergence of Islamic learning centres in the form of *pondok* (Traditional Religious Boarding School) in the 18th Century CE (Abdullah Jusuh, 1989). The j-QAF Program is an effort to empower Islamic teaching through specific emphasis on teaching Jawi (Malay Arabic script), al-Quran, Bahasa Arabic language and *fardu ain* (personal religious obligations) implemented at primary school level. The implementation of the j-QAF Program in primary schools in Malaysia is based on the Ministry of Education circular, *Surat Pekeliling Ikhtisas: Bil.13/2004: Pelaksanaan Program j-QAF Di Sekolah Rendah* (Professional Circular: Num.31/2004: Implementation of j-QAF Programme in Primary Schools). The j-QAF Program was first implemented in the year 2005, involving all first year pupils of selected primary schools. Its implementation was later adopted by the rest of the schools in the following years according to stages (Kementerian Pendidikan Malaysia, 2004; Kementerian Pendidikan Malaysia, 2006). Its implementation was done through development of curriculum, model and module. In efforts to make the program a success, teachers are given specialized training by teacher training institutes to implement programs of student improvement, guidance, enrichment and appreciation (Ibrahim Hashim et.al., 2009). The objective of Arabic Language Education in using the Expansion Model of Communicative Arabic Language (Pekeliling j-QAF, Bahagian Pendidikan Islam Malaysia) is to produce National School Students aged between 7 to 12 years who have 'a good mastery of basic Communicative Arabic

Language'. Six years after its implementation, a comprehensive study was conducted to identify the strengths and weaknesses of the program, and to suggest more thorough improvements, particularly in Arabic Language education. Several studies on its implementation have been conducted, however, these were on a smallscale and not comprehensive. Among these were studies by Ghazali Darussalam (2007) Ridhuan Jusoh (2008), Ibrahim Hashim et. al. (2009), Misnan Jemali et. al. (2009), Siti Fatimah Ahmad (2010) and Noor Azimah Surip (2012). Generally, the studies conducted found that teaching of j-QAF, as planned in the Islamic education curriculum, has given a positive effect on student development, spiritually and emotionally (Ibrahim et.al., 2009). Arabic Language education is very important as Arabic is currently one of the major world languages, comparable to other major languages. One of the factors which contributes to world acceptance of its usage is its extensive coverage of many countries and great number of native speakers (Fakulti Pendidikan, Universiti Kebangsaan Malaysia, 2014).

THE STUDY

This paper only reports results of quantitative research which involved distribution of questionnaires to teachers of the Arabic Language Model. Data were analyzed by using descriptive statistical method and displayed as frequency, percentage, mean and deviation. Research was conducted on 344 teachers aged between 25 – 45 years and with teaching experience of between 1-12 years. Each question has a 5-point Likert scale, namely, namely, "strongly agree (SA)", "agree (A)", "slightly disagree (SDA)", "disagree (DA)" and "strongly disagree (STDA)". There were 8 questions on the elements of knowledge and personality, and 5 questions on motivation. The questionnaire served as a research instrument for works in data acquisition through randomly selected sample which represents a population chosen from among primary school Arabic Language teachers. This method was used to ensure that every member has an equal chance of being selected as sample representative of research population (Ary *et. al.* 1990). The sample units were randomly selected from sample areas based on a zone system, namely; a) North Zone (Kedah, Penang Island and Perlis); b) South Zone (Johore, Malacca and Negeri Sembilan); c) East Zone (Kelantan, Terengganu and Pahang); d) Central Zone Tengah (Perak, Selangor and Federal Territory); and e) Zon Sabah and Sarawak Zone. Such sampling was based on sample size as suggested by Krejcie and Morgan (1970) and Sekaran (2003).

FINDINGS

Discussion in this paper is limited to three elements, namely, knowledge, personality and motivation of Arabic Language education teachers of National Schools in Malaysia. The three elements are important to be studied because they form the foundation for success or otherwise of the objective desired to be achieved through the j-QAF Program Arabic Language Model.

First, discussion is focused on the knowledge element of teachers which generally indicates a teacher's readiness in teaching the language. Generally, the teachers' readiness in terms of knowledge is good with a mean average of 4.00 as the mean levels are at 2.5 and above. Nevertheless, teachers still require courses in Arabic language enhancement and training in methods of teaching Arabic. This finding corresponds with the main problem that not all Arabic language teachers received specialized training to teach this language. This finding is shown in Table 1 as follows:

Table 1. Analysis of Teachers' Knowledge of Arabic Language Model

Frequency & Percentage(N=344)									
In implementing teaching of Arabic Language Expansion Model, ...									
No.	Item	STDA	DA	SDA	A	SA	Mean	SP	INT
EB1	I am able to read Arabic text passage without vowel marks	3 (0.7%)	14 (3.3%)	50 (11.8%)	201 (47.6%)	76 (18.0%)	3.96	0.779	ST
EB2	I am able to explain meaning of Arabic text passage	2 (0.5%)	11 (2.6%)	38 (9.0%)	209 (49.5%)	84 (19.9%)	4.05	0.730	T
EB3	I am able to write a brief essay in Arabic	1 (0.2%)	10 (2.4%)	52 (12.3%)	206 (48.8%)	75 (17.8%)	4.00	0.716	ST
EB4	I am unable to verify Arabic grammatical errors	16 (3.8%)	68 (16.1%)	136 (32.2%)	84 (19.9%)	40 (9.5%)	3.18	1.030	ST
EB5	I am able to communicate in official Arabic language (<i>fusha</i>)	2 (0.5%)	21 (5.0%)	79 (18.7%)	186 (44.1%)	56 (13.3%)	3.79	0.805	ST
EB6	I am able to use Arabic dictionary to search for word meaning.	1 (0.2%)	4 (0.9%)	16 (3.8%)	208 (49.3%)	115 (27.3%)	4.25	0.623	T
EB7	I require Arabic enhancement course.	1 (0.2%)	2 (0.5%)	12 (2.8%)	180 (42.7%)	149 (35.3%)	4.37	0.612	T
EB8	I require course on methods of teaching Arabic Language.	1 (0.2%)	1 (0.2%)	8 (1.9%)	187 (44.3%)	147 (34.8%)	4.38	0.581	T
Overall Mean for Teachers' knowledge of Arabic Language Model							4.00	0.459	T

Secondly, identifying the personality of the teacher, teaching Arabic Language Model is also the main focus of this study. Research finds that Arabic Language teachers have a good teacher's personality while implementing teaching of the language with an overall mean of 4.15. Among the highest are 57.8% (N244) for ability "to motivate pupils to learn Arabic language", 56.4% (N238) for ability "to attract students' attention in Arabic P&P" and 55.9% (N236) "agree" (A) on "attempt to create a conducive atmosphere in the Arabic language class", as shown in Table 2 as follows:

Table 2. Analysis of Teachers' Personality for Teaching Arabic Language Model

Frequency & Percentage(N=344)									
In implementing teaching of Arabic Language Model,									
No	Item	STDA	DA	SDA	A	SA	Mean	SP	INT
EB39	I am able to attract pupils' attention in Teaching and Learning (P&P) of Arabic language.	-	1 (0.2%)	19 (4.5%)	238 (56.4%)	86 (20.4%)	4.18	0.531	T
EB40	I am able to motivate pupils to learn Arabic language.	-	1 (0.2%)	11 (2.6%)	244 (57.8%)	88 (20.9%)	4.21	0.502	T
EB41	I constantly greet students in Arabic language in and out of the classroom .	1 (0.2%)	4 (0.9%)	33 (7.8%)	234 (55.5%)	72 (17.1%)	4.08	0.610	T
EB42	I give guidance to pupils who succeed in mastering only one word.	15 (3.6%)	32 (7.6%)	68 (16.1%)	174 (41.2%)	55 (13.0%)	3.64	0.999	ST
EB43	I give chance to pupils to ask questions about a word not understood in Teaching & Learning (P&P) of Arabic language.	-	-	7 (1.7%)	225 (53.3%)	112 (26.5%)	4.30	0.503	T
EB44	I refer to other teachers if he cannot understand some matter.	-	-	8 (1.9%)	218 (51.7%)	118 (28.0%)	4.31	0.514	ST
EB45	I refer to various sources to improve Arabic language skills	-	-	6 (1.4%)	205 (48.6%)	133 (31.5%)	4.36	0.518	T
EB46	I make it a daily practice to communicate with teachers/ pupils in Arabic language.	-	6 (1.4%)	53 (12.6%)	221 (52.4%)	64 (15.2%)	3.99	0.641	ST
EB47	I attempt to create a conducive atmosphere in Arabic language class.	-	-	9 (2.1%)	236 (55.9%)	99 (23.5%)	4.26	0.496	T
Overall Mean of Teacher's Personality for Arabic Language Model							4.15	0.405	T

And thirdly, as a teacher, the element of pupil/student motivation is very important. The teacher has a role to shape and strengthen the personality of pupils. It is very essential to implement motivation towards holistic excellence, physical and intellectual, during teaching. This element is the focus of this study. Overall, motivation of pupils by the Arabic Language Model teachers is good with an average mean of 4.12 as shown in Table 3 as follows:

Table 3. Analysis of Pupil Motivation by Teachers of Arabic Language Model

Frequency & Percentage(N=344)									
In implementing teaching of Arabic Language Model, ...									
No	Item	STDA	DA	SDA	A	SA	Mean	SP	INT
EB48	I am able to establish an Arabic language environment in class	-	-	36 (8.5%)	220 (4.7%)	88 (20.9%)	4.15	0.581	T
EB49	I am confident every time I teach Arabic language.	-	-	20 (4.7%)	224 (53.1%)	100 (23.7%)	4.23	0.543	T
EB50	I raise pupils' awareness of importance of Arabic language.	4 (0.9%)	1 (0.2%)	9 (2.1%)	217 (51.4%)	113 (26.8%)	4.26	0.635	T
EB51	I advise pupils to be diligent in learning Arabic language.	16 (3.8%)	38 (9.0%)	88 (20.9%)	98 (23.2%)	104 (24.6%)	3.68	1.150	ST
EB52	I am deeply interested in teaching Arabic language.	1 (0.2%)	2 (0.5%)	12 (2.8%)	210 (49.8am)	119 (28.2%)	4.29	0.588	T
Overall Mean of Implementing Student Motivation by Teachers of Arabic Language Model							4.12	0.475	T

CONCLUSION

Arabic language is currently regarded as a major world language along with other major world languages such as English, French and Spanish. Arabic language is also a language for trade, international relations, politics and knowledge for the present world community (Fakulti Pendidikan, Universiti Kebangsaan Malaysia, 2014). Its teaching in Primary Schools in Malaysia currently becomes more important and relevant. In today's current of modern life developments, Arabic Language is growing as a communicative language. Therefore, it is felt that Arabic Language in Malaysia needs to be learnt from the early stage to a high level, beginning from primary school level until tertiary level. It is presently perceived that even other races are interested to learn the Arabic language as an additional language. This clearly shows that Arabic language is not merely for in-depth study of the Islamic religion, but is also a communicative language (Fakulti Pendidikan Universiti Kebangsaan Malaysia, 2014). The j-QAF Program which specifically emphasizes on teaching Jawi, al-Quran, Arabic Language and *Fardu Ain* is an implementation strategy in the Malaysia Education Development Blueprint (Ministry of Education, Malaysia, 2006). Findings shown in this paper, on the whole, show that efforts and strategies of this Blueprint have yielded encouraging results. These findings may assist the education authorities in Malaysia to achieve their main objective of the Communicative Arabic language subject in the j-QAF Program which may be summarized as "teaching pupils to read, understand and speak Arabic language" through "learning basic Arabic grammar". Our thanks and great appreciation for researchers of the related research project entitled "*Pemeriksaan Program j-QAF dalam Tranformasi Sistem Pendidikan Islam Malaysia: Pelaksanaan, Pengurusan dan Keberkesanan*" (Empowerment of j-QAF Program in the Transformation of the Malaysian Islamic Education System: Implementation, Management and Effectiveness), code: AP-2012-005, Universiti Kebangsaan Malaysia.

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The Evaluation of Attitudes of Nursing Students About Cadaver and Organ Donation

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ABSTRACT

Topics related to cadaver and organ donation are very important for the education of health sciences and treatment of chronic diseases. Many countries encounter various problems in maintaining health science education and satisfying organ demand. People's approach is influenced by many factors both organ donation and cadaver donation. These factors include age, living environment, level of education, and many others. In this questionnaire, conducted among nursing students who will become future healthcare professionals, it is aimed to examine the knowledge, attitude and behavior of nursing students about organs and cadavers donation. Our work was carried out among Semester-2 Nursing students during 2016-2017 academic year, in Kocaeli University Health Sciences Faculty. A total of 72 students (Female: 51, Male: 21) participated in the questionnaire study. The students who participated in the study were asked 12 questions answers of which were including "Yes", "No" and "Undecided" choices. There was a significant difference in the questions 3, 6, 7 and 9 when the answers of the male and female students were compared statistically ($p < 0,05$). The questions in the questionnaire are designed to assess students' views on cadaver and organ donation, their awareness and attitude towards their / their relatives' needs. Among the questions students participating in the study were asked: "Do you want to donate your organs when brain death takes place?" 54,2% of respondent nursing students, n: 39 replied as yes; 20,8%, n: 15 students said "Undecided". In another question they were asked "Do you want to donate the organs of anybody from the family?" 31,9%, n: 23 people said yes; 31,9%, n: 23 people said "Undecided". In the same questionnaire, 83,3% n: 60 people answered yes, 13,9%, n: 10 people gave the answer "Undecided", when they were asked "Are you accepting organ transfer from another person in case of need?" When the questions were asked about cadaver donations for medical education usage; 86,1% n: 62 people did not want to donate themselves as cadavers, 8,3% n: 6 people stayed tentative. Students responded as "interesting" with 38,9% n: 28 when they were asked about their feelings while working with cadavers in the anatomy laboratory. After

evaluating obtained results, the awareness of nursing students concerning donation of organs and cadavers was not recorded as expected. In consideration of responsibilities and duties of health workers in this regard, the improvement of their awareness is critical to increase the quality of community health and health education.

Keywords: cadaver donation, organ donation, anatomy, nursing students

INTRODUCTION

Cadaver and organ donation issues are very important in terms of health sciences education and treatment of chronic diseases. Topics related to organ and cadaver donation is a social subject that interests many people, their families, governments and medical staff. The health policies implemented by all countries around the world are unable to meet the required and desired organ requirements. A similar situation is also observed in the provision of cadavers which are necessary for medical and anatomical education.

Despite the contribution of technological developments to the training of anatomy, cadaver dissection still forms the basis of anatomy courses (Şehirli et al., 2004). The only benefit of dissection applications for the students who have studied anatomy is not about learning the structure of human body by visual experience. At the same time, students learn how to be respectful and cautious towards the cadaver and approach their future patients (Ögenler et al., 2014). Throughout the history of the anatomy, the cadaveric procurement has been a major problem. In many European countries bodies of criminals had been used as cadavers but after some social reactions unclaimed bodies started to be used. As for last 50 years, cadaver needs have being met largely by donors (Şehirli et al., 2004). However, due to the fact that cadaveric donations are not at sufficient level in our country and number of medical faculties and students increase, many universities have lack of desired number of cadavers.

Organ transplantation is of great importance in the treatment of the problems that arise due to organ failure and loss of function of the organs (Sungur and Mayda, 2014). In our country, organ donation is done by people who are over 18 years old and examinant. In this process, the persons have to sign a document with two witnesses that comprises their organ donation approval. Organ donation can also be with relatives of persons' approvals after the determination of the medical deaths of the related persons. Organ donation is a humanitarian behavior which is done entirely voluntarily (Baykan et al., 2009). Studies have shown that education, socioeconomic status, culture and religion are important factors in organ donation. However, organ donation is not at the desired level both in our country and in the world (Horton, 1990).

Many countries encounter various problems in maintaining health science education and satisfying organ demand. People's approach is influenced by many factors both organ donation and cadaver donation. These factors include age, living environment, level of education, culture and religion (Gürbüz et al., 2004). The biggest responsibility belongs healthcare professionals in order to raise awareness about cadaver and organ donation. Nursing students who will serve in the health sector need to be informed about cadaver and organ donation and prepared for future. In this questionnaire, conducted among nursing students who will become future healthcare professionals, it is aimed to examine the knowledge, attitude and behavior of nursing students about organs and cadavers donation.

MATERIAL-METHOD

Our work was carried out among Semester-2 Nursing students during 2016-2017 academic year, in Kocaeli University Health Sciences Faculty. A total of 72 students (Female: 51, Male: 21) participated in the study questionnaire. The students who participated in the study were asked 12 questions answers of which were including "Yes", "No" and "Undecided" choices. The questions in the questionnaire are designed to assess students' views on cadaver and organ donation, their awareness and attitude towards their / their relatives' needs. In an anatomy course day, survey forms were distributed to students who were present in the class and accepted to participate in the study. They were informed about the objective of study and survey forms were collected from students after properly filled. Obtained data from study was transferred to the digital environment and statistical analysis was performed with SPSS for Windows 20 package program.

FINDINGS

The average age of the 72 students who participated in the study is 19.86 ± 1.72 . 51 (70.8%) students who participated in the study were female and 21 (29.2%) were male. Demographic features of the students participating in the survey are shown in Table 1.

Table 1: Distribution of demographic features of students participating in the research.

Demographic Features		N	%
Gender (n=72)	Female	51	70,8
	Male	21	29,2
Geographical regions (n=72)	Mediterranean Region	3	4,2
	Eastern Anatolia Region	4	5,5
	Aegean Region	2	2,8
	Southeastern Anatolia Region	3	4,2
	Central Anatolia Region	4	5,5
	Black Sea Region	19	26,4
	Marmara Region	37	51,4

N: Number, **%:** Percentage

The behaviors and attitudes of the students participating in the study about cadaver and organ donation are shown in Table 2.

Table 2: Distribution of students' answers to questions about organ and cadaver donation.

Questions	Yes		No		Undecided	
	N	%	N	%	N	%
1. Do you want to donate your organs when brain death takes place?	39	54,2	18	25	15	20,8
2. Do you want to donate the organs of anybody from your family when brain death takes place?	23	31,9	26	36,2	23	31,9
3. Would you give your kidney to any relatives or beloved ones if it is necessary (while you are alive)?	60	83,3	3	4,2	9	12,5
4. Have you ever donated organ before?	2	2,8	70	97,2		
5. Would you accept organ donation from another person whose brain death takes place in case of need?"	60	83,3	2	2,8	10	13,9
6. I believe that organ donation after death has disturbed the peace of the dead.	4	5,5	55	76,4	13	18,1
7. I believe that organ donation after death is not appropriate in my religion.	4	5,5	51	70,9	17	23,6
8. I believe that organ donation after death disturbs body integrity of the dead and harms that person.	5	6,9	56	77,8	11	15,3
9. Have you ever seen a cadaver used in medical education?	57	79,2	15	20,8		
10. Would you consider donating your body as a cadaver for medical education purpose?	4	5,5	62	86,1	6	8,4
11. Do you want someone from your family	4	5,5	61	84,7	7	9,8
donate himself/herself as a cadaver?						

N: Number, %: Percentage

There was a significant difference in the questions 3, 6, 7 and 9 when the answers of the male and female students were compared statistically ($p < 0,05$) (Table 3).

Table 3: Comparison of the answers of the male and female students participating in the study

Questions	Female (%)			Male (%)			p value
	Y	N	U	Y	N	U	
1. Do you want to donate your organs when brain death takes place?	57	21,5	21,5	47,6	33,3	19,1	0,598
2. Do you want to donate the organs of anybody from your family when brain death takes place?	33,3	37,2	29,5	28,6	33,3	38,1	0,771
3. Would you give your kidney to any relatives or beloved ones if it is necessary (while you are alive)?	88,2	0	11,8	71,4	14,3	14,3	0,020
4. Have you ever donated organ before?	2	98	0	4,8	95,2	0	0,511
5. Would you accept organ donation from another person whose brain death takes place in case of need?"	86,2	2	11,8	76,1	4,8	19,1	0,557
6. I believe that organ donation after death has disturbed the peace of the dead.	4	84,3	11,7	9,5	57,2	33,3	0,047
7. I believe that organ donation after death is not appropriate in my religion.	5,9	78,4	15,7	4,8	52,4	42,8	0,047
8. I believe that organ donation after death disturbs body integrity of the dead and harms that person.	5,9	84,3	9,8	9,5	61,9	28,6	0,097
9. Have you ever seen a cadaver used in medical education?	88,2	11,8	0	57,2	42,8	0	0,003
10. Would you consider donating your body as a cadaver for medical education purpose?	4	90,1	5,9	9,5	76,2	14,3	0,295
11. Do you want someone from your family donate himself/herself as a cadaver?	2	90,1	7,9	14,3	71,4	14,3	0,070

%: Percentage, Y: Yes, N: No, U: Undecided

%38,9 of students replied as interesting, %31,9 of them replied as normal, %25 of them replied as exciting and %4,2 of them replied as disgusting when being asked about the studying on cadaver in laboratory (Table 4).

Table 4: Distrubution of the answers of participant students about their feelings while studying on cadaver in laboratory

Frightened		Disgusted		Excited		Interested		Normal	
N	%	N	%	N	%	N	%	N	%
0	0	3	4,2	18	25	28	38,9	23	31,9

N: Number, %: Percentage

DISCUSSION

Anatomy is one of the basic subjects in not only in school of medicine but also in departments that give education related with health sciences. Studying with touching and looking on cadavers is also as important as given theoretical lectures in Anatomy education. Many studies stated that cadaver dissection is a need for Anatomy education (Quiroga-Garza et al., 2017; Gunderman & Wilson, 2005; Arràez-Aybar et al., 2014). In our country, cadaver donation isn't known well, therefore universities are still having trouble to procure sufficient

cadavers. Similarly, although demand of organ donation increases, level of organ donation is not as expected level. When looking through the outcomes of this study, it is seen that attitudes and thoughts of healthcare staffs of the future are negative for especially cadaver donation.

Şehirli et al. (2004) sent e-mails to Turkish anatomists that includes surveys of cadaver donation. %15,7 of anatomists thought donations of their bodies as cadavers. %63,9 of anatomists didn't think of donating. In addition, %39,8 of anatomists replied the question of being dissected as cadaver as "unacceptable". As the result of the study, it is stated that the anatomists that encourage people for cadaver donation were not aspired enough to donate their bodies as cadaver and this conflict was underlined. Likewise, it is observed that cadaver donation awareness of nursing students who will be healthcare professionals of the future, is not at expected level. When the healthcare professionals' responsibilities and duties were considered, raising these level is important for the increase of community healthcare and quality of health education.

A statistically significant difference was found between male and female students in our study when compared to the given answers for the following question: "Would you give your kidney to any relatives or beloved ones if it is necessary (while you are alive)?" ($p<0,05$). 88.2% of the females and 71.4% of the males answered "yes" to this question. There are studies in the literature showing that differences between genders may occur in terms of fear of death and approaching to dead (Madnawat and Kachhawa, 2007; Abdel-Khalek, 2005). It was seen that female students respond as "no" with a higher statistically significance comparing to male students when following survey questions are under consideration: "I believe that organ donation after death has disturbed the peace of the dead" and "I believe that organ donation after death is not appropriate in my religion" ($p<0,05$). These results have shown that men and women emotionally have a very different perspective in terms of their / their relatives' fear of death / loss.

When students were asked as "Do you want to donate your organs when brain death takes place?" and "Do you want to donate the organs of anybody from your family when brain death takes place?", %20,8 and %31,9 of them replied as "undecided" respectively. The number of undecided students should not be underestimated when these rates are considered. Informing undecided people accurately and sufficiently can turn their attitudes about donation into positive direction. Therefore it is necessary to ensure that public, including healthcare professionals, should be informed and encouraged to donate.

Sungur and Mayda (2014) performed a study on term I and term VI students in school of medicine about knowledge and attitudes towards organ donation. They found higher significant difference at term VI students comparing to term I students about their positive approach to organ donation. In our study, 54.2% of students answered "yes", 20.8% of students answered "undecided" when they were asked as "Do you want to donate your organs when brain death takes place?".

CONCLUSION

As a result of our study, nursing students' attitude and approach towards organ donation is more positive comparing to cadaver donation. However, we think that cadaver and organ donation knowledge levels of staff who will be responsible at healthcare services in future can be increased afterwards.

It is not a pleasant feeling to donate the body as a cadaver to be used in medical education because it reminds people of death and dissecting own/relatives dead body make people feel uneasy. Likewise, people who do not want to donate own/relatives organs think that organ donation is not convenient to his/her religion and disturbs peace of dead. However, it must be explained very well that these donations will give life to one who needs it and they will be used for the sake of science and in the end advantage of humanity again. At this point, greatest duty and responsibility belong to health professionals.

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The Examination of The Content Dimension of the 9th Grade Biology Curriculum Based on The Knowledge Dimension of the Bloom Revised Taxonomy

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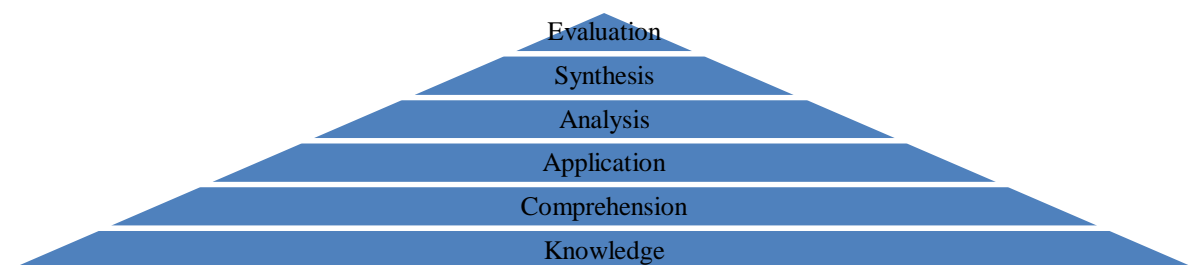
ABSTRACT

The main purpose of this study is to examine the content dimension of the 9th Grade Biology Curriculum which has been used since 2013 by Ministry of National Education based on the revised Bloom Taxonomy developed by Bloom and his friends in 1950s and later revised and published by Anderson and Krathwol. In the study, the content in the 9th grade Level Biology Curriculum were examined and evaluated by the observers based on the revised Bloom taxonomy independently. The study was design as qualitative research model and the data were collected through the document analysis method. The data were analyzed to calculate the reliability of the study. The reliability coefficient of the study was calculated as 92%. It has been concluded that the content of curriculum is mostly under the conceptual knowledge dimension while other knowledge dimensions are relatively few.

INTRODUCTION

Discussions at a meeting of the American Psychological Association in 1948 lead to a group of educators under the leadership of Bloom to conduct a study of the classification of educational goals and objectives. This resulted in the birth of a classification scale called 'Educational Objectives Taxonomy' for classifying the behaviors that students are expected to gain as educational outputs (Forehands, 2010). With this taxonomy, researchers aimed to established a pool of test substances, each of which assesses the same educational objective and to establish a standard for assessment by mutual utilization of these substances among the teaching institutions. In accordance with this purpose, a taxonomy consisting of three parts as (1) cognitive, (2) affective and (3) psycho-motor was formed. Bloom saw this taxonomy beyond an assessment and evaluation instrument and listed the possible areas of usage of the taxonomy as: (1) creating a common language for learning objectives that will aid the communication at the individual, subject area and class level, (2) specifying general education objectives at national and local level more specifically for a subject area, (3) ensuring that the objectives of a curriculum, course or unit are consistent with the learning activities and evaluation, (4) establishing a general framework for education (Krathwohl, 2002). An example of the first created taxonomy is given in table 1:

Table 1: Bloom's original taxonomy



The first taxonomy consists of a single dimension and the cognitive domain categories are listed from simple to complex. The revised Bloom Taxonomy has become a two-dimensional structure by adding the knowledge dimension to the taxonomy. The cognitive dimension categories were used in verb forms, the names of the three categories were changed the two categories were replaced. The knowledge dimension of the Revised Bloom Taxonomy is given in Table 2.

Table 2: The knowledge dimension of the revised Bloom taxonomy

1. Factual Knowledge	The basic knowledge which a person must know to be acquainted with a discipline or solve problems in it
	1a) Knowledge of terminology 1b) Knowledge of specific details and elements
2. Conceptual Knowledge	The interrelationships among the basic elements within a larger structure that enable them to function together
	2a) Knowledge of classifications and categories 2b) Knowledge of principles and generalizations 2c) Knowledge of theories, models, and structures
3. Procedural Knowledge	Knowledge about how to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods
	3a) Knowledge of subject-specific skills and algorithms 3b) Knowledge of subject-specific techniques and methods 3c) Knowledge of criteria for determining when to use appropriate procedures
4. Metacognitive Knowledge	Knowledge of cognition in general as well as a awareness and knowledge of one's own cognition
	4a) Strategic knowledge 4b) Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge 4c) Self-knowledge

(Anderson and Krathwohl, 2014)

When the knowledge dimension of the revised Bloom taxonomy have been revised, meta-cognitive knowledge has been added to the taxonomy as the fourth knowledge dimension, unlike the original taxonomy. The reasons for going such a revision on taxonomy can be listed as follows (Anderson and Krathwohl, 2014):

- 1) 'It is important that the educators reorient their attention on the value of the taxonomy and look it as resource in the future in many ways as well as a historical document'
- 2) 'Since the first development of Bloom Taxonomy in 1956, there have been many changes in community life, which have also changed the thinking and practice of education. Having more information about how children develop and learn, how teachers plan, teach and assess their students.'

The 'Dimensionalized Progressive Classification Chart' presented by the working group of Anderson and Krathwohl (2001) is shown on a two-dimensional matrix/table. The rows in the vertical dimension of the table contain the knowledge dimension and the columns in the horizontal dimension contain the cognitive process dimension. The knowledge dimension of this classification answers 'What do students know?' and its cognitive dimension answers 'How do students think?' (Demirel, 2014). This two-dimensional new taxonomy provides educators with the opportunity to create objectives not only in the way they are taught but also by taking into account of their intended cognitive strategies (Ornstein and Hunkins, 2014). The revised two-dimensional chart is given in table 3 (Anderson and Krathwol, 2014).

Table 3: The dimensions of the revised taxonomy of cognitive domain

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual						
Conceptual						
Procedural						
Meta-cognitive						

When the literature is reviewed, it has been seen that the examination questions of the objectives of the different curriculum (Arı, 2012) are analyzed according to the both original and revised Bloom taxonomy (Ozdemir, Altıok ve Baki, 2015; Eke, 2015; Eroğlu ve Sarar, 2014; Kuzu, 2013; Sünkür ve Gezer, 2013; Arı ve Gökler, 2012; Ayvaci, Türkdoğan, 2010). When the studies related to the 9th grade biology course have been reviewed, it has been encountered a study which examine the objectives dimension of the 9th grade biology course according to the revised Bloom taxonomy (Yurttaş, Gökteş, Gökmen and Ekici, 2012). This study is unique as it has examined the content dimension of the curriculum based on the knowledge dimension of the revised Bloom taxonomy.

THE STUDY

Despite the fact that the objectives of the 9th grade biology course have been examined according to the revised Bloom taxonomy, there are no studies of the content dimension. In this respect, the purpose of the study is to examine the content of the 9th grade biology course according to the revised Bloom taxonomy. For this purpose, answers to the following research problems have been searched:

Research problems and sub-problems

- 1) What is the level of appropriateness of the content dimension of ‘Yaşam Bilimi Biyolojisi’ unit to Bloom's revised taxonomy?
- 2) What is the level of appropriateness of the content dimension of ‘Canlılar Dünyası’ unit to Bloom's revised taxonomy?
- 3) What is the level of appropriateness of the content dimension of ‘Güncel Çevre Sorunları’ unit to Bloom's revised taxonomy?

The Method

This study is a research design that uses qualitative data collection methods to reveal facts and events in a realistic and holistic way (Yıldırım and Şimşek, 2013). In this study which is designed as a qualitative research, document analysis, one of the qualitative research methods, is used. Document analysis enables the analysis of a research problem based on documents produced within a specific time frame or on a wide range of documents produced by different sources and in different time periods (Yıldırım and Şimşek, 2013). In this context, the content in the 9th grade of the Secondary Biology Curriculum, which has been used since 2013, has been examined by using the document analysis method according to the taxonomy revised by Anderson and Krathwohl. In the first phase of the research, the curriculum to be examined by the researcher has been determined. Researchers and co-observers have examined new and old taxonomy to understand Bloom's revised taxonomy in the best way. As a pilot practice prior to the start of the study, the content in the first unit of the 9th grade biology curriculum has been examined according to the revised taxonomy by the researchers. After this stage of the study, the observation forms created by the researchers were evaluated by 2 co-observers. After the evaluation, researchers determined the consensus and dissent on the items. The dissenting items were re-submitted to co-observers with a new blank form, and it was checked whether there would be any change of opinion. After the final forms from the co-observers were combined, the researchers identified the dissenting and consonant items on content by marking them in a new form and conducted a reliability analysis on these findings. After determining the dissenting and consonant items, the reliability coefficient of the study was calculated by using the formula suggested by Huberman (1994). The reliability coefficients of the units were calculated as 100%, 86%, 94%, respectively and the total reliability of the study was calculated as 92%. Miles and Huberman (1994) indicate that the reliability of the calculation of 70% and above indicates that the research is reliable.

FINDINGS

The content dimension of the 9th grade biology curriculum was analyzed by the intercoders according to the knowledge dimension of the revised Bloom taxonomy and the analyzed content was placed in the revised Bloom taxonomy matrix. The findings have been presented in the form of table under this section.

Findings of the content dimension of the ‘Yaşam Bilimi Biyolojisi’ unit has been given in table 4.

Table 4: Findings of the content dimension of the ‘Yaşam Bilimi Biyolojisi’ unit

UNIT	NAME OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
1 Unit	Life Science Biology	1. The nature of science and scientific knowledge attributed to evidence, the diversity of directions used in science, the changeable structure of scientific knowledge and the causes that are effective in change, subjects such as subjectivity and objectivity in science and science-society relation are discussed through examples from current and biologic history.		*		
		2. Scientific work processes used in biology can not be memorized and these processes can be discovered by students in the context of neysel activity design.		*		
		3.The information obtained about the biology is investigated and discussed in the historical process depending on the developments in other sciences and especially in the technology.		*		
		4. The contribution of biology to the solution of life-threatening problems (food shortage, global climate change, health problems, etc.) is questioned.		*		
		5. The profession and career areas related to biology are explored so that students can make informed choices in their prospective career choices.			*	
		6. Examples of living and non-living beings selected nearby on the basis of each other general structure, physical properties, etc..		*		
		7. By taking the way from the nearby living things, it is possible for the students to reach common characteristics of the living things.		*		
		8. As common characteristics of living things; Cellular structure, nutrition, respiration, excretion, movement, stimulus response, adaptation, reproduction, growth and development characteristics are given.		*		
		9. The concept of metabolism is discussed with examples.		*		
		10. Some concepts arising from the association of the concept of motion with life alone are discussed with the examples that are not enough to explain the movement's vitality in order to avoid the misconceptions		*		
		11. Experiments on carbon, hydrogen, oxygen, nitrogen, phosphorus, and sulfur are common to all living things, and animations are made available to students through simulations.		*		

UNIT NAME	OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
1 Unit	Life Science Biology					
		12. As water, minerals, acids, bases and salts are processed in detail in chemistry, the importance of these substances for the living is only questioned.	*			
		13. The importance of carbon compounds for living things is discussed.		*		
		14. Without the chemical formulas of molecules such as ATP, enzymes and hormones, the importance of living things is questioned.		*		
		15. The structure and functions of nucleic acids are processed at the basic level by animation-simulations or models. Mathematical calculations are not allowed.		*		
		16. Carbohydrates, fats, proteins, vitamins are associated with the food they are experimenting with. However, detailed chemical formulas of carbohydrate, fat, protein and vitamins are not used.		*		
		17. Carbohydrates and oil varieties are investigated and exemplified.		*		
		18. Vitamins are only classified as oil and water soluble; Health problems arising from deficiency or excess of vitamins are investigated and discussed.		*		
		19. Important minerals such as calcium, potassium, iron, iodine, fluorine are examined for their importance for health.		*		
		20. The importance of regular and balanced nutrition associates with obesity, insulin resistance and diabetes.		*		

When the content dimension of the 1st unit has been examined, it has been concluded that the content is mostly under the conceptual knowledge. The factual and procedural knowledge dimensions are also available but the meta-cognitive one has not been determined. The reliability coefficient has been calculated as 100% for this unit.

Table 5 shows the findings of the content dimension of the 'Canlılar Dünyası', the second unit of the 9th grade biology curriculum.

Table 5: Findings of the content dimension of the ‘Canlılar Dünyası’ unit

UNIT	NAME OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
2 Unit	Bio-World	1.It is examined on different samples that the cell's viability is the basic unit of its ability to survive and reproduce, that the properties expressed in one cell are common to all living things, and that cells divide themselves into cells.		*		
		2.R. Hook and A. Von Leewenhoek's work on the microscope and the cell are investigated.		*		
		3.In the context of the contributions of M. Schleiden, T. Schwann and R. Virchow made to the formation of cell theory, the process of structuring scientific knowledge is analyzed		*		
		4.The development of knowledge about cell and microscope in the historical process and the developments in the advanced imaging technology are evaluated on the basis of science-technology relation.		*		
		5.Only the parts of the prokaryotic cells are shown through the samples are not detailed		*		
		6.The structure of a eukaryotic cell and the constituent elements of it are examined.		*		
		7.When cell membranes are studied, experimental activities related to matter passage, active transport, osmosis and diffusion are utilized and associated with daily life.		*	*	
		8.Organelles are taken up in the organism as a result of their tasks in the cell and therefore in the organism.		*		*
		9.Different cell samples are examined using a microscope and / or visual samples (picture, video, animation etc.) and compared			*	
		10.Proportional comparisons are made regarding the sizes of various cell and cellular structures.		*		
		11.Cell-tissue-organ-system relation is examined, structure and functions of tissues and systems are not entered.		*		

UNIT	NAME OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
2 Unit	Bio-World					
		12.Cellular, colony forming and multicellular organisms are examined with examples of cellular organization and privatization.	*			
		13.The concept of stem cell and the use of stem cell technology in the field of health are investigated.		*		
		14.Establishing relationship between cell culture, tissue culture, artificial organ and artificial tissue and cell technologies		*		
		15.The importance of classifying in terms of understanding diversity is discussed		*		
		16. The reasons why thinkers and scientists have used different criteria and approaches in the classification of living things since antiquity are discussed.		*		
		17.From the example of the classification of living things, it is questioned that the models produced in science have limitations in some issues besides the contributions they make in making meaning to nature.		*		
		18.The general characteristics of species, genus, family, team, class, branch and world are examined.	*			
		19.Considering the hierarchical categories, examples of "binary naming" are given regarding the living species to be selected in the vicinity. In addition, applications related to the identification of the selected living specimens are carried out.		*		
		20.The importance of classification is discussed by focusing on the classification logic rather than memorizing Latin names.		*		
		21.Since more animals are associated with life, students are given examples, especially from animals living outside animals.		*	*	
		22.The main subgroups of plants and animals are examined. The general characteristics of the bacterium world, the archebacteria world, the protista world and the fungus world are explained, several examples are given,	*			
		23.The concept of seeds related to plants is dealt with, and no classification is made according to the number of seeds in seeded plants.		*		

UNIT	NAME OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
2 Unit	Bio-World					
		24.Seedless plants are confined to mosses and ferns		*		
		25.Vertebate animals are processed with close-up samples of fish, two life, reptiles, birds and mammals.		*		
		26.Invertebrates are restricted to insects and worms.	*	*		
		27.The living worlds, taking into consideration their biological and economic importance; - Use of bacterias in yoghurt production and industrial fermentation, - Use of archebacteria in the fertilizer industry, - Protista members take part in preventing the environmental pollution by disrupting the matter and disposing of wastes, - Use of fungi in dough fermentation and antibiotic production, - Oxygen - They are studied in the context of examples such as the use of animals as nutrients and their importance in the matter cycle.		*		
		28.The characteristics of viruses are discussed on the basis of the effects of virus-borne diseases on human life.		*		
		29.The transmission of diseases such as herpes caused by viruses, AIDS, rabies, hepatitis, flu and so on and ways of protection from these diseases are examined.		*		

When the content dimesion of the 2nd unit has been examined, it has been concluded that the content is mostly under the conceptual knowledge as in the previous unit. The other dimensions are also available. The intercoders have mostly agreed on the content but they haven't on four of it. The reliability coefficient has been calculated as 86%.

Table 6 shows the findings of the content dimension of the 'Güncel Çevre Sorunları', the third unit of the 9th grade biology curriculum.

Table 6: Findings of the content dimension of the ‘Güncel Çevre Sorunları’ unit

UNIT	NAME OF THE UNIT	CONTENT	KNOWLEDGE DIMENSION			
			Factual	Conceptual	Procedural	Metacognitive
3 Unit	Current Environmental Issues	1.Current environmental problems; Air pollution, water pollution, soil pollution, food pollution, radioactive pollution, noise pollution, acid rain, global climate change, erosion, destruction of natural habitats, forest fires etc., are discussed.		*		
		2.Global climate change and the potential impacts of biological diversity on everyday life are questioned.		*		
		3.Practices related to ecological footprint and carbon footprint are made.		*		*
		4.Diseases caused by environmental problems are investigated.		*		
		5.Natural resources are classified as soil, water, food, meral, forests, etc.	*			
		6.The concept of sustainability is analyzed on the basis that countries continue their development without losing the natural richness they have		*		
		7.Turkey is exemplified as a successful local and global practices.		*		
		8.The impact of biodiversity at the local level is discussed.		*		
		9.It is emphasized that every living thing is important in nature. In particular, it is emphasized that human nature is not part of the dominance and user but part of the existing system		*		
		10.The reasons why Turkey is rich in biodiversity (geographical location etc.) are discussed		*		
		11.Examples to be given include; It should be taken care to find endemic species and species used by the local people for different purposes (food, health, etc.)		*		
		12.Examples of studies on the protection of endemic species and living species under threat of extinction in Turkey		*		
		13.ncouragement of student participation in work carried out by non-governmental organizations to protect biodiversity and endemic species is encouraged.		*		
		14.The genetic varieties that are important for the region and the country's economy and the gene banks belonging to my country's species are searched.		*		

When the content dimesion of the 3rd unit has been examined, it has been concluded that the content is mostly under the conceptual knowledge as in the previous two units. One of the item has been agreed under the factual

knowledge and intercoders couldn't agree on one of the items and classify it under both conceptual and metacognitive knowledge dimension. The reliability coefficient of this unit has been calculated as 92%.

CONCLUSIONS

When the findings obtained from the research are examined, it is seen that the content dimension of the 9th grade biology curriculum of secondary education is mainly concentrated under the conceptual knowledge. The content of the curriculum are listed in a 63 items form. And intercoders have agreed on 68 items and disagreed on just 5 items. According to this finding, the overall reliability coefficient of the study has been calculated as 92%.

The first unit of the curriculum is Life Science Biology consisting of 20 items under its content. The Intercoders have investigated all the content and have agreed on all the items. They agreed that 18 of the items are under the conceptual knowledge dimension. They have agreed that one of them is under procedural knowledge and the other is under factual knowledge dimension. Intercoders of the study decided that 'The profession and career areas related to biology are explored so that students can make informed choices in their prospective career choices' is under the procedural knowledge dimension and 'As water, minerals, acids, bases and salts are studied in detail in chemistry, the importance of these substances for the living is only questioned' is under the factual knowledge dimension. The reliability coefficient has been calculated as 100%

The second unit of the curriculum is Bio-World consisting of 29 items under its content. 24 items under its content have been agreed on and 5 of them have been put under different knowledge dimension. 21 items are decided to be under conceptual knowledge, 3 items are under factual knowledge and 1 is under procedural knowledge dimension. The intercoders have not agreed on 4 items. They put 'When cell membranes are studied, experimental activities related to matter passage, active transport, osmosis and diffusion are utilized and associated with daily life' under both conceptual and procedural knowledge dimension; 'Organelles are taken up in the organism as a result of their tasks in the cell and therefore in the organism' under both conceptual and metacognitive knowledge dimension; 'Since more animals are associated with life, students are given examples, especially from animals living outside animals' is under both conceptual and procedural knowledge dimension.; 'Invertebrates are restricted to insects and worms' is both under factual and conceptual knowledge dimension. The reliability coefficient has been calculated as 86%.

The Current Environmental Issues, the third unit of the curriculum, consists of 14 items under its content 12 of which are under conceptual knowledge, 1 of which is under factual knowledge dimension. The intercoders have not agreed on just one item, 'Practices related to ecological footprint and carbon footprint are made', is put under both conceptual and metacognitive knowledge dimension. The reliability coefficient has been calculated as 92%.

Conceptual knowledge represents a systematic way of relating and integrating different knowledge, and how this knowledge work together (Anderson and Krathwohl, 2014). If we make an interpretation from this definition of the conceptual knowledge, it can be said that the curriculum aims that student can establish the relation between knowledge and make use of separate pieces of knowledge and knowledge into one whole. As biology consists of many sub-branches and constitutes a discipline of biology as a whole, the curriculum is rich enough in terms of conceptual knowledge to encourage students to reach the whole. The fact that most of the content is in the conceptual knowledge dimension makes it necessary for the students to convey the learned knowledge.

It has been concluded that the knowledge dimension of curriculum content takes less space than the conceptual knowledge in other knowledge dimension. This shows that the curriculum is structured from simple to complex, from abstract to concrete. It is aimed to transfer the information based on the biology course that students first met in the first stage of secondary education to the students by this curriculum. In this context, the content included in the biology program was determined in the light of the basic theories and concepts in biology, with the subject of daily life related to the student (MEB, 2013)

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The Examination of Vocational School Students' Online Information Search Strategies: Sakarya Sample

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ABSTRACT

Information and communication technologies, internet and also online environments are increasingly being used in education nowadays. One of the things students who use online environments should be aware of is that they need to know how to reach the information provided to them and how to search for the information available on these online environments. In this study, it is aimed to examine the online search strategies used by vocational school students to search for information on the internet in terms of different variables. Survey model was used to collect the research data. The participants are students in Sakarya University Kaynarca Seyfettin Selim Vocational School and Health Services Vocational School in 2016-2017 semester. "Online Search Strategies Inventory" which was developed by Tsai (2009) and adapted to Turkish by Aşkar and Mazman (2013) was used as data collection tool. Descriptive statistics, independent sample t-test and variance analysis were used for data analysis. According to the results, it is seen that vocational school students have low level of disappearance strategies, medium level of evaluation, purposeful thinking, discrimination of basic ideas and problem solving strategies and they have high level of trial-error and control strategies. There is a significant difference between trial-error and discrimination of basic ideas in terms of gender. There is a significant difference between only problem solving strategies in terms of the grade level of students. There is a significant difference between only evaluation strategies in terms of the departments of students. There is no significant difference between students' strategy levels in terms of their high school graduation types. It is suggested to conduct different studies with collecting data from students who are using online learning environments studying in different departments in vocational schools.

Keywords: online environment, online information searching, vocational school

INTRODUCTION

Today, science and technology are developing rapidly and everyone is using these facilities which are offered by developing technology very often. The internet and online environments are undoubtedly the most used environments in this evolving technology. The internet enables new information to be acquired not only through learning in a rich learning environment but also through research, exploration and implementation (Demir Kaymak & Horzum, 2013). Information acquisition and search on the internet and in the online environments have become as important as information acquisition in our daily lives. Nowadays, people and especially students use online environments first when they need any information. In short, individuals who need information use online environments that provide continuous, flexible and uninterrupted opportunities to meet these needs. In other words, all kinds of information can be accessed via internet and online environment, especially students use the internet for information search (Sarıkaya & Çakır, 2014).

As the sources of information on the online environments increase day by day, it becomes difficult to understand the nature and correctness of the information on these environments (Nazim, 2008). For this reason, it is necessary to be able to decide on the nature of the information being accessed, not accessing the information, in order to access the right information and to perform successful search in the online environments. It is important to determine how the students who perform information searches using the internet and online environments do their search. There are different studies in the literature (Sarıkaya & Çakır, 2014; Çaka, Doğan & Şahin, 2015; Turan, Reisoglu, Özçelik & Göktaş, 2015; Kuiper, Volman & Terwell, 2005) within this framework. However, it has seen

that no study has been conducted on the examination of the information search strategies of the students in the vocational school on the internet and in the online environments. This is why it is important for vocational school students to examine what is the information search strategy in the online environments.

The purpose of this research is to examine the information search strategies of vocational school students in online environments. For this purpose, following research questions were determined.

1. How the information search strategies of vocational school students in online environments?
2. Is there a difference between online information search strategies of students in terms of their;
 - a. Gender
 - b. Grade level
 - c. Departments
 - d. High school type.

METHOD

The purpose of this study is to determine the information search strategies of online students in vocational school. Survey method was employed to collect the data. Survey method is an approach that aims to describe a situation that exists in the past or in present. It is attempted to describe the individual or object that is being investigated as if it was within its own circumstances (Karasar, 2005). In addition, related survey methods have been utilized in the direction of sub-questions.

Participants

The participants are students in Sakarya University Kaynarca Seyfettin Selim Vocational School and Health Services Vocational School in 2016-2017 semester. Table 1 represents the departments of students who have been accessed and included in the analyses.

Table 1. Information of Participants

	Değişkenler	f	%
Gender	Male	104	47,3
	Female	116	52,7
Grade Level	1. Grade	149	67,7
	2. Grade	71	32,3
Department	Business Administration	40	18,2
	Computer Programming	98	44,5
	First Aid	46	20,9
	Child Development	36	16,4
High School Type	High School	33	15,0
	Vocational High School	152	69,1
	Anatolian High School	35	15,9
	Total	220	100

There is not a specific sample, totally 220 students have been participated to this study. 104 (47,3%) of the participants are male and 116 (52,7,7%) of them are female. In addition, 149 (67.7%) of the students participated in the study are in the first grade and 71 (32.3%) of them are in the second grade. 40 of the students (18.2%) study in Business Administration, 98 (44.5%) of them study in Computer Programming, 46 (20.9%) of them study in the First Aid and 26 (16.4%) of them study in the Child Development departments.

Data Collection Tool

“Online Search Strategies Inventory” which was developed by Tsai (2009) and translated and adapted to Turkish by Aşkar and Mazman (2013) and also personal information form which was developed by researchers were used as data collection tools. Online Search Strategies scale consists of 7 factors and 25 items. These factors are; “Disappearance” has 4 items, “Evaluation” has 8 items, “Purposeful Thinking” has 4 items, “Trial-Error” has 3 items, “Discrimination of Basic Ideas” has 3 items, “Control” has 4 items and “Problem Solving” has 3 items. Cronbach Alpha value of the scale is 0.91. The lowest score that can be taken from this 6 point likert scale is 25 and the highest score is 150. The internal consistency coefficient of the scale applied to the students of computer programming was calculated as .893 in this study.

Data Analysis

Data collection tools were applied by the researcher to the students as hard copies. The highest score that can be taken for each item on the applied scale is 6 and the lowest score is 1. In order to evaluate and interpret information search strategies of the vocational school students in the online environment, three evaluation range and criteria are set out on the average value (Table 2).

Table 2. Evaluation Criteria of Online Information Search Strategies

Evaluation Criterion	Evaluation Interval
Low	1,00 – 2,66
Medium	2,67 – 4,33
High	4,34 – 6,00

In the analysis of the data, the arithmetic average, percentage and frequency of the descriptive statistics were used. On the other hand, independent samples t-test and variance analysis were used to determine whether information search strategies differed in terms of gender, departments, grade levels and high school graduates students graduated. The significance level of the data in the analyses was taken as .05. In statistical analysis, SPSS 16.0 (Statistical Package for the Social Sciences) package software was used.

FINDINGS AND INTERPRETATION

Findings toward Online Information Search Strategies Used by Students

Strategic levels of vocational school students have been determined according to the average scores of the sub-factors of disappearance, evaluation, purposeful thinking, trial-error, discrimination of basic ideas, control and problem solving. Average scores of sub-factors are given in Table 3.

Table 3. Descriptive Findings on Online Information Search Strategies in Terms of Sub-Dimensions

Sub Dimentions	ss	Level
1 Disappearance	1.93	Düşük
2 Evaluation	4.05	Orta
3 Purposeful Thinking	4.08	Orta
4 Average of Trial-Error	4.47	Yüksek
5 Discrimination of Basic Ideas	4.30	Orta
6 Control	4.47	Yüksek
7 Problem Solving	3.93	Orta
GENERAL	3.85	Orta

According to Table 3, it is seen that the average of trial-error and control strategies of the vocational school students is high, and the averages of evaluation, purposeful thinking, discrimination of basic ideas and problem solving strategies are medium and the average of disappearance strategy is low.

The Examination of Online Information Search Strategies by Gender

The results of the independent sample t-test analysis conducted to determine whether the vocational school students differ in terms of gender according to all the sub-factors of the scale within the scope of the study are given in Table 4.

Table 4. Independent Sample t-test Results of Online Information Search Strategies by Gender

Sub Dimentions	Groups	n	Sd	df	t	p
Disappearance	Male	104	1.90	218	-.369	.712
	Female	116	1.96			
Evaluation	Male	104	3.91	218	-1.623	.106
	Female	116	4.19			
Purposeful Thinking	Male	104	3.92	218	-1.812	.071
	Female	116	4.22			
Average of Trial-Error	Male	104	4.15	218	-3.357	.001
	Female	116	4.76			
Discrimination of Basic Ideas	Male	104	4.08	218	-2.276	.024
	Female	116	4.49			
Control	Male	104	4.53	218	.625	.533
	Female	116	4.42			
Problem Solving	Male	104	4.03	218	1.087	.278
	Female	116	3.85			

According to the findings, there is no significant difference in the factors of disappearance [$t(218)=-.369, p>.05$], evaluation [$t(218)=1.623, p>.05$], purposeful thinking [$t(218)=1.812, p>.05$], control [$t(218)=.625, p>.05$] and problem solving [$t(218)=1.087, p>.05$] in online information search strategies by gender. There are significant difference in the factors of trial-error [$t(218)=3.357, p<.05$] and discrimination of basic ideas [$t(218)=-2.276, p<.05$] in online information search strategies by gender. In terms of both trial-error and discrimination of ideas, male students have more developed online information strategies than girls.

The Examination of Online Information Search Strategies by Grade Level

Table 5 shows the findings of the independent sample t-test conducted to determine whether the vocational school students differ in terms of their grade levels according to all the sub-factors of the scale.

Table 5. Findings of Independent Sample t-test of Online Information Search Strategies by Grade Level

Alt Boyutlar	Gruplar	n	X	Sd	df	t	p
Disappearance	1. Grade	149	1.93	1.22	218	-.010	.992
	2. Grade	71	1.93	1.18			
Evaluation	1. Grade	149	3.96	1.32	218	-1.644	.102
	2. Grade	71	4.26	1.20			
Purposeful Thinking	1. Grade	149	3.98	1.26	218	-1.708	.089
	2. Grade	71	4.29	1.26			
Average of Trial-Error	1. Grade	149	4.42	1.35	218	-.797	.426
	2. Grade	71	4.58	1.46			
Discrimination of Basic Ideas	1. Grade	149	4.19	1.38	218	-1.610	.109
	2. Grade	71	4.51	1.33			
Control	1. Grade	149	4.44	1.32	218	-.423	.672
	2. Grade	71	4.52	1.37			
Problem Solving	1. Grade	149	3.79	1.16	218	-2.695	.008
	2. Grade	71	4.24	1.16			

According to the findings, there is no significant difference in the factors of disappearance [$t(218)=-.010, p>.05$], evaluation [$t(218)=1.644, p>.05$], purposeful thinking [$t(218)=-1.708, p>.05$], control [$t(218)=.423, p>.05$], trial-error [$t(218)=-.797, p>.05$] and discrimination of basic ideas [$t(218)=-1.610, p>.05$] in online information search strategies by grade level. There is significant difference only in the factor of problem solving [$t(218)=-2.695, p<.05$] in online information search strategies by grade level. In the problem solving factor, the students in the second grade have more advanced online information strategies than the students in the first grade.

The Examination of Online Information Search Strategies by Department

Table 6 shows the ANOVA analysis results to determine whether vocational school students differ according to all the subscales of the scale in terms of the department they have studied.

Table 6. ANOVA Results of Online Information Search Strategies by Department

							Significant
	Source of Variance	S.S	sd	M. S	F	p	Difference
Disappearance	Between Groups	11.707	3	3.902	2.742	.044	No
	Within Groups	307.353	216	1.423			
	Total	319.060	219				
Evaluation	Between Groups	25.304	3	8.435	5.391	.001	3-1
	Within Groups	337.917	216	1.564			3-2
	Total	363.220	219				3-4
Purposeful Thinking	Between Groups	1.403	3	.468	.289	.833	No
	Within Groups	349.931	216	1.620			
	Total	351.335	219				

Average of Trial-Error	Between Groups	16.898	3	5.633	3.017	.031	No
	Within Groups	403.290	216	1.867			
	Total	420.187	219				
Discrimination of Basic Ideas	Between Groups	14.710	3	4.903	2.669	.049	No
	Within Groups	396.777	216	1.837			
	Total	411.487	219				
Control	Between Groups	12.548	3	4.183	2.390	.070	No
	Within Groups	378.057	216	1.750			
	Total	390.605	219				
Problem Solving	Between Groups	5.963	3	1.988	1.452	.229	No
	Within Groups	295.658	216	1.369			
	Total	301.622	219				

(1: Business Administration, 2: Computer Programming, 3: First Aid, 4: Child Development)

According to the findings, there is no significant difference in the factors of disappearance [$F(3-216)=2.742$, $p>.05$], purposeful thinking [$F(3-216)=.289$, $p>.05$], trial-error [$F(3-216)=3.017$, $p>.05$], control [$F(3-216)=2.390$, $p>.05$], discrimination of basic ideas [$F(3-216)=2.669$, $p>.05$] and problem solving [$F(3-216)=1.452$, $p>.05$] in online information search strategies by department. There is significant difference only in the factor of evaluation [$F(3-216)=5.391$, $p<.05$] in online information search strategies by department. Scheffe analysis was conducted in Post Hoc analyzes to find the source of this difference. The evaluation strategy was lower for the First Aid department students than for the other departments.

The Examination of Online Information Search Strategies by High School Graduations

Table 7 shows the results of ANOVA analysis conducted to determine whether vocational school students differ in terms of high school graduation types according to all the subscales of the scale.

Table 7. ANOVA Results of Online Information Search Strategies for High School Graduation Types

	Source of Variance	S.S	sd	M. S	F	p	Significant Difference
Disappearance	Between Groups	.510	2	.255	.174	.841	Yok
	Within Groups	318.550	217	1.468			
	Total	319.060	219				
Evaluation	Between Groups	5.903	2	2.951	1.792	.169	Yok
	Within Groups	357.318	217	1.647			
	Total	363.220	219				
Purposeful Thinking	Between Groups	7.301	2	3.650	2.302	.102	Yok
	Within Groups	344.034	217	1.585			
	Total	351.335	219				
Average of Trial-Error	Between Groups	1.417	2	.709	.367	.693	Yok
	Within Groups	418.770	217	1.930			
	Total	420.187	219				
Discrimination of Basic Ideas	Between Groups	7.046	2	3.523	1.890	.154	Yok
	Within Groups	404.441	217	1.864			
	Total	411.487	219				
Control	Between Groups	3.967	2	1.983	1.113	.330	Yok
	Within Groups	386.639	217	1.782			
	Total	390.605	219				
Problem Solving	Between Groups	3.220	2	1.610	1.171	.312	Yok
	Within Groups	298.402	217	1.375			
	Total	301.622	219				

(1: Business Administration, 2: Computer Programming, 3: First Aid, 4: Child Development)

According to the findings of the analysis, it is seen that the students do not differ significantly in terms of disappearance, evaluation, purposeful thinking, trial-error, discrimination of basic ideas, control and problem solving strategies compared to high school graduation types.

RESULTS AND DISCUSSION

In this study, in which the vocational school students' information search strategies were determined in online environment, it was seen that the average of the students' trial-error and control strategies are at a high level, the average of the students' evaluation, purposeful thinking, discrimination of basic ideas and problem solving strategies are at a medium level and the average of the strategies of disappearance are at a low level.

While there is no significant difference in the factors of disappearance, evaluation, purposeful thinking, control and problem solving, there is significant difference in the factors of trial-error and discrimination of basic ideas of online information search strategies by gender. In terms of both trial-error and discrimination of basic ideas, male students have more developed online information strategies than girls.

While there is no significant difference in the factors of disappearance, evaluation, purposeful thinking, trial-error, discrimination of basic ideas and control, there is significant difference in the problem solving factor in online information search strategies by grade level. In the problem solving factor, the students in the second grade have more advanced online information strategies than the students in the first grade.

While there is no significant difference in the factors of disappearance, purposeful thinking, trial-error, discrimination of basic ideas, control and problem solving, there is significant difference in the evaluation factor in online information search strategies by departments which student have studied.

There is no significant difference in the factors of disappearance, evaluation, purposeful thinking, trial-error, discrimination of basic ideas, control and problem solving in online information search strategies by high school graduation types of the students.

It is suggested to conduct different studies with students who use online learning environments from different departments in vocational schools.

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The Formation of Audience Perception Through Social Media (New Media) With Determination of Contents and Concepts of Local TV Shows

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ABSTRACT

The 4th force media is believed to have a great role in determining the characteristics of societies. Considering that the Turkish society falls into the category of developing countries, it could be assumed that such interaction will be greater. Thinking that the role models the individual looks up to in formation of the society consist of the readily acceptable heroes offered by the closest environment and the media, it is observed that the perception of reality of some young audience is shaped through TV shows.

It is seen through objects, jewelry, character reflections, clothing styles and manner of speaking of the heroes on the official sites of TV shows, their social media accounts, etc. right after the TV shows are aired and the daily lives that how much the reality of the TV shows reflect on the real life. From this point of view, the 4th force that is the media, which plays a great role in interaction of the perceptions of reality of the individual, should not ignore its responsibilities. It is believed that the TV shows sector should create characters and produce role models that are identical and in harmony with and ideal for the overall society and within the boundaries of the realities of the society and the real life.

This research that studies the formation of the audience's perception through the social media (the new media) when determining the contents and concepts of local TV shows uses the "Document Review" method from among Qualitative Research Methods. In the research, which examines local TV shows as a document, the analysis unit was determined while trying to form an overall viewpoint on the themes, characters or persons, contents, the languages used and social readings in TV shows.

Key Words: Local TV shows, social media, perception of reality,

INTRODUCTION

Television broadcasts started in Turkey during the TRT period. The first television broadcast started on January 30, 1968 in Ankara. The audience of the telecasts was rather limited. The telecasting that was in black and white until the year 18984 started to be offered in color after that year. TRT, which was the single channel for long years, started broadcasting from 2 channels in 1985, 18 years after starting broadcasting. In 1989, a new channel called TV3 started broadcasting. In the same year, cablecasting began in Turkey. Audience of the cablecasts, who watched monophonic TV broadcasts first through a single channel and then through two and three channels for years, had the opportunity to watch 20-30 foreign TV channels at the same time. An important turning point in the Turkish electronic broadcasting started in 1990. People started watching foreign broadcasts through satellite dishes. Magic Box, a company that started satellite broadcasting in June of 1990, eliminated the broadcasting monopoly of TRT by offering Turkish televisions broadcasts. After that, channels such as Tele-On, Show TV, Kanal 6, HBB TV, Flash TV and TGRT joined the broadcasting sector starting from 1992(Aziz, 2013).

From those years on, it is observed that the number of broadcasts and contents increased through numerous law amendments and categorizations so that particularly radio and television broadcasts could be included in the legal process. Today in Turkey, there is a combined or dual broadcasting system that co-maintains public service broadcasting and commercial broadcasting as a system of radio and television broadcasting. Local TV shows, which started at the time when TRT was the monopoly, mushroomed when private channels became popular. The local TV shows aired by certain TV channels, which represent about 80% of 15 national channels, resulted in an increase in the number of such productions. Those TV shows that became popular among others continued for a long time. Love, violence and mafia relations were among the themes that were found in abundance so that the TV shows attracted attention (Aziz, 2013).

RELATIONSHIP BETWEEN LOCAL TV SHOWS AND THE SOCIETY

Cultural lives of societies are not uniform in terms of characteristics. Every large society may incorporate different religions, languages, races, ethnicities, educational levels, genders, income levels, lifestyles, elements of primary importance, wishes and habits. Considering that mass media advances dramatically based on

technological improvements, it could be said that, with its fast rise, the media affects societies in different ways, result in changing of societies and completely surround individuals (Hobbs, 1998).

Keeping the ratings high seems to be inevitable in order that the local TV shows sector in Turkey is not affected by the fierce competition between the television channels and ensures its sustainability. For this reason, it is true that the entire purpose is the rating that is elaborately calculated from the scenario to editing, selection of characters to clothes, setting to selection of colors and images. It is challenging that such productions, which channel the whole motivation into almost only the ratings, do not pay relative regard to other concerns.

Increasing the ratings requires serving the imaginary world of each individual that makes up the society. TV shows reinforcing the lives that individuals desire to have in the future and manipulating their perception of reality is considered to be another issue that requires TV shows to self-criticize. Screenwriters that serve the imaginary worlds and dreams of individuals influence audiences of different demographical backgrounds through references to their cultural characteristics.

The effort to internalize and impose exaggerated life styles that mostly do not agree with the real life in an attempt to increase particularly the ratings of the local TV shows (the effect of sponsorship connections) can be linked with economic concerns. Attempts to target and have the audience like and adopt the luxurious and ostentatious lives led in TV shows, encourage the impulse to buy are associated with the revenues from TV show materials and sponsors, advertisement agreements and rating concerns.

While the television viewers or the audience try to experience and make sense of the contradiction between their real lives and the imaginary world suggested by the TV shows, they experience distortions in their perception of reality accompanied by the conflicts between the two separate worlds. Addressing this issue in his column, Journalist KursatBasar says: *“All girls walk around in clothes that come straight out of fashion magazines. All boys have beards like that of Hacivat and follow the latest fashion. Even though majority of the girls feel like a princess, it is as if they will get into a fight any time with the first person they see. They fly off the handle when you tell them a single world they do not like. They lose that daintiness and become Chucky. Purses, shoes, clothes, telephones, cars are all the most luxurious ones... They get off the yacht and get on an SUV, get off it and get on a Ferrari. Even in the TV shows that are set in the South East, not a single soul is poor! Everyone has lots of aids at their command. Does anyone think what is happening there right now? Or are Mardin and Urfa not the ones we have seen but their versions recreated in cartoons? The actors that play the businessmen have a single job, which is to sign a couple of documents for their secretaries in miniskirts in their cool skyscraper offices... If I had known that there was such a business world, I would not have become a writer. I mean it.”*

THE EFFECT OF NARRATIVE STRUCTURES IN TV SHOWS ON INDIVIDUALS

Studies show that children are not able to see a difference between the real world and the fictional media world until they are 12 years old (Hawkins, 1977; Livingstone, 2006; Potter, 2005). One could not expect the huge difference between the future dreams of particularly that age group and the realities experienced to have positive reflections. Young individuals making sense of the TV shows they watch, their future life conditions and the characters over themselves could be construed as the beginning of disappointments in the real world. The lives of TV show heroes filled with enviable, beautiful and handsome figures and wealth lead the individual to shape his or her future perceptions in the same parallel. The people who identify themselves with the TV show heroes that have nearly impeccable physical features but unable identify with their own physical appearances may pose yet another issue.

In this context, the evidence of particularly looking like TV show characters and the orientation toward the perfect come to the fore as an issue pointed out by experts. Indicating that the age of undergoing plastic surgery has recently lowered down to 15, experts say that this is caused by television shows and the pop star culture (<http://www.dunya.com/saglik/estetik-ameliyat-yasi-15e-dustu-255944h.htm>). Prof. Dr. NecmettinKutlu, Aesthetic, Plastic and Reconstructive Surgeon, comments on the issue: *“There are increasing number of TV shows, pop star, song star or similar contests on every channel. One of them even appealed to the smaller age group. The makeup, clothes, jewelry, enactments and, most importantly, the dreams evoked in such programs are important. Also, the colorful adolescent magazines and photography techniques have an influence. However, considering our fair share in this as the plastic surgeons, our new techniques have rendered the surgery more convenient, shorter and more reliable. The early problem-free results and their coverage in the press have also made a significant contribution in the rising demands”*. Pointing out that the primary objectives of esthetic operations are malformations, deformities, taking into account the level of physical maturity and to what extent the parents support the operation, Kutlu says that young girls look like each other after they go through the aesthetic operations (<http://www.dunya.com/saglik/estetik-ameliyat-yasi-15e-dustu-255944h.htm>).

It could be said that another important effect of the narrative structure in TV shows on individuals is that they increase the unnecessary and/or unneeded consumption. Another factor that contributes in the increasing consumption is that the clothes, jewelries, accessories of TV show characters and the phones and devices they use agree with the role model. The individuals that are unable to reach the world of the dominant characters of TV shows still attempt to identify with the personal effects, clothes and accessories, etc. of the TV show

characters. The jewelry of the main character of a seasonal series that aired in the last years significantly raised the sales of necklaces, rings and accessories not only in Turkey but also some other countries where the TV show was watched. The press gave coverage to this topic as follows:

“Hurremring is selling like hot cakes” *Use of large, natural stone rings in the TV show “MuhtesemYuzyl”, inspired from the lives of Suleiman the Magnificent and Roxelana has reportedly led to a return to rings that bear Ottoman motives* (<http://www.haberortak.com/Haber/Ekonomi/11022011/Hurrem-yuzugu-yok-satiyor.html>).

“Roxelanaring imitations sold 2 million” *Jeweler Boybeyi has come to the fore thanks to the TV show MuhtesemYuzyl. The ‘Hurrem’ ring designed by Mete Boybeyi, the fourth generation representative of Boybeyi Family has attracted so much attention that 2 million imitations have been sold. One of their customer in Monaco has reportedly had a seating group manufactured matching with the ring designed by Boybeyi. Mete Boybeyi says that they have customers that purchase 1.5 million dollars’ worth of jewelry in Turkey, which corresponds to the price of a mansion* (<http://www.gazetevatan.com/elif-ergu-440380-yazar-yazisi-yali-dairesi-fiyatina-mucevher-alan-var--hurrem-yuzugunun-taklitleri-2-milyon-tane-satti/>).

It is seen that the press, which notices the effect of TV shows on the consumption habits of the society, gives coverage to this issue from time to time. The press, which reported in the same news the effect of different TV shows on the consumption habits, told about the reflection of the series sector on the economy as follows.

MuhtesemYuzyl: *“MuhtesemYuzyl crowns: Hurrem ring is not the single product put on the market with MuhtesemYuzyl being aired. Today, the crowns worn by the female characters in MuhtesemYuzyl are available at many online shopping websites”.*

Fatmagul’un Sucu Ne?: *“Fatmagul slippers: The likes of the slippers that Fatmagul wears in the TV show are sold at 5 liras. Fatmagul boots are also sold at 35 liras”.*

Ask-iMemnu: *“Bihter: Another legendary character played by BerenSaat was Bihter from Ask-iMemnu. The belongings of Bihter in the series attracted great interest. Bihter Necklace: The imitations of the Bihter Necklace, which is sold at high prices in jeweler’s shops could be sold at 3-5 liras in the bazaar. Bihter armchair: Ask-iMemnu also affected the designs in the furniture sector”.*

Gonulcelen: *“Hasretring: The ring of Hasret character played by Tuba Buyukustun in the TV show Gonulcelen are also among those that attract the interest. This ring is sold at 2.5 liras”.*

KurtlarVadisi: *“PolatAlemdar: PolatAlemdar, the legendary character of KurtlarVadisi, led to the production of products that inspired the men’s fashion at a time. The shoes, wristwatch and scarf of PolatAlemdar character played by NecatiSasmaz in “KurtlarVadisi” are still on demand by citizens”.* (<http://www.soganhaber.com/habergaleri/unluler-giydi-kapis-kapis-satti>)

THE EFFECTS OF INDIVIDUALS’ AND SOCIETY’S HABITS ON THE FORMATION OF TV SHOWS AND CREATION OF CHARACTERS THROUGH THE SOCIAL MEDIA

According to Altunay, the new media provides an interactive communication media to its users compared to the traditional media. In fact, this brings the source and the receiver to the same position during the communication process. The lacking communication process that we are used to in the traditional media acquires a new ground and functionality with the increasing feedbacks in the new media. The communication process in the traditional media almost leads to the ending of the process from the moment the messages are delivered to the audience. In other words, it is thought that the process of conveying the feelings, ideas, wishes and demands of the audience to the source almost does not exist. Nevertheless, the new media habits and the increasing new processes have enriched such insufficient cycle in terms of information and the messages of the source and the audience have sometimes been reciprocal and simultaneous.

Each receiver has also the means to become a potential source. Unlike the one-way communication processes of the traditional media, the interactive communication opportunity of the new media allows each user to have equal rights on the medium and also allows them to have the same rights when coding their messages by using the medium (Dagtas, 2007:119)

As suggested by Dagtas, one of the most significant differences between the understanding of the traditional media and that of the new media is that the ideas or views of the individual in each audience are equal to and have the same weight with that of the other individuals. From this point of view, the comments and critiques of the people seen in the traditional media such as critics, commentators, journalists, columnists and reporters, etc. were limited whereas the weight of them seemed to be disproportionately more powerful.

Nevertheless, with the new media understanding, each social media user that has access to the source can be viewed also as a critic, columnists, etc. The opinions of each individual on the social media and the manners of expression being shaped on a common ground can closely influence the source, and they can be revised in line with the opinions of the audience. The information relationship between the traditional media and the new media is evaluated by Altunay as follows: “When stressing out the interactivity on the internet, it is pointed out that internet users are not passive and merely receiving users but active when compared to the audience of the traditional media. Altunay also refers to the four different definitions of interactivity by Massey and Levy, which

are: 1) The user being able to access different and complex choices, 2) The new media being able to respond to its user, 3) Allows for interpersonal communication, 4) The user being able to actively add information on top of the existing information. (Cited,Deuze, 2003:213-214)

The relation of four definitions determined by Massey and Levy regarding the new media understanding with the TV shows in Turkey can be analyzed as follows: Whereas, in the traditional media, the credibility of the message in the eye of the public or its perception can be measured with circulation and rating, which are from among traditional media tools, hashtags, trend topics, and the number of viewing on video channels (YouTube), the number of comments on social media sites (Facebook, Twitter, Instagram, etc.) have become important in the new media understanding; moreover, such importance had reflections on the general progress of TV shows, determination of the characters, increasing the weight of roles, removing the characters from or adding new characters to the cast. Such general structure destroyed the passivity of the audience and directed them towards becoming active; the endings of the characters in TV show scenarios of the evolution of the story can be directed in this way.

METHOD

Official social media accounts of TV shows, the fan pages opened by the TV show fans under the name of the TV shows, the personal accounts of TV show stars, the accounts opened by the audience for TV show stars, Instagram accounts and social networks such as Facebook and Twitter were examined for this research, which studies the formation of audience perception through social media with determination of contents and concepts of TV shows and the perception of reality. "Document Review" method from among Qualitative Research Methods was used. In the research, which examines local TV shows as a document, the analysis unit was determined while trying to form an overall viewpoint on the themes, characters or persons, contents, the languages used and social readings in TV shows.

FINDINGS AND CONCLUSION

In this research, where official social media accounts of TV shows, the fan pages opened by the TV show fans under the name of the TV shows, the personal accounts of TV show stars, the accounts opened by the audience for TV show stars, Instagram accounts and social networks such as Facebook and Twitter were examined; we tried to come to conclusions and make determinations over the themes, characters or persons, contents, the languages used and social readings in TV shows.

In this research, which studies the formation of audience perception through social media (the new media) with determination of contents and concepts of local TV shows and the perception of reality, the traditional one-sided functioning towards demand could be said to evolve into a system where the supply is shaped by demand through the new media understanding. This evolution takes place through not only main characters, supporting characters, narrative and music but also the economic values that will also constitute the main material of productions. The sponsors and products that will bring in material sources to productions are observed to be placed suitably and attractively into the productions in order to popularize such sponsors and products, increase sales and bring in revenue.

The determinations of the economic inputs that allow the TV show sector to exist (the products of all the sponsors that feature in a TV show) are again observed in the reflections found in all the social networks through the new media understanding. The manners of behavior of the social media can be considered as one of the indispensable elements for the TV show producers that shape the orientations and supply.

In terms of shaping the productions, determining the characters and creating the narratives, it could be said that the emotional rises and falls of social media users and the negative reflections of the determinants of the life in a TV show and the real life on the perception of reality cause an increase in the ratings at times.

Producers taking into account the individuals' desire to identify with the characters when particularly creating the characters could be viewed as an element that people on the social media cannot give up when expressing themselves.

The local TV shows that were about feudal systems, plantation owners and the mafia during the period from the 1990s until the early 2000 have been replaced with the productions that tell about the giant plazas, great economic powers and the inevitable rise of capitalism and that suggest power and wealth can only be found there from those years forward. The themes of such productions can be said to emanate from the rich girl-poor boy or poor boy-rich girl stories that were narrated over and over in Yesilcam (the Old Turkish Cinema) in the past years. In the recent TV shows, the level of overlapping of real life with the reality of the TV shows has gradually decreased. Such alienation and drifting apart from the reality result in production of almost fairytale TV shows.

The companies that possess the great economic powers, the lives of holding owners and bosses that are incompatible with the perception of reality and far-fetched (top model cars with private drivers, clothes that are equally good as those in fashion shoots, luxurious parties thrown, the flamboyant presents purchased) can be found extremely real by some audience. It is clear that the individuals that lead a real life in the same work

environments do not overlap with those characters in the TV shows. As a result, the real people that imitate the lives of the TV show characters inevitably experience unhappiness and disappointment.

It is seen that people starring as partners in TV shows are expected by their fans to lead parallel private lives that are suited to TV shows. Recently, it is commonly seen that the partners in TV shows are forced to be together also in their real private lives, which is also discussed on the social media as an agenda. The fans not being able to accept it when their favorite characters starring as partners in a TV show start another TV show with different partners when the former one is over can be considered as one of the most significant indications that individuals are not able to differentiate between the real life and the life in TV shows.

The formation of audience perception through social media (the new media) with determination of contents and concepts of local TV shows and the perception of reality can be considered as a paradigm that continuously feeds one another. It is one of the important discussion of today that the public broadcasting advocates, “The public can demand lots of things, but the willpower instills whatever it wants into the society and the society embraces it” whereas the private broadcasting advocates, on the contrary, giving the society what it wants and doing whatever the society wants.

From this point of view, it could be suggested that the audience tends to identify their selves that they experience through the TV show heroes with a life that they are unable to live and is not likely to become true due to economic reasons. Such wishes and attitudes are an important factor for the TV show producers when creating their stories, characters, i.e. the screenplay through the social media. The momentary values in rating measurements can be viewed as an important indicator to increase the viewing rates of TV shows. Social media experts provide consultancy services to TV shows while producing plans that are based on high ratings without taking into account the perception of reality in reference to the virtual or imaginary world created by individuals.

“The TV show and Cinema sector continues using the Social Media along with all its novelties just like all the other brands. The comments of followers and fans on anything from TV show stars to shooting quality have an influence on so many things from producing better projects to making changes in the theme of a TV show. In fact, even most productions that are planned to end tend to extend the plotline for a couple of episodes merely due to the reactions that may be received on the Social Media. All of us must have seen the hashtag that appears on the bottom right-hand corner during airtime of any TV show. These hashtags that are about the airing episode are intended for fans of the TV show and the stars to express themselves”. (<http://m.medyafaresi.com/kose-yazisi/dizi-filmler-sosyal-medya-yi-nasil-kullaniyor/789972>)

The viewing and thus the commercial concerns of TV shows can never be ignored. Nevertheless, each TV show acting with the awareness that there is an audience that is and will be influenced by it can be thought as a social responsibility in terms of self-control. It should be kept in mind that a large audience includes adolescents and youngsters; and it should be taken into account that such groups are influenced by the behaviors, opinions and world views of the TV show characters that are presented in a very realistic manner at times. It should be taken into consideration that young individuals who try to become the real-life extensions of the role models being bullies, carrying guns, being brave like a hero that we come across frequently (sometimes as cute thieves, goodhearted murderers, handsome shams, etc.) may experience problems in the perception of reality. If we were to give a couple of examples from among tens of it:

“He ‘wanted to be like the magician’ in the TV show and lost his mind. Ferhat, who wanted to be like the magician in the TV show, lost his mind. Having recovered after a 1-week treatment, Ferhat talked and recognized his mother and father. However, he passed out again when he saw the TV. (<http://www.haber7.com/guncel/haber/408557-dizideki-sihirbaza-ozendi-aklini-yitirdi>)

“She imitated a TV show character and drank syrup thinking it were potion” (<http://t24.com.tr/haber/dizi-kahramanina-ozendi-surubu-iksir-diye-icti,41127>)

“9-year-old OnurOztepe imitated the hanging scene in KurtlarVadisi and died”. (<http://www.internethaber.com/kurtlar-vadisine-ozendi-kendini-asti-258393h.htm>)

“They aped KurtlarVadisi and tortured him for eight days” (<http://www.hurriyet.com.tr/kurtlar-vadisi-ne-ozenip-sekiz-gun-iskence-yaptilar-38735249>)

The increasing interaction between TV shows and the society and TV shows listening to the opinions of the audience can be considered as a positive indicator. However, TV shows should perceive their responsibilities towards the society -in terms of social responsibility, liability towards the audience, moral values, spiritual beliefs, gender roles, minority rights, ethnic discrimination- as not their secondary but fundamental duties.

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The Impact of University Community Engagement Programmes on Student's Soft Skill

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ABSTRACT

This paper review the impact of university-community engagement (UCE) programs on student's soft skill development based on UCE programs which were done within 200 kilometres from Universiti Tun Hussein Onn Malaysia (UTHM). It was found that the students' level of leadership skill, critical thinking and communication were enhanced through a systematic implementation this program. Overall, UCE's programs effect on student's soft skill and community development.

Key words: UCE, community development, student soft skill.

INTRODUCTION

In Malaysia, statistics show that the number of activities between universities and communities has increased since it introduced by Ministry of Higher Education (MOHE) in 2014. It reflects a cooperation based on mutual benefit. Engagement between universities and local communities has a long history. Every type of activities such as through university-public engagement, community-university collaboration and public engagement or action research has been started years before (Hart and Northmore, 2011). Through this activities, communities and stakeholders could gain new knowledge and experience that could further enhanced their level of resilience. The university on the other hand could expand their networking through their interaction with the stakeholders and community and achieved their objective to produce a "Holistic, Entrepreneurial and Balanced Graduates".

UCE PROGRAMME AND STUDENT'S SOFT SKILL

The main objective of UCE program is to encourage the participation of academics in community development for the betterment of both university and the community. To achieve this, UCE program is planned in line with the academics expertise. The program is considered a success if the community members participated. The Ministry of Higher Education Malaysia (MOHE) has set several criteria of UCE program which include minimal cost, high impact, transfer of knowledge and technology, sustainability and beneficial to the students particularly in enhancing their soft skills in communication, leadership, lifelong learning, team work, critical thinking, morale and ethic and entrepreneurship.

The implementation of UCE program also reflects the orientation of the university with community outreach unit. Social interaction is consistent with the university's role as a centre for producing the competent generation. While the community must be exposed with the knowledge and latest skills to provide the benefit of a university's impact on the community. Social interaction will create an element of knowledge and technology transfer from the student to the community. According to Azman Ismail et al. (2007) knowledge and skills transfer that occurs between the two units will affect the impact of the practice of communication between the two units. Moreover, technology

transfer is usually done in project-based learning model (PBL) is also seen as one of the best and appropriate method in a direct impact on students (Balakrishnan et al., 2009). Project-based learning can be known as the best mediator to apply elements of leadership, teamwork, critical thinking and lifelong learning.

There are three stages of UCE program namely, the preparation of project proposals, the implementation of the program and the evaluation of the program effectiveness. Each level is designed to have an impact on students through their active involvement in UCE programs. Students will learn positive values through this program, improve their soft skill, academic performance and become a balanced and holistic student.

Level of UCE Program Implementation and Soft Skills

As mentioned above, UCE program have three levels which are preparation, implementation and evaluation. Each level has its own learning outcomes. The learning outcomes have three domain namely, cognitive, psychomotor and affective and each domain have the element of soft skills. At the planning stage students were asked to prepare a proposal on the activities or projects they planned to carry out. The proposals should be based on SWOT analysis of the target groups and the emphasis should be given on the program objectives, learning outcome particularly on leadership, teamwork and ethical and moral (which is cognitive and psychomotor domain) and project costs.

The implementation stage requires students to apply their knowledge, skills and abilities to achieve the objectives as proposed in the project that have been approved by the university. However, there are room for flexibility especially when spontaneous action is needed. The learning output include cognitive, psychomotor and affective domain which will be reflected in their leadership, lifelong learning, critical thinking, communication skills and team work.

The final stage is the evaluation stage where the effectiveness of programs and student performance were measured. At the university level, students will be assessed based on four criteria which are report writing, content, presentation skill and their ability to take questions during the Q&A session. This measurement indicate the effect of the program on psychomotor and affective domain and also on the students' communication skills, leadership skills and lifelong learning. Assessment by community covers the aspect of communication skills, team work, critical thinking and lifelong learning. Figure 1 shows the impact of UCE program on students' soft skill.

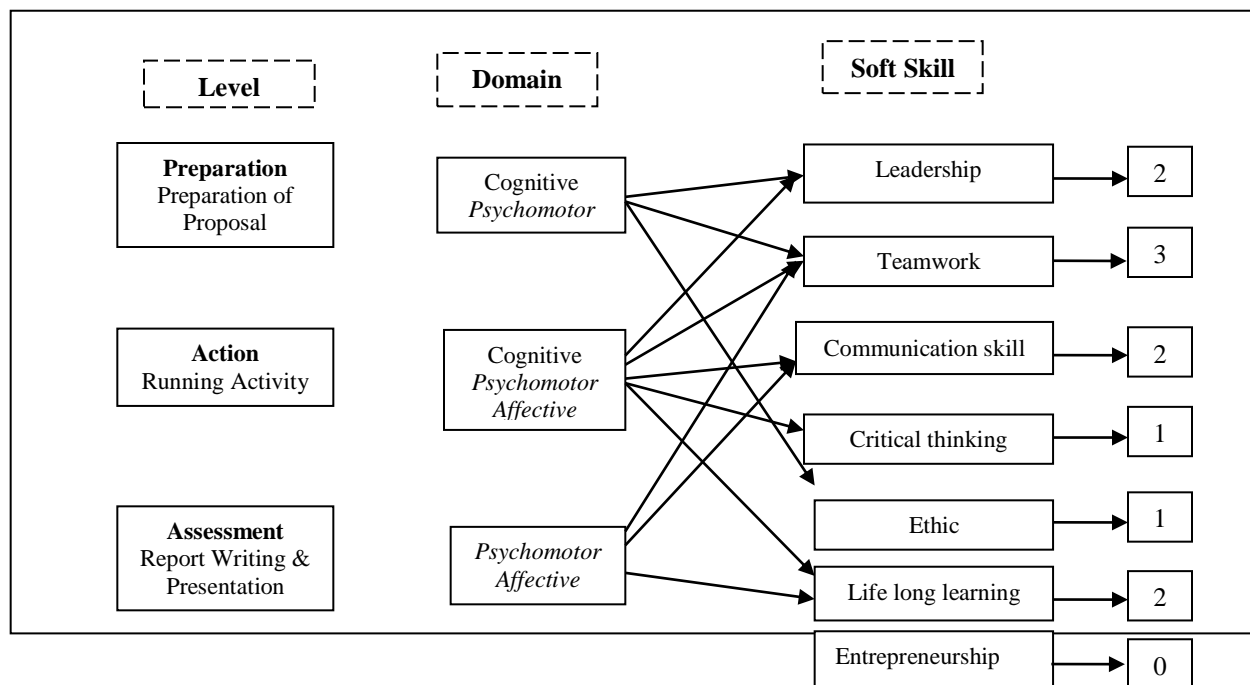


Figure 1 The Impact of UCE Program On Students' Soft Skill.

THE FINDINGS

The three stages in the implementation of the UCE program covers all domain (cognitive, psychomotor and affective) needed by the students at the institution of higher learning. Each domain also contain a distinctive elements of soft skills and are in line with the role of each domain. Table1 shows that students are able to apply or have almost developed all soft skills after the successfully run the program.

However, the level of soft skills acquired by the students varied accordingly to their ability and achievement. Most students were able to apply elements of teamwork in conducting the program despite working with students from different ethnic background. Elements of teamwork can be seen through joint activities, meetings and discussions in solving a problem.

Teamwork is an essential element that must be maintained by students in the long run, especially in their future career. Other soft skills, that is leadership, communication and life long learning are also important to the students in gaining experience in planning and implementing a program. Implicitly, this is part of longlife learning. It turns out that leadership and communication skills are very dominant in the implementation of UCE program but its influence is not as strong as teamwork. Critical thinking and ethics havelow influence UCE program implementation. Although both elements is important in producing competent students but its importance is in the context of teamwork. In line with the concept of UCE, entrepreneurship elements were found to be capable of giving a direct impact on the students' soft skills. Indirectly, these elements could be applied depending on the type of program and target groups such as low-income groups B40.

CONCLUSION

The implementation of UCE's program have a big benefit to the communities and university, especially in term of the application of students' soft skills. The using of SWOT analysis before planning a program helps the universities to organize program which gave higher impact to the communities. This effort is in line with the desire to develop a resilient communities. The four criteria outlined by the universities in implementing the UCE program (low cost, high impact, as well transfer of knowledge and technology and sustainability) helps the university to contribute according to the needs, requirements, satisfaction and expectations of the community. This is because, during the implementation of UCE program, the students have the opportunities to meet and communicate with the stakeholders. Ultimately, a holistic, entrepreneurial and balanced graduates is produced through the UCE program.

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The Impacts of Inquiry-Based Learning Model on Teaching Science Subject: A Case Study in Thailand

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ABSTRACT

The study aimed to examine the impacts of inquiry-based learning model utilizing the structured, guided and open inquiry on students' problem-solving skills, science process skills, and scientific attitudes. A total of 68 Grade 12 students were selected as respondents. One group non-experimental design was employed. The impacts of the inquiry-based learning model were reflected in the paired t-test results and the improvement in their science projects. Finally, the findings from teachers' reflections on each of the inquiry approach were found to be effective to encourage students' independent study as well as improve their abilities in science literacy.

Key Words: Inquiry based learning, science, learning models

INTRODUCTION

Inquiry learning is a teaching method emphasizing on students actively develop their knowledge which is not directly transmitted from their teachers and it is compatible with the constructivist approach. Friesen (2009) emphasized that current teachers are facing more challenging teaching method due to the former concepts of knowledge, minds, and learning styles are longer relevant and they must work in different contexts. This is because teachers have to design their teaching practices focus on engaging students in both academically and intellectually by providing sufficient learning opportunities. As a result, Thailand Institute for Promotion of Teaching Science and Technology (2011) had highly emphasized learners' knowledge, thinking process, inquiry process, problem-solving, communication ability, decision making, and ability to apply the knowledge in their daily lives. This is aimed to train students to have the scientific mind, ethics, and appropriate. Thus this issue has been stated in Thailand science curriculum manual.

According to National Research Council (NRC) (2000), inquiry-based learning is depending on the amount of autonomy provided to students and covers an extensive range of approaches, stretching from teacher-directed structured and guided inquiry to student self-regulated open inquiry. In other words, inquiry-based learning is an approach that places students' questions, ideas, and observations at the center of the learning experience in the classroom (Pauli, 2009). Teachers play an active role throughout the learning process by establishing a classroom culture where students' ideas are respectfully challenged, tested, redefined and viewed as improvable, moving students from a position of wondering to a position of enacted understanding and further questioning (Scardamalia, 2002). Consequently, both teachers and students share the responsibility for learning is the underlying principle in inquiry-based learning approach.

Zion and Mendelovici (2012) identified the inquiry-based learning into three levels, namely structured, guided, and open inquiry. In structured inquiry approach, students do not need to think autonomously due to the questions, processes, and results are designed through a prescribed procedure by teachers. Therefore structured inquiry is suitable to develop students' basic inquiry skills but not sufficient to appreciate the real nature of science. In guided inquiry, although teacher provides students with questions and procedure but students have to explore and find the solutions by themselves. In short, students have to lead the inquiry process that involving decision-making and come up with their own conclusion. Open inquiry is considered as the most intricate level of inquiry-based learning which creates a learning community of teachers and students. Students need to perform like scientists and requires high order thinking abilities (Reid & Yang, 2012).

Inquiry-based learning has its potential to promote students' intellectual engagement and foster their understanding through a hand-on, minds-on, and research-based disposition towards teaching and learning particularly in the science subject. On top of that, inquiry-based learning also creates a complex, interconnected

nature of knowledge creation, enables teachers and students to build, test, and reflect collaboratively on their learning (Stephenson, n.d.). Stephenson further highlighted that the inquiry-based learning is an umbrella term that covers a number of other approaches to teaching and learning. Teaching practices that utilize a disposition of inquiry learning include problem-based learning, project-based learning, and design-based learning.

In reality, teachers have to face several challenges such as knowledge is necessary for participation, basic science skills needed, cultural mismatch, excessive individualism, and lack of experiences to draw upon while implementing inquiry-based learning (Hirsch, 2006; Delpit, 2006). Knowledge is the basic requirement for inquiry-based learning because students need sufficient knowledge to pursue an investigation based on the immediate situation and personal experience (Hirsch, 2006). Hence, teachers have to ensure students have sufficient knowledge before they are able to participate fully in the classroom practices. Besides, a related point that challenging teachers is the inquiry-based learning should lead to the science skills development. Delpit (2006) clarified that inquiry-based learning will only work for some students but not others especially those from marginalized groups who need access to the societal codes of knowledge in a more direct approach. The importance of experiences in inquiry-based learning implies that teachers have to find ways to incorporate richer experiences into learning. As a result, teachers have to encourage students to critically engage with books, websites, and ideas to extend their world. Another method is teachers have to organize field trips, service learning or nature study to expand their direct experiences. All these tasks seemed to be heavy workload to the teachers.

Thailand science education aimed to align science curriculum to be relevant to students' real life experience. Since science subject is a compulsory subject in Thailand Education System from Grade 1 to Grade 12, students are expected to reach common scientific literacy as indicated by Yuenyong and Narjaikaew (2009). Yuenyong and Narjaikaew highlighted the basic scientific literacy: Firstly, students hold an understanding of scientific knowledge and the relationship between science, technology, society, and environment. Secondly, students have to engage in thinking process and reasoning to investigate knowledge. Finally, students possess scientific habits of mind for the living.

LITERATURE REVIEWS

According to Zion and Mendelovici (2012), inquiry-based learning is only relevant but remains controversial to some teachers because of the facilities available in schools. Many past researchers such as Binns and Popp (2013), Blanchard et al. (2010), Bunterm et al. (2014), and Quintana, Zhang, and Krajcik (2005) claimed that guided inquiry-based learning helps students learn science content, master scientific skills, and understand the nature of scientific knowledge. Moreover, Trautmann, MaKinster, and Avery (2004) revealed that the structured and guided inquiry approach prevents wasting of learning time, reduces students' frustration of the undesirable results or experiencing failure as well as their fear of unknown.

Besides, past research findings indicated that open inquiry approach is an effective method to achieve a higher level of inquiry whereby students become accustomed to the nature of scientific knowledge, develop greater inquiry skills and practices, and employ in higher order thinking (Berg, Bergendahl, Lunberg & Tibell, 2003; Chinn & Mahlotra, 2002; Krystyniak & Heikkinen, 2007). Moreover, Jordan, Ruibal-Villasenor, Hmelo-silver and Etkina (2011), and Zion and Slezak (2005) found that student's functioning is closely related to teacher's determinations to assist the student's scientific literacy, creativity, initiative, responsibility, and motivation.

Tatar, Tüysüz, Tosun, and Ilhan (2016) had used Questionnaire of Factors Affecting Students' Science Achievement (QFASSA) to examine the influencing factors to a total of 606 science program university students from four state universities in Turkey. Their results showed that the most significant factors that affecting students' achievement are teacher and curriculum dimensions. Furthermore, Tatar et al. indicated that the most significant predictor is 'teaching the topics in a way that may arouse the students' curiosity' as one of the teacher dimensions. Tatar et al.'s findings were supported by Wolpert-Gawron (2016) who stated that inquiry-based learning is more than asking a student what he or she wants to know. It is about triggering curiosity as well as activating his or her curiosity.

Harris and Rooks (2010) investigated on the effective method to organize inquiry-based science learning in K-8 science classroom to cause extensive changes in classroom management practices. Harris and Rooks introduced a pyramid model about how the five interconnected management areas namely students, instructional materials, tasks, science ideas, and the overall social context of students' inquiry learning environment work together in such a way that the effectiveness of any of them is influenced by how the other management areas are managed. In addition, Harris and Rooks also proposed a close-knit relationship between management and instruction to recognize the prevalent nature of managing the classroom for effective inquiry learning.

Sungur, Tekkaya, and Geban (2006) had studied the effect of problem-based learning to 10th grade students' academic achievement and performance skills. A total of 61 students from two classes which instructed by the same biology teacher were involved in their study using Motivated Strategies for Learning questionnaire. Sungur et al.'s results showed that students instructed with problem-based learning earned higher scores than those instructed with traditionally-designed biology instruction in both academic achievement and performance skills. Sungur et al. concluded that students in the experimental group seemed to be more capable in the use and organization of relevant information, in assembling knowledge and stirring toward better decision compared to the control group.

RESEARCH AIM

The main aim of this research was to investigate the impacts of the developed structured to open inquiry learning activities as an inquiry-based learning on students' learning outcomes particularly on problem-solving competency, science process skills, scientific attitudes.

METHOD

Research design and samples

One group non-experimental design was utilized. There was only a single group of 68 Grade 12 students from Koksi Pittayasan School in Northeast of Thailand who enrolled the science project class in the first semester of 2015 academic year were purposively selected in this study. Researchers created a treatment condition involving three phases namely structure inquiry approach, guided inquiry approach, and open inquiry approach and this single group of students was observed. The pretest-posttest design involves two measurements of the 68 participants were applied before and after the treatment surrounding in time the administration or occurrence of a single treatment that is structured to open inquiry approach. In this design, participants serve as their own control and comparisons are made before and after treatment. An assumption is made that differences between pretest and posttest are due to the treatment.

The overall intervention treatment was taken place for 20 weeks, two hours per week. Structured inquiry approach was applied in the first phase for the duration of four weeks. At this phase, researchers provided the knowledge about water quality and how to analyze water quality. This is followed by students used the knowledge to prepare a structured science project entitled as 'Water quality in our school'. In the second phase, researchers utilized the guided inquiry approach for the duration of six weeks. There were two learning activities in the second phase that involving galvanic cell from the metal electrode in the chemical electrolyte and galvanic cell from fruit electrolyte as well as non-corrosion metal. Researchers provided science knowledge which was associated with each of the projects. For example, knowledge related to the components of the galvanic cell and how it works as well as the corrosion of metals and corrosion protection of metals. Participants were assigned two science projects. This first project was creation a galvanic cell from metal electrodes in the electrolyte solution and galvanic cell from fruit electrolyte. The second project was protection the iron nail from corrosion.

Open inquiry approach was used in the final phase for the duration of eight weeks, followed by two weeks presentation. In this phase, each group consisted of six to seven participants who have to define a problem for doing a science project. While participants were planning for the science project, researchers observed and recorded the following issues such as (i) Source of the issue and selection of issue to do the project; (ii) Investigation for scientific knowledge that forms the basis of a science project, knowledge linkages, applying the knowledge to plan for a science project; (iii) Defining variables, setting hypothesis, planning to do a science project; (iv) Doing a science project, recording data, and presentation; (v) Discussion and conclusion, and writing a project report.

Research instrument

Research instruments were mainly used as tests to measure learning outcomes encompassing three areas namely problem-solving competency, science process skills, and scientific attitudes. Therefore three types of tests were used to measure the three areas of learning outcomes. All the three types of tests were adapted from Tornee (2014). Specifically, Tornee had adapted his instruments from two sources namely the problem-solving competency test from Organizational for Economic Co-operation and Development OECD (2013) while the science process skill test and scientific attitudes test from Vangpoomvai (2012).

The problem-solving competency test is a 32-multiple choice items, mainly used to assess four components of problem-solving process namely exploring and understanding, representing and formulating, planning and executing, and monitoring and reflecting (OECD, 2013). The reliability (KR20) value was 0.89, discrimination

index was 0.22 to 0.80, and the difficulty index was 0.21 to 0.68. The science process skills test is a 45-multiple choice items, mainly used to assess 13 different science process skills including observing, measuring, using number and calculating, classifying, space/space relationship and space/time relationship, communication, inferring, predicting, controlling variable, formulating hypothesis, defining operationally, experimenting, and interpreting data and conclusion. The reliability (KR20) value was 0.86, discrimination index was 0.22 to 0.69, and the difficulty index was 0.28 to 0.81. The science attitudes test was used to assess the change of students' attitudes after the intervention. All the items were purposely designed to evaluate six attitudes namely curiosity, reasonableness, responsibility and perseverance, organizing and carefulness, honesty and open-mindedness (Burterm et al., 2014). The reliability (KR20) value was 0.72.

Other than the three types of test stated above, another three instruments were used to evaluate the quality of science projects namely rubrics to evaluate science project, observation form, and interview protocol. First of all the three science teachers were requested to evaluate the science project by using rubrics rating scales. This step would be complemented by an interview protocol which was created by researchers to conduct semi-structured interviews to the same science project teachers to compare the quality of science projects of the current year and the previous year. There were six components of quality science projects taken into consideration namely originality, practicality, elaboration, multi-dimensional knowledge used, environmental friendliness, and aesthetic and attractive.

In addition, researchers used observation form to record teachers' reflections about the progress of their students through inquiry learning activities. Basically the focus of this research instrument was to observe knowledge and information usage for analyzing problems, selecting subject for experiment, experiment, setting hypothesis and design experiment, gathering and record data, discussing and concluding experiment and writing science project report, and evaluating the abilities of students' learning for structured and guided inquiry approach. However the final part of observation form was focusing on identification of problem, transferring knowledge and applying knowledge, identify variable, setting hypothesis, and planning to work the project, gathering and record data, discussing and concluding experiment and writing science project report, and evaluating the abilities of students' learning for open inquiry approach.

Data analysis

Quantitative data was analyzed by descriptive statistic using the mean score and standard deviation and inferential statistic using paired t-test. Paired t-test was used in 'before-after' structured to open inquiry approach. Paired t-test was identified to be suitable for this study because all the participants were matched pairs and it was considered as a case-control group. Researchers provided 40 hours of treatment that is structured to open inquiry approach for 20 weeks to the 68 Grade 12 students and followed by the investigation on the impacts of treatment related to problem-solving competency, science process skills, and scientific attitudes. On the other hand, qualitative data from observation and interviews were analyzed using content analysis.

RESULTS

Results are demonstrated according to the research aim as indicated above. The results present in two parts namely quantitative and qualitative findings. The initial results highlight the change on problem-solving competency, science process skills, and scientific attitudes of 12th Grade students before and after the intervention of structured to open inquiry approach in science learning activities. This is followed by evaluating the effectiveness of structured to open inquiry approach on the progress of Grade 12 students through feedback from teachers' reflections. Finally, the quality of the science projects is measured from quantitative finding from rubric rating scales as well as qualitative data by interviewing three science teachers.

Findings of Paired t-Test

The descriptive statistics of pretest vs. posttest of problem-solving competency, science process skills, and scientific attitudes for the 68 Grade 12 students are presented in Table 1. Their abilities are measured based on three categories namely problem-solving competency, science process skills, and scientific attitudes. All the posttest results show an increment compared to the pretest results after utilizing structured to open inquiry approach.

In addition, findings revealed that all the three categories of ability were more than 80 percent of the total score of each posttest compared to pretests which ranged from 52.63 percent to 72.23 percent. Specifically, the greatest increment of the total score is problem-solving competency as 32.93 percent (85.56% - 52.63%). This is followed by science process skills as 23.80 percent (82.20% - 58.40%). The least increment of the total score is scientific attitudes 17.37 percent (89.60% - 72.23%). The highest standardized gain score

[(posttest-pretest)/pretest SD] were science process skills, followed by scientific attitudes and problem-solving competency.

Table 1. Descriptive statistics of students' abilities

Abilities	Pretest		Posttest		%	%	Standardized Gain Score
	\bar{x}	SD	\bar{x}	SD			
Problem-solving	16.84	2.25	27.38	2.11	52.63	85.56	4.68
Science process skills	26.28	1.49	36.99	2.12	58.40	82.20	7.19
Scientific attitudes	90.28	4.33	112.00	4.01	72.23	89.60	5.02

The assumption was made at the initial stage of the mean scores of the paired samples are equal which means that the pretest scores for each category of ability in students' learning outcomes are equal to the posttest scores. The level of significant was identified as .05. Results of the study revealed that the mean scores between the pretest and posttest were different. Therefore, researchers rejected the initial assumption made and concluded that there was a significant mean difference between all the paired samples. In other words, all the students gained a higher score in their posttest compared to their pretest.

Table 2. Paired samples t-test

Paired posttest-pretest	\bar{x}	SD	Std. error Mean	t	df	p value
Problem-solving competency	10.54	1.43	.17	60.84	67	0.001
Science process skills	10.71	1.85	.22	47.64	67	0.001
Scientific attitudes	21.72	4.15	.50	43.20	67	0.001

Findings of the quality of Science project

There are three sets of qualitative data to quantify in order to determine the quality of science projects. The three science teachers evaluated a total of 10 science projects separately using rubrics rating scales. The mean score was calculated to make the decision about quality ranged from very poor, poor, fair, good, and very good. The results from the rubrics evaluation were shown in Figure 1 and Table 3.

Table 3 shows the summary of the quality of science project as well as teachers' interview data. The overall mean score was good for each component of quality science project except originality component which was at the fair level. Nevertheless, all the rubrics rating scales findings were supported by teachers' opinions. Rubrics rating scales and interview findings were focused on six components of quality, namely 1 as originality; 2 as practicality; 3 as elaboration; 4 as multi-dimensional knowledge used; 5 as environmental friendliness, and 6 as aesthetic and attractive. In summary, the three science teachers had their desirable quality of science project but they are satisfied with the improvement shown by students.

Table 3. Quality of 10 science projects and teachers' opinions

Part of assessment	\bar{x}	SD	Teachers' opinions
Originality	3.40	0.48	<p>'Students can choose the issues around the school to work as a projects.'</p> <p>'Their works using the scientific process to replace the local or inherited knowledge, or do as their mothers do.'</p> <p>'They try to find new ideas, new methods to support their science projects.'</p> <p>'Some are like old works, but are more variables in this time.'</p> <p>'They can search a relevant theory that involves variables for adding in their works.'</p>
Practicality	3.70	0.64	<p>'Their tasks are able to be developed to be a better product.'</p> <p>'The project result is clear, has a quantitative result so one can further developed.'</p>
Elaboration	4.00	0.77	<p>'They use the correct knowledge in defining the variables and design the experiment. Their works are reliable and they can do it successfully.'</p> <p>'They use the group process. There is a clear task assignment. It is</p>

			an important factor that makes the work successful.'
Multi-dimensional knowledge used	4.00	0.77	'Students search the science knowledge of each variable, make knowledge linkage to describe their projects.' 'Students apply their knowledge to be associated with the new knowledge and use the knowledge for planning the experiment.'
Environmental friendliness	4.40	0.66	'There are many projects that involve local participants and the community. They can use local materials and use the chemicals appropriately.' 'Their designs are based on their best study so they can use chemical materials and equipment efficiently, successfully.'
Aesthetic and attractive	4.50	0.67	'Their works are attractive, look great.'

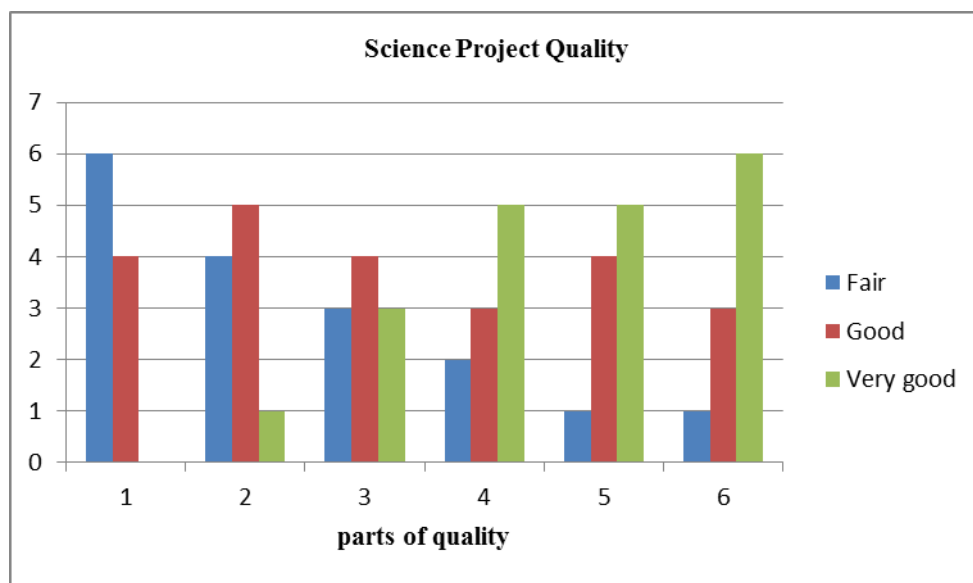


Figure 1: Quality of science project

Findings of the Teachers' Reflection

This study was conducted in three phases involving three approaches namely structured inquiry, guided inquiry, and open inquiry. After completing each phase, teachers would do the reflections through their observations. The results are revealed into three parts namely teachers' reflection after structured inquiry approach, teachers' reflections after guided inquiry approach, and teachers' reflections after open inquiry approach as follows: Teachers' reflections after structured inquiry approach indicated that students found to be understood the process of doing the science project. They understood the scientific method and practiced the science process skills by doing the structured science project that assigned to them. Students are able to do the experiment by following the lab direction.

After guided inquiry approach, teachers' reflections revealed that students were able to use their knowledge about the galvanic cell to define the variables for making their galvanic cell by themselves. They designed the experiments by themselves. Their designs were not the same. They did the experiment, collected data, and did their projects by themselves. Because of each group selected a variety of electrodes so their results were a difference. They are able to define the dependent and independent variables. Finally, each group was successfully making the galvanic cell that produced electricity. They were very happy with their works. The same as making the galvanic cell using electrolyte solution from fruits, students are able to define different independent variables. Some students used different electrodes, the distance between electrodes, and different fruits as independent variables. However, teachers have to help them in the discussion and conclusion part. It can conclude that students can integrate relevance knowledge from textbook to define variables and to plan for doing the assigned projects by themselves except at the discussion and conclusion part that needs some assistance from teachers. Finally, students can do their two guided science projects, write reports and make the project presentations.

The proposed science projects in open inquiry approach were classified into two types. The first type was using

their ideas while the second type was adapted from other previous projects but tried to add new variable or study in another dimension. From the teachers' reflections showed that students studied the knowledge that relevance to their variables to construct their knowledge to define the hypothesis and design the experiment. Students can do science projects. They are able to collect data, analyze, discuss, and make a conclusion by themselves.

DISCUSSION

The novel opinions on teaching and learning science are started to restructure the setting of classrooms. Therefore this research was aimed to combine the concept of outcome-based learning and the continuity of inquiry from structured through guided and open inquiry approach. Findings of this study indicated that all the three abilities namely problem-solving competency, science process skills, and scientific attitudes were improved with a higher total score of more than 80 percent. This implies that students had been provided more opportunities to practice their science process skills while they did the structured and guided science projects. Moreover, they also had to solve the real problems that occurred during the implementation of their science projects. As a result, they have been trained directly or indirectly to establish their positive scientific attitudes. This is because they have to think and act like scientists which may affect their scientific attitudes.

Science process skills have been highly emphasized particularly in a structured inquiry of learning whereby students were trained to do science project via the laboratory experiment. They learned the process and steps of doing the science project, thus practicing their science process skills while they were conducting their experiments. In addition, teachers provided information about the project as well as appropriate practices on the proposed problems while implementing guided inquiry of learning. This implies that guided inquiry learning should be considered by means of a kind of problem-solving training whereby students had to share their ideas in defining variables, design the experiments, and conduct the experiments independently. At this stage, students will be provided sufficient opportunities to design the patterns of the experiment to solve the entire question. Therefore they are trained to do science projects using problem-solving process and the scientific method.

After the students have been trained with structured and guided inquiry approach, they are able to do their independent thinking at every step of the created science process. This implies that they are able to integrate their knowledge to identify the problems. Firstly, they are able to think of the issues around their community and investigate by using their science knowledge that relevance with their science projects. Next, they are able to make knowledge linkage to identify, plan, and conduct the project successfully.

The ultimate findings are found to be in accordance with Zion and Mendelovici's (2012) findings. Zion and Mendelovici had proposed the three levels of inquiry from structured, guided to open in teaching the biology of high school in Israel. In addition, the implication from this study has shown that structured to open inquiry approach will be very useful particularly in teaching science because this approach is found to be able to support students to construct their knowledge from their experiential learning, using their basic abilities to improve their learning science literacy.

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The Importance of Gender Competence of Social Workers: An Example of a Research on Health of Shelters' Users

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ABSTRACT

This contribution is based on partial data from the research “Health and Use of Health Care Services by Shelters Users”, the aim of which was to identify key factors which have an influence on their health and use of health services. The research points to the importance of gender-sensitive social work practice in shelters regarding the life situation and the needs of their clients. We perceive shelters as a specific environment that provides support while they are also a source of potential stress and oppression. Homelessness is an extreme form of poverty and social exclusion and a gendered issue, as well. The position of the homeless men and women in our society is different because they are faced with dissimilar expectations and their perceived problems have different hierarchies. The partial research data show that social work in shelters should include self-reflection of social workers and the reflection of specific situations of homeless women and men and it should also include a dialogue and an orientation in normative expectations towards homeless men and women. To strengthen the gender competence of social workers is a way how to reach the aim.

Key words: Health care, health service, social work

INTRODUCTION

In the last twenty years, the range of individuals who find themselves in a situation of insecure housing or homelessness has greatly changed (Roscher, 2015) and their numbers continue to grow (Barták, 2011). These people move between different forms of housing and non-housing, while repeatedly going through episodes of homelessness. There is also a growing number of people who have not yet lost their homes, but are at risk, while they are not necessarily living on ‘the edge’ of society, marginalized, low-educated, unemployed and/or substance addicts (Keller, 2013). Homelessness is an extreme form of poverty that limits the possibility of the self-realization of people who find themselves in this difficult situation. The social image of a homeless person is more often associated with men than with women. This image of a homeless man is more acceptable to the public than the image of a homeless woman (Marek, Strnad, Hotovcová, 2012). Hetmánková (2014) points out the phenomenon of the “invisibility of female homelessness.” Because homeless women perceive a more critical societal view of them, especially in connection with the inability to care for their children and the lack of ability to get children back into their own care, even after stabilizing the situation (Hetmánková, 2014), more frequently and intensively than men, they try to hide their homelessness and so resort to the so-called latent forms of homelessness (Haasová, 2005). This stigmatization is probably related to the stereotypical assumption of women's bonding with the family and the care of children and household. An uneven perspective of the public and social service providers on gender and homelessness have a direct impact on how homeless people see themselves (Hetmánková, 2014; Glumbíková, 2017). This state of affairs in today's society creates a need to reflect on the specific ways in which social issues affect the lives of men and women. These social issues are very often gender-based, and this should be an essential prerequisite for professionals facing these issues as well as educators in professions such as social work (Janebová, 2008). In this paper, therefore, the researchers look at social work in homeless shelters through gender optics, which means that they are trying to look for the specifics of social work with homeless men and women and emphasize the need for a gender-sensitive social work practice. Gender is understood here as a socially constructed set of characteristics, roles, patterns of behaviour, and social positions attributed to men and women. The text is based on the principles of social constructivism, which perceives social reality as a social construct created in interactions, communication and language. The researchers refer to the construction of social reality and the construction of identities (of both the men and women) using the example of “Health and Use of Healthcare Services by Shelters' Users” research. They emphasize the need to deconstruct the existing gender-insensitive discourse of social work. Understanding that the practice of social work is fundamentally affected by the level and quality of education and training of social

workers, the researchers consider to which extent these specifics are reflected in teaching of future social workers at universities, and recommend the bolstering of the gender competence of social workers.

SPECIFICS OF MALE AND FEMALE HOMELESSNESS

Male and female homelessness, its specifics and forms, as well as the experience of men and women who have lost their homes, are yet to be sufficiently examined in the Czech environment. Tichý (2007) points out that the causes of homelessness in women and men differ in terms of quality. Relationship factors are predominant in women's homelessness; in men, it's both material and personal factors. Also, Kolářová (2008) notes that the causes of the situation of homelessness in homeless women often lie in the disintegration of partnerships (the break-up of a marriage, the death of a family member who lived with a woman in a joint household, etc.). This situation is, according to the author, associated with the loss of a support network and a poor financial situation. Hetmánková (2014) states that the perspective of homeless women on their own situation is directly related to their day-to-day survival strategies and affects their experience of homelessness, which is significantly different from men. According to statistics, there are more homeless men than women (in 2011, there were 11,496 individuals who were identified as homeless according to the methodology in force; of this number, 21.5% were women (Gébllová, 2012))., however in view of the feminisation of poverty, women find themselves in this situation progressively more often (Hetmánková, 2014), and even at a younger age; furthermore, they often have small children with them, and their experience sometimes involves very intense and long-term domestic violence (Alsaker et al., 2006; Hetmánková, 2014). It is their appearance and sexuality that makes women victims of violence (Šmausová, 2002). Bassuk et al. (2010) adds that, due to domestic violence, homeless women suffer from post-traumatic stress syndrome up to three times as much as men and twice as much from substance or alcohol addiction as well as depression as opposed to women in the majority population. Fitzpatrick, Kemp, Klinker (2000) see the occurrence of hidden homelessness characterized by so-called *couch surfing* at their friends' or acquaintances' places to be a specific feature of female homelessness. Although women are often more willing to act or get help, mainly because they have children, hidden homelessness is excluded from the scope of social services. Marek, Strnad, and Hotovcová (2012) still point out that women use the services of social workers, psychologists and/or doctors much more.

HEALTH SPECIFICS OF MALE AND FEMALE HOMELESSNESS

There is a strong link between homelessness and health (see, for example, Girard et al., 2010). This link is a major challenge for both social and health services intended for the homeless population. There are many factors that affect the health condition of the homeless. Extreme housing conditions and poor financial conditions lead to ignorance of health problems, both by professionals and by their clients.

There is a high incidence of chronic health problems that have not been treated by a doctor in the case of homeless people living in shelters, and these people often encounter barriers in their access to healthcare (Hwang, Bugeja, 2000). The main reason for the non-use of health services is that these services do not meet the needs of homeless people (Girard et al., 2010), and that there is stigmatization and prejudice against homeless people, which are also strongly gender motivated.

Folsom et al. (2002), for example, refer to the high incidence of psychiatric diagnoses of depression and schizophrenia in people living in shelters. The incidence of depression was more common among women in shelters as opposed to the incidence of schizophrenia, which was more often experienced by men. Hatton (2008) states that homeless women suffer from more severe health problems, particularly in connection with the experience of domestic violence. This is also related to the fact that women subsequently describe their state of health as being worse (they feel more pain and anxiety) than homeless men do (Dragomirecká, Kubisová, Anděl, 2004, Barták, 2011).

Bassuk, Melnick, Browne (1998) address the systemic barriers to the access to healthcare for homeless women/mothers with some experience of violence. The lower use of health services complicates their life situation. Gelberg, Browner and Lejano (2004) emphasize that women's healthcare is specific, especially because of their gynaecological needs. The authors point out that neglecting these needs can result in serious medical complications or in unwanted pregnancy. Wenzel, Leake and Gelberg (2001) accentuate the lack of information from the area of gynaecological care among women living in shelters. Johnson, Zlotnick and Perez (2008) investigated the effects of intimate partner violence and the resulting symptoms of post-traumatic stress disorder on the psycho-social functioning of women in shelters. The research highlights the need for the treatment of post-traumatic stress disorder, ideally directly in the shelters. Despite the incidence of this disorder in nearly 90% of the victims of domestic violence residing in shelters, women are not provided any adequate assistance (Johnson, Zlotnick, 2007). Enders-Dragässer and Sellach (2010) also point to the poor availability of assistance for these groups of women in common practice. This deficit leads, for some women, to a dramatic increase in

their emergency situation, as evidenced, for example, by references to suicidal thoughts in their testimonies. Also, Boscher, Ruppert and Lackner (2002) state that the life circumstances of homeless people encourage suicidal tendencies (approx. 60% of women without any permanent housing have experienced one or more suicide attempts).

Wei Lim et al. (2002) states that homeless women rarely use healthcare. The most common form of healthcare that homeless women use is an emergency room visit. Also, Glumbíková (2017) confirms that women from shelters do not go to see a doctor, if avoidable, and solve their health problems by visiting an emergency room. One of the factors influencing the use of healthcare is the shame that women feel about their looks and health condition. Perceived stigmatization and "labelling" by social workers is one of major barriers to their use of healthcare (Gelberg et al., 2004; Glumbíková, 2017). Glumbíková (2017) also shows that this labelling is associated with the gender-based construct of a "good mother." Czech society sees a highly valued ideal in a "self-sacrificing mother," who is fully subordinated to the needs of the child (Gjuričová, Kubička, 2009). Homeless mothers associate the approach and behaviour of healthcare personnel with the concern that they are not "good mothers," and with the concern that social workers are going to look at them as bad mothers, and in case of a child's illness are going to blame them, and thus eventually contact the Department of Social and Legal Protection of Children, which may lead to the child being taken away from them.

SOCIAL WORK IN SHELTERS

According to the Registry of Social Service Providers (2017), there are currently 216 homeless shelters for men, women, mothers with children and, exceptionally, for entire families registered in the Czech Republic. *"Social prevention services help prevent the social exclusion of those who are at risk of a traumatic social situation, and/or life habits and ways of life leading to a conflict with society, and/or a socially disadvantaged environment, and/or could be at risk of their rights and legitimate interests being breached by a criminal act committed by another individual. The aim of social prevention services is to help this group overcome their unfavourable social situation and protect society from the development and spread of undesirable social phenomena"* (Section 54 of Act no. 108/2006).

There are also special shelter facilities for victims of domestic violence which have a classified address. Homeless shelters are included in social prevention services in the Czech Republic (Průdková, Novotný, 2008). A shelter is a social service that is based on the principles outlined in the International Federation of Social Workers (IFSW) definition (2014) defining social work as *"...a practice-based profession and an academic discipline that promotes social change and development, social cohesion and the empowerment and liberation of people. Principles of social justice, human rights, collective responsibility and respect for diversities are central to social work. Underpinned by theories of social work, social sciences, humanities and indigenous knowledge, social work engages people and structures to address life challenges and enhance wellbeing"*. The Act no. 108/2006 on Social Services, Section 57, describes the homeless shelter as follows: *"Shelters provide temporary accommodation services for persons in an unfavourable social situation connected with the loss of housing."* The Social Services Act states that this service *"includes the following basic activities: a) provision of food or assistance in the provision of food, b) provision of accommodation, c) assistance in enforcing rights, legitimate interests and in the procurement of personal affairs"*. The Act on Social Services (108/2006) further stipulates that *"the persons pay a fee for the provision of social services in shelters..."*. The stay in a shelter is limited in time, most frequently for a period of one year.

Social workers in shelters help their clients solve a range of different issues, such as arranging for their identity documents and social security benefits, provision of healthcare, job search, family relationship support, childcare assistance, or assistance with seeking for subsequent housing. Part of the social work is also about connecting the client with other professionals or institutions.

Social work in shelters has its other legislative definitions, where the social worker is both the guardian of the order and the advisor and the confidant, so is perceived by the clients both as support and authority. The social worker's roles may then be in conflict. *"You can't tell them everything...they then decide about the housing and such ... it's better to talk to someone out there"* (a female respondent – Z4). Given the fact that they supervise adherence to strict rules in shelters (an absolute ban on alcohol, etc.), the shelters can be perceived as jail and the social workers as guards. *"I'm happy to be here, ma'am, that I'm not in the street or somewhere else, but it's still the same. It's like in detention here, except that they're open to come and go, otherwise it's like being in detention"* (a male respondent – M3).

Due to the multiple issue nature of clients' life situations and the accumulation of roles (see above), high demands are placed on social workers. Certain requirements, by their very nature, often go beyond the

qualification of a social worker. The performance of a social worker's profession is so demanding that it puts high demands on the qualifications of social workers. Pursuant to the Act on Social Services (Act no. 108/2006 Coll., Section 110, Subsection 1), the legal capacity, clean record, health and professional competence is a prerequisite for pursuing the profession of social worker. Professional competence to work as a social worker consists of, according to the law, at the minimum a degree from a higher professional education institution or a university degree, and possibly completion of accredited training courses in the defined range and field of expertise. Also, the professional profile of a social worker and a medical-social worker matches with the professional competence to perform the profession of social worker in providing social services in institutional health care institutions. Given the oft-mentioned complexity of the profession, the duty of further and continuous education of social workers also plays an important role in their training. The Association of Educators in Social Work (ASVSP) is responsible for increasing the professional quality of education in social work. It is a voluntary association of higher professional education institutions and universities, or parts thereof, which offer education in social work in the Czech Republic.

In social work with homeless men and women, there are still many taboos that have not yet received much attention. This invisibility is reflected in the arrangement of services, which results from the masculinisation of the topic of homelessness. There are strict rules and the absence of privacy in shelters. In seeking help, women are confronted with an environment where men and their needs often dominate. A possible strategy of "survival" in a shelter, and coping with the constant presence of others is the manifestation of dominance and the demarcation of one's space. Glumbíková (2017) notes that women in shelters must be "rougher;" they must be able to "earn respect" from others. These behaviour strategies are generally considered masculine. In women, we can observe some masculinisation of their own actions in order to ensure their own protection and the fulfilment of their needs.

RESEARCH METHODOLOGY

The topic of the health of homeless people is yet to receive more attention in the Czech Republic, as evidenced by the lack of a more comprehensive study on this topic in the Czech environment and the small circle of authors who have dealt with the subject so far (e.g. Dragomirecká, Kubisová, Anděl, 2004; Šupková, 2007; Barták, 2011). Therefore, in the first half of 2017, we carried out a qualitative part of the research "Health and Use of Healthcare Services by Shelters' Users" (the quantitative part follows in the second half of the year). 30 communication partners – 13 women and 17 men aged from 20 to 66 – participated in the qualitative part of the research.

Communication partners were selected using deliberate sampling through institution (the homeless shelter). The data was collected using a semi-structured interview. When conducting the research, the researchers followed the American Psychological Association (APA, 2010) Ethical Principles. Every communication partner signed an informed consent. The researchers used a constructivist approach to the grounded theory by Charmaz (2009) when analyzing the data. The overall research question of the qualitative part of the research was: *How do shelters users perceive their own health and how do they perceive health services and how is the topic of health and health services reflected in their narratives?* In searching for an answer to this question, the researchers have identified a number of gender specifics of social work with this target group. As educators in social work, they therefore voiced a valid question: how is it possible that the Czech curricula of disciplines such as social work do not usually include gender optics and the reflection of the gender specifics of social work?

RESULTS

Social workers are the ones who are almost exclusively in contact with shelter residents and they often do not consider the health condition of their clients a topic to be addressed by them. Glumbíková, Gojová and Grundělová (2017) note that published papers in the Czech professional literature (Trnka, Šnircová, Krejbič, 2006; Dvořáčková, Belešová, Kajanová et al., 2016) often emphasize the poor health state of homeless people to be a result of their lack of interest, negative and irresponsible approach to health, lifestyle and low health literacy. Given the outlined discourse, it can be assumed that social workers themselves can be subject to this insight about homeless women and men, and therefore they do not focus too much on this community's state of health, and may thus (even though sometimes unconsciously) participate in their marginalization and discrimination.

There may be several reasons for the non-use of healthcare services. Partial data show that stigmatization and prejudice against homeless people are one of the main reasons for the non-use or the limited use of healthcare by shelter residents. This stigmatization limits access to treatment and even affects other relationships and a client's own identity. The only exception to regular doctors' visits are the women-mothers who mainly associate healthcare and visits to healthcare facilities with their children. *"Well, first of all, kids need to see a doctor ... I*

don't need it for myself" (a female respondent – Z2). *"The most important thing is that kids are healthy... I don't matter"* (a female respondent – H4). This approach seems to be linked to the construction of a "good mother," whose image is related to characteristics such as warmth, sensitivity, adaptability or selflessness. It also seems to be part of a strategy to avoid being considered a "bad mother." The women themselves do not go to see doctors much, not even gynaecologists. *"I don't go to see any doctor, even though I should go to see a gynaecologist, but I haven't so far"* (a female respondent – Z2). *"I don't go anywhere, not even to see a gynaecologist...nowhere"* (a female respondent – H2). One of the possible explanations why women do not go for check-ups is that, as suggested by Hetmáňková (2014), homeless women feel that they are viewed by the public, service providers, authorities, police and healthcare facilities as secondary, inferior and contemptible. *"The frequent consequence of such behaviour is the resignation of one's personal rights, including the right to help and support"* (Hetmáňková, 2014: 82). Many homeless women, but also homeless men, choose an emergency room visit as a major strategy for solving their health problems. *"When I'm sick, I go to an emergency room ... not to see a doctor"* (a female respondent – H1). *"I don't ... I don't need anything ... I go to an emergency room here if I need to and that's it"* (a male respondent – M4).

Communication partners (predominantly men) generally described an oppressive approach on the part of doctors and other healthcare professionals, as well as society as a whole, as follows: *"I'll tell you what. When one is in trouble, collecting welfare benefits, then some doctors behave terribly. You're nothing but welfare trash for them, and that's horrible"* (a male respondent – V6). *"It seems to me that they think that there's nothing wrong with you and you just simulate some illness"* (a male respondent – M4). Homeless women and men have different perceptions when it comes to the concept of health and their approaches to healthcare.

It was women who talked more often about "psychological problems," particularly in the form of depression and anxiety, with women's mental health being associated with the past experience of domestic violence. *"I don't even know how I plucked up my courage at that moment, but I just ran off to the police station and spoke up about it all"* (a female respondent – H5). *"You can't even imagine that. I wasn't even able to wash myself, comb my hair or get dressed in the morning...that's how terribly I was feeling"* (a female respondent – VM4). Communication partners have associated their poor mental health with their "failure" in the role of a parent. *"I then had such a depression that my kids were taken away from me ... I wasn't able to look after them ... there was nothing I could do ... that they took my kids away made it even worse though"* (a female respondent – H5).

Men also mentioned some psychological problems, but it was mostly in the case that they had already been diagnosed with a psychiatric illness by physicians and somehow became aware of it. *"I've had different psychological problems ... I've always had some sort of depression where I felt like I didn't care about anything and just wanted to be somewhere alone. So I walked a lot, and didn't even eat. Life didn't matter to me"* (a male respondent – V4). *"I mentally hit rock bottom ... I got divorced... then when you lose your job...it also makes you depressed...then you have no money to purchase what you need and to live on. Then you start receiving some welfare benefits and that's not enough for you...it knocks you down on your knees"* (a male respondent – V5). It can be concluded that psychological problems occur in both homeless men and women residing in shelters, however, men are less often willing to verbalize them. In relation to male mental health problems, transcendence of "gender stereotypes" such as "men do not want any psychological help", "men do not need to talk/they will not want to talk" appears to be fundamental and men should be continuously offered the psychological help and the opportunity to "have a talk." Male communication partners have evaluated this opportunity to be very beneficial and necessary. Again, in this context, it is important to realize that recognition of the need for psychological help is generally perceived as challenging; therefore, it needs to be offered sensibly and comprehensibly (taking into account the current mental state of the client).

The difference in perception of the homeless shelter by men seemed an interesting fact. Women perceived shelters rather as an adverse environment for raising children as well as an environment which may be somewhat threatening to children. The men mostly talked about the need to get used to the shelter and its regime (including the setting of rules and the system of co-housing). *"It's not good for raising children and their poor health reflects it"* (a female respondent – VM1). *"No, not at all ... the kids' behaviour has become progressively worse here ... plus I'm constantly worried about them here"* (a female respondent – H4).

DISCUSSION AND IMPLICATIONS FOR PRACTICE AND EDUCATION IN SOCIAL WORK

Our research results are one of the examples which demonstrate that the needs and problems of social work clients are influenced by their gender. It's not just social work with the homeless, but social work in general that has a distinct gender dimension. It is strange that although we regularly deal with gender aspects of social work in practice, it is not often reflected in the education of social workers. Gender perspective is only exceptionally a subject of interest in Czech social work. Educators in social work and everyday practice continue to remain

insensitive toward gender inequalities (Janebová, 2008). Teaching about gender issues is not included in the Minimum Standards of Education in Social Work, there is only marginal mention in the part of sociology and psychology (ASVSP, 2012), and discussion on this topic is not a regular part of the curriculum. It can be deduced that students are not being goal-directed prepared and trained for these gender-specific situations. If we examine the curricula, which future social workers follow to prepare for the profession of a social worker in the Czech Republic, we find that the study courses reflecting gender specifics of social work are only rarely found at higher professional schools and universities. The analyses of stereotypes in society about men and women and their influence on the practice of social work is necessary (Taylor, 1995; Scourfield, 2001; Kullberg, 2004; Daniel, Featherstone, Hooper, Scourfield, 2005; Hicks, S., 2015, etc.) and gender competence of social worker as well. The gender competence is taken as a key qualification that was promoted to become an important element of professionalism in social work (Böllert, Karsunky, 2008; Czollek, Perko, Weinbach, 2009; Abdul-Hussain, 2012) that can regularly be found in foreign literature. Foreign curricula of study fields reflect gender and include it either as a separate subject or attempt gender reflection within each study course (for example, social policy, theories and methods of social work or psychology and sociology, etc.), ideally combining the aforementioned strategies of introducing gender optics into education. Janebová (2008) states that in the professional discourse of Czech social work the social worker is described as neutral in terms of gender, representing an abstract gender-neutral work, and the profession itself presents itself as gender neutral.

One of the possible reasons for this gender blindness of Czech social work is that Czech social work does not reflect any modernizing tendencies (Chytil, 2007) and inclines toward so-called traditional social work, which, according to Bettinger (2005), functions in the context of the neoliberal and political regulation framework, which, for example, involves the criminalization and stigmatization of service addressees, seeks official definitions of problems, and converts structural factors into their individual deficits, creates and reproduces actual forms of social exclusion, and attributes the status of an object to clients. Matoušek and Pazlar (2010) point out that the problem of traditional social work is mainly the unconscious projection of personal standards and/or standards of reference groups of social workers into the evaluation of clients. In the 1990s, Czech social work has established itself as a "case work" that addresses the problems of people by trying to adapt them to often discriminatory requirements of society and does not focus on changing the social environment. Social workers thus exert pressure on clients to change themselves on an individual level, regardless of the fact that the causes of their problems can be structural (Janebová, 2013). If social workers are not familiar with the wider structural context that causes social problems, and transfer these problems to a purely individual level or are not sensitive enough to the discrimination and oppression of clients or else do not reflect their own stereotypes and prejudices, they apply traditional theoretical concepts to the unique situations of their clients, thus contributing to their marginalization and discrimination. The so-called critical social work, which emphasizes the critique and analysis of oppression based on class, race and gender, and whose goal is the overall social transformation to overcome oppression and injustice, is devoted to the subject of marginalization in the context of social work (Healy, 2001 in Janebová, Černá, 2008). In order for social workers to be able to possess a critical perspective, reflection and self-reflection, they must have certain professional prerequisites based on the so-called gender competence at their disposal, which is created on a personal, professional and structural level (Abdul-Hussain, 2012). Gender competence involves the interaction of perception, analysis, reflection and behaviour with reference to gender (Czollek, Perko, Weinbach, 2009). It includes four interrelated areas. These include social competence (knowledge of the specifics of social problems of men and women, the ability to work not only with men and women, but also with transsexuals and intersexuals and the ability to solve their mutually problematic relationships), individual competence (e.g. reflecting 'doing gender'⁹, the ability to practice 'undoing gender'¹⁰), a professional competence (knowledge of gender equality data and facts, knowledge of gender constructions and stereotypes) and finally a methodological competence (knowledge of gender mainstreaming or gender-based counselling). These skills and competences are crucial for social workers since they work with a diverse clientele in a diverse society. Gender competence can help them identify and cope with the mechanisms of oppression and social exclusion. This should lead to anti-oppressive and more gender-sensitive social work.

In relation to the oppressive tendencies of some physicians, and within the framework of recommendations resulting from the research that can be implemented in social work, it could be possible to include a doctor's visit to a homeless shelter who has some experience with a given target group. Accompaniment to healthcare facilities or the so-called peer accompaniment to healthcare services is also perceived as supportive in this context. An important tool in relation to the public that helps address perceived oppression is the dissemination of the narrative and the knowledge of the multi-causal conditionality of the situation of the homeless as well as the promotion of a non-blaming attitude toward homeless people. This is the area where the researchers perceive the room and potential for social work, which can spread an anti-oppressive and gender-sensitive approach in cooperation with partner organizations and facilities. In addition, a competent social worker is able to adequately

reflect the context of the client's situation and apply the values of social work that are set out in the IFSW definition.

CONCLUSION

The phenomenon of homelessness and gender specifics call for the need to strengthen gender-sensitive approaches in services for homeless people. Using the example of the health research of the homeless shelter population, the researchers have attempted to demonstrate how deeply social work is connected with gender relations. Healthcare and the attitude to healthcare by the homeless shelter population has its gender specifics, which social workers in their role of counsellors and confidants of this community of people should reflect in their work. Despite these facts, gender aspects of social work are not reflected in the learning curricula of future social workers.

If the services for homeless people are to be accessible to them and copy their needs, they must be provided in a gender-sensitive manner, which should also be reflected in research, education, service delivery models and in wider social, health, education and economic policies. In a certain sense, this is a simplification because there are significant similarities in the health needs of homeless men and women as well as great differences between different groups of homeless women and different groups of homeless men. However, this does not mean that issues of maleness and femaleness are not important.

The issue of homeless access to health and social services should therefore be systemically addressed and should be based on the needs of the target population.

In particular, in women, homelessness is accompanied by threats and stigmatization that lead to the concealment and non-use of both health and social care services. The way out of the current situation is the transformation of existing masculinised universal services toward gender sensitivity. The researchers believe that one of the ways to transform services is competent personnel who are aware of the gender specifics of the homeless situation and are able to reflect both their own and other people's gender prejudices and stereotypes.

On the basis of the above findings, the researchers intend to prepare a project for the innovation and internationalization of existing study programmes at the Faculty of Social Studies of the University of Ostrava in 2018 at the level of study subjects by introducing a gender perspective into teaching as well as by enhancing the practical aspects of education through the teaching of such subjects by experts from abroad.

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The Importance of International Distance Learning for the Development of Intercultural Communication

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ABSTRACT

Dazzling developments in communication technologies, increase in speed almost everywhere, disappearance of distances among people and the innovations in information technologies have also reverberated in education. Needless to say, today it is possible to have education anytime and anywhere, notwithstanding the probable limitations of time and space. In this sense, distance teaching offers students an opportunity to have education anywhere and anytime via the internet and it has already been a dynamic, effective and interactive method to provide education. Apart from the education models, such as distance teaching, e-education, e-school, prevalence of new education technologies including e-library, e-journals, smart boards, multimedia devices etc. have brought a new dimension to learning and teaching strategies.

As the information sources in global education system are continuously accessible, there is no need to limit education into certain periods of time. Introduction of the distance teaching programmes in international dimension in addition to those provided in national scale enables students to come together with individuals from different cultures and have the opportunity to look at things through their perspectives as well. This point is quite important with respect to current educational opportunities. In fact, education is one of the most important factors for the development of intercultural communication which has both interactive and interpersonal characteristics. While studying the communication of individuals with the members of different cultures, it is imperative to understand the difference in cultural codes. This approach initially necessitates examining the cultures taking part in a respective process separately. Efficiency of intercultural communication depends on the coding of the messages with respect to the intention of the sender as well as the comprehension of the receiver that the message perceived is the product of a different coding system. At this point, in order to enable the individuals from different cultures to understand each other and express themselves, education appears as a significant means. International distance teaching programmes not only facilitate this function, but also require students to coordinate and co-operate. Being one of the vital elements of socialisation process, education is the area where individuals gain the ability to evaluate themselves as well as others and decide as a result of these evaluations. Therefore, group work is given special importance in virtual classroom activities. Here, the aim is to provide opportunities for the students to express themselves, develop persuasion abilities, balance their motivational and emotive affections as well as produce common ideas with the others.

The purpose of this study is to evaluate the effect of international distance teaching programmes on how students from different cultures realize themselves in group interactions, possess due knowledge technically and institutionally, make ethical decisions for their actions and come into contact with different cultures through a sample project.

Keywords: *Intercultural communication, distance learning, students and lecturers' roles.*

INTRODUCTION

It is an undeniable fact that stunning developments in communication technologies, skyrocketing increase in speed almost everywhere, disappearance of distances among people and the innovations in information technologies have produced significant consequences in the field of education as well. It is quite obvious that today it is possible to have education anytime and anywhere, notwithstanding the probable limitations of time and space. In this sense, distance teaching offers students an opportunity to have education anywhere and anytime via the internet and it has already been a dynamic, effective and interactive method to provide education. As discussed by Scovotti and Spiller (2011), globalization has filled the requirement for joint effort over considerable geological separations, provoking organizations to receive innovations that encourage correspondence and continuous communication among a conveyed and assorted workforce.

In this sense, The Internet has given the likelihood to eradicate geographic and relational limits among individuals of differing foundations, has made open doors for broad electronic conveyance of news, data, and educational programs, and has changed the way we impart, share learning, convey training, and lead business.

As Web-based learning groups and online school organization extends exponentially grow all around, powerful intercultural correspondence and coordinated effort is of fundamental noteworthiness. Electronic direction gives chances to a different people to connect. So as to suit singular student's needs while upgrading their qualities and gifts, Confucius stated, guideline ought to be custom fitted to address singular student's issues. While educators are tested to comprehend and be delicate to the requirements of students in their plan and usage of Web-based courses, students' development pivots not just on their readiness, disposition, and dedication to accomplish shared objectives in an ocean of data, yet in addition on how they handle the difficulties of merging kindred learning group individuals' numerous perspectives, points of view, and methodologies (Wang, 2001).

The effect of regularly expanding quantities of online courses has been observed in educational modules arranged with respect to the principles of globalization, variety, and multiculturalism. As Rutherford and Kerr (2008) indicate, as a consequence of internationalization and globalization of instruction along with the requirements for well-educated and trained workforce, numerous universities have felt the necessity to offer more flexible programmes designed with regard to contemporary educational and communication technologies. Thus, teachers are getting to be noticeably mindful of the significance of the concepts of multiculturalism and interculturalism. At this point; however, some questions arise; "how do we integrate and address this multicultural dimension in a distance education course aimed at students who live in diverse cultural environments? How do the challenges of intercultural communication in an online environment affect online teaching and learning? What are the characteristics of an online course that is inclusive of all types of diversity, and what are the guiding principles for designing such courses?" (ibid. p. 64). Distance learning is one of the quickest developing areas of instruction (Moore and Tait, 2002 qtd in Rutherford and Kerr, 2008) and advancements in software engineering as well as the innovations in data processing and communication have impelled this development. The effect of consistently expanding quantities of online courses has denoted that the thoughts of assorted variety, multiculturalism and globalization are presently key parts of educational programs.

DISCUSSION

It is quite obvious that the way and the instructive framework in which we learn are socially characterized. This is the reason why it is frequently hard to send out instructive frameworks and approaches to different nations that do not have similar values and principles (Hall, 1990). Hence, it seems quite probable to interpret that the level of acknowledgment and use of online courses is enormously affected by students' social, individual, "organizational, professional and discipline-based culture" (Rutherford and Kerr 2008: 68).

In an analysis of the effect of social factors on the conduct of studies in an online course, Morse (2003: 42-43) distinguished components that separate high-context and low context cultures.

Low context learning	High context learning
Emphasis on learning outcomes (students as contributors to exploration and/or development): student centred learning, active learning	Emphasis on teaching inputs (students as recipients and reproducers of material): All materials provided in class Rigid parameters set in course syllabi Identical syllabi for all students
Emphasis on attitudinally based "deep" learning: Development of personal skills, and attitudes toward lifelong learning	Content and knowledge based learning: Little emphasis on personal, transferable skills "diligence overcomes stupidity" = hard work
Wide variety of learning tools and assessment instruments: Assessment as feedback instrument Wide range of assessment/feedback tools (i.e. group assessment, teamwork, evaluation, etc.)	Individual and examination-based assessment: Frequent, regular, highly content specific assessment: Assessment is focus of learning Assessment identical for all
Informal lecturer/student relationships: Teacher as guide/facilitator/mentor in learning process Inherent informality of frequent one-on-one contact Intergenerational differences evident	Formal lecturer/student relationships: student performance dependent on teacher knowledge Address by title as a measure of respect (first name a sign of disrespect) Non-confrontational: accept teacher knowledge without question (avoid loss of face) Inherent wisdom in male and/or older persons dominates learning
High student numbers/high contact time: Efficient use of teaching resources sought	Small group sizes/low contact time: Deep teacher/student relationship sought

In a web based learning setting, students from a high-context culture will expect a specific level of convention and exact guidelines, for instance, to scan the webpage for extra assets that the teacher would then fuse into the course content. Conversely, students from a low-context-culture would most likely adjust all the more effortlessly to a casual style of online collaboration and have no issue investigating a few data sources and reports on the Web to supplement course content on their own. Members of an online multicultural group need to grow, more than semantic capability and exactness to transmit one's way of life, solid intercultural open aptitudes to arrange a developing cyberculture (Rutherford and Kerr, 2008:71)

Various staff inclusion in internationaldistance learning instruction gives benefits parallel to some brought in by Edwards, Cordray, and Dorbolo (2000) in regard to conventional classrooms: (1) the requirement for instructional lucidity and intelligibility, (2) the rise of an energetic virtual learning group, (3) the chance to watch and consider classroom flow from a crisp online viewpoint, and 4) the excitement of gaining from both personnel accomplices and understudies from an alternate culture.

Byram (2000) discusses that creating intercultural capability would mean building up a state of mind of interest and transparency, securing learning of societal and individual collaboration, and creating aptitudes to and basically translate new social information.

Rutherford and Kerr (2008) focus on three key instructional outline models for socially comprehensive learning:

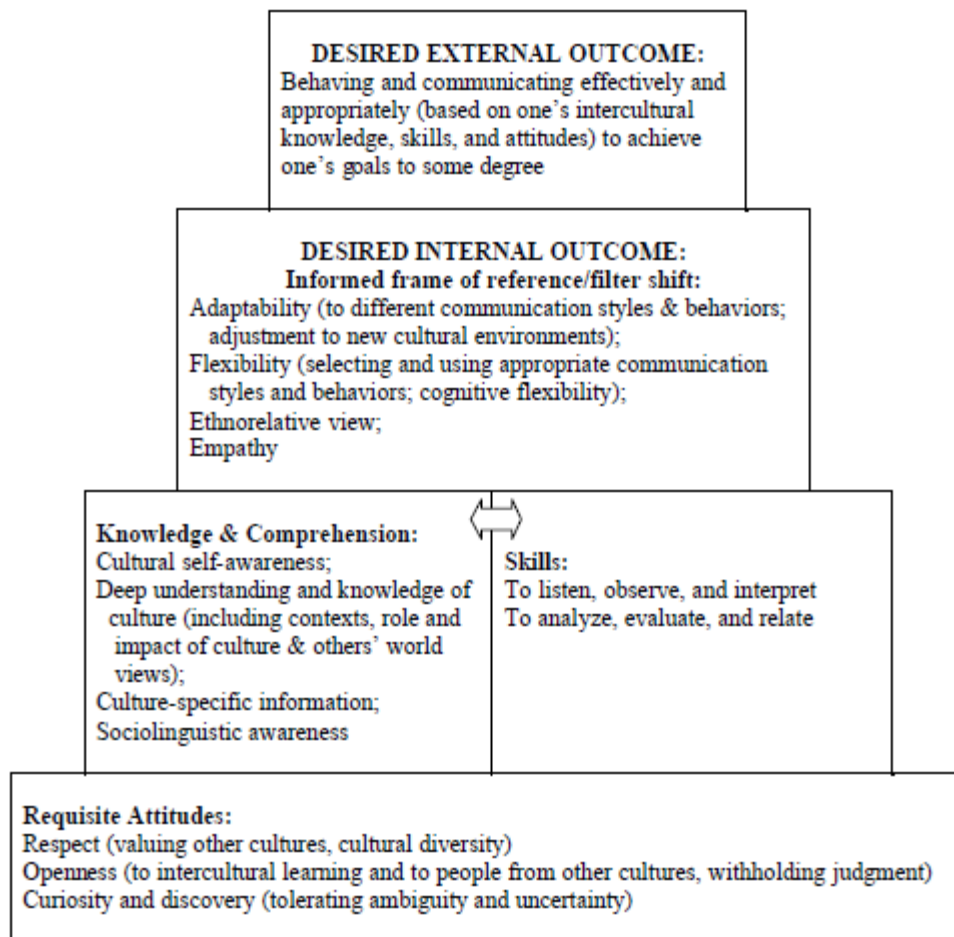
1. The Multidimensional Model of Collis, Vingerhoets and Moonen, which goes past course substance and considers the various factors inside a learning domain that express socially particular esteems, (for example, the determination of the LMS, the language(s) utilized as a part of the course, and the social association of the course),
2. Seufert's Cubic Model, which proposes a three-dimensional model of contemplations, including the adaptability and assortment of innovation, the straightforwardness in the selection of devices, and a consciousness of multicultural setting and social contrasts, and
3. Henderson's Multiple Cultures Model, which perceives the impact of scholastic culture, the predominant culture, and the minority culture of the instructing and learning condition (pp. 75-77).

A contextual analysis conducted by Cifuentes (et. al. 1998) concentrates on the effects of cooperative exercises between two instructors and their understudies. We investigated the viability of separation learning for teenagers in advancing: 1) confidence, 2) accomplishment, and 3) multicultural comprehension. In Cultural Connections, different understudies crosswise over Texas worked together on multicultural exercises which helped them develop in confidence, accomplishment, and multicultural comprehension. This venture shows that in arranged classrooms students can interface with far off others to find out about and from their points of view and to build their multicultural understandings. Likewise, advancements can cultivate group instructing crosswise over cultures and distances.

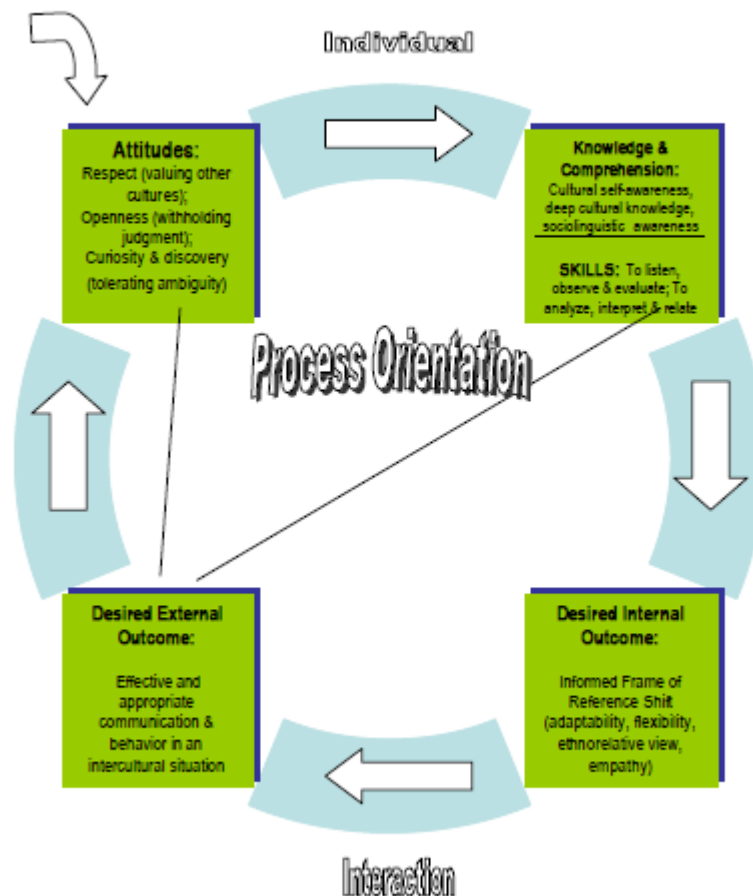
The Multidimensional Model introduced by Collis, Vingerhoets And Moonen (1997) indicates that the educational approach and innovation of an online course ought to expect clients' decisions from among various factors that express socially particular esteems. This implies all frameworks, from the beginning of the plan procedure, must coordinate this idea of adaptability. Collis, Vingerhoets and Moonen (1997) recognized seven measurements of a course where the thought of adaptability can be connected, and where the understudy in a separation learning circumstance could settle on a decision. These seven measurements include:

- > social organization of the course
- > selection of course content, progression, and learning activities
- > selection of course materials
- > selection of a mode of interaction in the course
- > selection of the technological platform supporting the course
- > language(s) used in the course, and;
- > the conditions under which the course is given (entirely distance or a hybrid approach)

Furthermore, Pyramid Model of Intercultural Competence put forth by Deardorff (2006, 2009) suggest moving from personal level (attitude) to interpersonal/interactive level (outcomes) and the “degree of intercultural competence depends on acquired degree of underlying elements”



Process Model of Intercultural Competence (Deardorff, 2006, 2009):

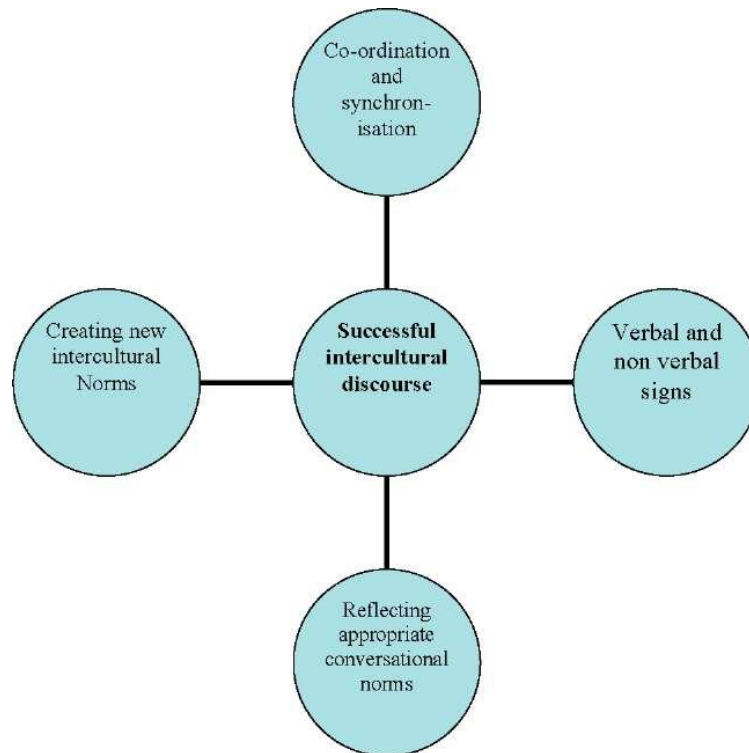


According to Byram (1999) “Cross-cultural” competence has several aspects:

- (1) Relational-Building and Maintenance Competence: Competence associated with the establishment and maintenance of positive relationships.
- (2) Information-Transfer Competence: Competence associated with the transmission of information with minimum loss and distortion.
- (3) Compliance-Gaining Competence: Competence associated with persuasion and securing an appropriate level of compliance and/or co-operation.
- (4) The origins of this model in studies of business people working on projects in other countries are perhaps betrayed in the third competence particularly (pp. 14-15).

Moreover, a model introduced by Little, Titarenko and Bergelson (2005) aims to create an international Web-based distance-learning classroom that can be used as a guide for those who might wish to pursue similar endeavors. Their experiences provide “the basis for identifying the conditions and practices that optimize the goals of providing a forum for international education and enhancing reading and writing skills. A content analysis of the online Student-Led Discussions provides evidence that cross-national knowledge and understanding can be enhanced in this learning environment”

Depicting clearly the important factors in shaping a successful intercultural discourse, Dolabati (2010) has designed the following figure and mentioned that it is critical to discover how informative virtual situations and their particular qualities may influence “the kind and amount of language contact should take into account and (b) the kind of on-line community and (c) communicative genre (i.e. single-authored genres such as personal home pages vs. interactive genres such as chats or forums)” (Androutsopoulos, 2005: 14 qtd. In Dolabati, 2010). Hence, a virtual learning condition is viewed as the place in which there are both psychological and full of feeling challenges.



An article written by Prieto-Arranz, Juan-Garau and Jacob (2013) demonstrates that cultivating dynamic reflection on national personality talks may prompt the acknowledgment of the developed ('envisioned') nature of national groups. What this article at long last recommends is that the EIL classroom, by cultivating such transnational 'third spaces' joined with a reasonable transcultural approach, may well give a little yet important commitment to the general development of another era of very much educated, multilingual, basic people. In this way, the members' enthusiasm for philanthropic issues and their relationship with current world social and financial issues can be viewed as a venturing stone towards a conceivable structure for the improvement of basic transcultural mindfulness, which is seen as fundamental in fruitful universal correspondence.

Online specialized instruments and the resultant dependence on translations and suspicions, viable correspondence among students of various foundations is exceptionally testing. A couple of cases of Web outline that might be interested in social elucidation include: different desires for correspondence (a few students may expect day by day correspondence from others in the group while others are not acclimated to imparting on the web), the sum and sort of data wanted and required (a few students may expect unequivocal data while other people who are usual to certain articulation don't feel good being immediate), correspondence styles and inclinations (some like to alternate, some get a kick out of the chance to form a hasty opinion, while others get a kick out of the chance to sit tight for signals), level of errand introduction (some are assignment driven high achievers while others take a laid-back position), variety in understandings (some are from the way of life where the course is arranged while others may arrange in a totally unique culture), assemble introductions (some lean toward and have encounter working in gatherings while others favor rivalry as opposed to joint effort), and gathering flow, that is, a few societies may seek a pioneer for heading while others work better when there is no single pioneer in the gathering (Wang, 2001).

Instead of up close and personal settings where communicators are perceived as human, in the Web condition, individuals are frequently externalized and generally perceived by name. Instead of vis-à-vis settings that are directed normally, in the Web condition, there is generally a 45 seconds time slack amongst occasion and communicate, rather than up close and personal settings where it is conceivable to drag a man aside and whisper in security, in online visit, this is impractical on the grounds that everybody has a similar space. Rather than eye to eye settings where communicators can pick their concentration of consideration (or obliviousness), in the video-conferencing condition, the camera setting manages watchers' consideration.

Cajander Daniels and McDermott (2012) has analysed the links between "the *contributing student pedagogy* and other forms of peer-mediated learning models, e.g. *open-ended group projects* and *communities of practice*" (p. 319). They find that a central worry in each of these models is the attribution of significant worth; particularly, acknowledgment of the benefit of discovering that is empowered by peer association, and the route in which esteem is made and evaluated inside a learning group. Esteem is additionally key to hypotheses of intercultural

skill. They look at the part that the idea of significant worth plays in the improvement cycle of intercultural fitness and relate it to its capacity in peer-interceded learning models. They additionally contend that components of social learning hypothesis, chiefly late work on esteem creation in groups of training, are extremely pertinent to the development and evaluation of the kind of exercises proposed inside the contributing understudy instructional method. They hypothetical investigation is arranged inside the setting of an all-around appropriated open-finished gathering venture course unit and our decisions are outlined with reference to understudy hone in this condition.

The authors firstly conclude that the idea of a contributing understudy instructional method is a helpful one for giving a system in which to talk about issues concerning peer-intervened learning and the acknowledgment and formation of significant worth in a learning group. The connections between the improvement of intercultural fitness and the contributing understudy teaching method learning cycle appear to us to be very certain, and this ought to empower thought of whether a greater amount of the hypothesis produced for the investigation of intercultural capability could gainfully be connected to the new instructional method. Secondly, they have found out that the hypothesis of open-finished gathering ventures normally lines up with that of contributing understudy instructional method at both the hypothetical and operational level. As far as the hypothesis, there seems, by all accounts, to be a solid association between their utilization of essential formational ideas, for example, dynamic joint effort, tending to valid, complex issues, re-examination of the connection amongst educator and understudy and the empowering utilization of innovation. In down to earth terms, at the level obviously improvement, the contributing understudy teaching method idea has been important to us concerning thinking about the following activity examine cycle in the advancement of the IT in Society course unit.

Byram (1997) discusses that the evaluation of a person's capacity to convey and interface crosswise over social limits is encouraged by an itemized depiction of the procedure included and meaning of what is anticipated from the person. It is vital to recollect that their points and reasons for existing are resolved to a limited extent by the societal settings in which they get themselves—national, universal and intra-national and by the distractions of foundations, which mirror those of the social orders in which they work.

Gudykunst (2004) offers seven *community building principles*:

“Principle 1: Be Committed. We must be committed to the principle of building community in our lives. Commitment to strangers is a prerequisite for community to exist.

Principle 2: Be Mindful. We must pay attention to what we do and say. When we communicate with strangers, we need to pay attention to the process of communication that is occurring between us and them rather than worrying about the outcome of our interactions.

Principle 3: Be Unconditionally Accepting. For community to develop, we must accept strangers as they are, and not try to change or control them

Principle 4: Be Concerned for Both Ourselves and Others. Communities are inclusive; they are not groups of like-minded people.

Principle 5: Be Understanding. We need to understand strangers as completely as possible.

Principle 6: Be Ethical. We must engage in behavior that is not a means to an end, but behavior which is morally right in and of itself

Principle 7: Be Peaceful. We need to work toward developing peace in all of our thoughts, words, and actions. If peace is the goal of our interactions with strangers, our communication with strangers will be effective” (pp. 370-372).

We believe that these principles can effectively be used in the design and implementation of distance teaching programmes.

A Sample Project

The Following Project, Namely International E-Learning As An Emerging Cultural Diplomacy Practice, Was Conducted By Prof.Dr. Ece Karadoğan Doruk, Prof. Dr. Seda Mengü, Prof.Dr. Emine Yavaşgel And Assoc. Prof Dr. Nilüfer Fatma Göksu From Istanbul University, Faculty Of Communication, Public Relations And Publicity Department.

Erasmus + supported project "e-profman" is an online training program that follows an applied curriculum on "Innovative Management, Leadership and Strategic Communication". (www.e-profman.eu). Outside of us, Macedonia's "School of Journalism and Public Relations" and Slovenia's "Faculty of Business and Applied Studies" are partners in the program. The program is a three-year program

Background of the Project

The virtual aspects of alternate and complementary higher education learning environments respond to the needs of the knowledge-based economy for continuous acquisition of new competences and skills to maintain high quality of productivity and efficiency. Teacher-directed learning is shifting to student-directed lifelong learning,

whereby learning is undertaken anytime and anywhere. Lifelong learning encompasses professional learners who need to improve existing qualifications for current developments in their respective fields and those who wish to find new interests and add to their portfolio of skills. The dominant "problem-solved" approach in self-directed learning enables learners to articulate their own challenges, design their problem-solving strategies within a particular time frame, explore and synthesize resources for solving problems and provide solutions through discussion of the implications. The most suitable vehicle for acquiring knowledge and skills throughout life is online learning. Online learning includes Internet and computer-based learning, virtual classrooms and digital collaboration, and provides learners with a flexible and personalized way to learn and use a broad range of resources.

In their efforts to enhance the quality of online learning, higher education institutions (HEIs), especially from different countries, establish partnerships by creating virtual campuses. This way, online learning facilitates the international dimension of educational programs, and promotes transnational cooperation and sharing of expertise and human resources. Curricula jointly developed on virtual campuses are based on online and/or blended learning that offer interactive, multilingual and cost-efficient education by utilizing cutting-edge information-communication technologies (ICT). ICT supported learning environments provide virtual mobility that includes cross-border cooperation among learners from different backgrounds, and various cultures learning and working together. Virtual mobility also offers possibilities for learning schemes in foreign countries, international experience and intercultural understanding for lifelong learners, particularly for those who have significant professional, social or economic constraints

Description of the Project

The project established a virtual campus of three HEIs from Macedonia, Slovenia and Turkey that will develop and implement a joint online program for professional development in innovative management, leadership and strategic communication. Within the one-year programme, young working practitioners and bachelor students with no previous professional work experience will master leadership, business and communication skills for management positions in a competitive transnational business environment.

The European Communication Monitor 2014 survey (www.communicationmonitor.eu) reports that one of the most significant challenges for communication management within the next 3 years will be the merging of communication and business strategies in order to become a valuable part of the decision-making process and strategic management of an organization. Interviewed professionals stated that top priorities for strategic communication will be coping with the digital evolution and the social web, building and maintaining trust, and dealing with sustainable development and social responsibility. Mobile communication will see the strongest rise in the near future. Online communication, face-to-face communication and media relations addressing online media will be close behind.

One of the overriding findings from the ECM 2014 survey is that communication professionals in Europe enjoy a stimulating job. Interviewees said that the 3 most important factors for career development and obtaining their current work position are further education on or off the job and networking among peers and colleagues. For young employees, the most significant factor was having work experience or an internship prior to employment, as well as proper mentoring. On the other hand, only 1/3 of the interviewees see valuable opportunities in their personal career.

The need to enable adults to life-long learning is emphasized in the renewed 2011 European agenda for adult learning that is directly linked to priorities established in the Europe 2020 strategy. Additionally, according to the Adult Education Survey coordinated by the EUROSTAT, 61.3% of the adults who have completed tertiary education participate in lifelong learning. Employees are much more likely to participate in education and training than the unemployed or the economically inactive. Furthermore, people with occupations regarded as 'higher skills occupations' are much more likely to participate in education and training. Recent national policies in Macedonia, Slovenia and Turkey follow this tendency and include lifelong learning as one of the chief priorities. Moreover, policy documents and employment strategies, particularly those focused on young people, maintain that the absence of higher education often leads to unemployment issues.

"Opening up Education" (2013) stimulates HEIs to more open learning environments and innovative ways of teaching and learning through new technologies and digital content. The initiative proposes developing new business and educational models of curriculum development and OER in different languages.

This process is entirely applicable to professions like Management and Communication, which reflect the importance of globalization, entrepreneurship, and ICT in today's business environment. Young people should have a competitive edge in a rapidly changing transnational market. This encouraged the project's partner HEIs to offer a joint programme that would promote progressive pedagogical approaches, virtual mobility, intercultural cooperation and internationally recognized competences. The project will provide dissemination of teaching and learning innovations in three European countries; open and broad access to OER; and transnational networking through mutual recognition of knowledge and skills, fully in line with the Bologna credit-transfer system.

The project objectives are as follows:

1. Equipping the Programme's participants with appropriate skills and abilities in achieving competitive advantage and effective leadership behavior in a transnational corporate environment;
2. Providing interactive and flexible opportunities for students that exceed geographical, social and financial barriers by utilizing virtual classrooms and cutting-edge ICTs;
3. Providing newfound solutions and strategies through project-based and real-client courses and mentoring that students will apply in their workplaces and during organized internship in business and public sector;
4. Developing free online resources and learning materials relevant to the specific areas;
5. Acquiring international and intercultural experience via virtual mobility and establishing interaction and networking among highly-selective peers from other European countries;
6. Sharing of know-how and expertise between lecturers in developing online learning methods and courses;
7. Building connections between HEIs and business communities in the partner countries.

The Programme is designed to be completed in one year (January 2017 - January 2018) and it offers 8 online courses:

- From a Sparkle to Flame: The Power of Creation
 - Linking Business, Strategies and Communications
 - How to Make Things Work: Achieving Results
 - Think Like a Leader, Act Like a Leader: Leadership Reasoning
 - Creative Business Instincts
 - Future Trends in Corporate and Marketing Communication
 - Intercultural Communication
 - Using Research @ the Workplace
- and 3 blended learning activities:
- Students Camp
 - Job Shadowing
 - Final Seminar

Students will follow 5 online courses that will find most relevant to their professional interests. Also they will attend Students Camp and Final Seminar that support and follow up on the online classes.

The curriculum is practically-oriented and visibly tied to real-world experiences. The online courses incorporate service-learning opportunities that will allow students to engage in client-focused projects. Mentoring and the problem-based approach will provide students with new skills that can be implemented in their professional work. The teaching team is consisted of 18 lecturers with a long-established experience in lecturing. They are also researchers, analysts, consultants and most importantly, practitioners.

Online learning pedagogy and technology are utilized in the delivery of the curriculum that includes Internet and computer-based learning, virtual classroom and digital collaboration. It will provide participants from Macedonia, Slovenia and Turkey, particularly for those who are not mobile due to professional, social or economic constraints, to learn and work together from their homes or workplaces, using a broad range of online resources.

CONCLUSION

When we look at international student mobility in higher education, we see that the countries that are mostly selected by international students are the developed countries, and the countries where international students come from are the developing countries. The most important reason for this is that they want to close the lack of high-quality work force, which is the biggest minus of developing countries. However, emerging countries have recently begun to attract international students as a result of the breakthrough they have made in this sector. Because, the contribution of international students to a country in terms of economic, cultural, scientific and country prestige is important as long as it can not be denied. China and Malaysia moved early between these countries and found themselves in the forefront. International distance education programs are also seen to be more prevalent in developed countries.

Education plays an important role in the economic development of countries because of the externalities that it has created from the social point of view, as well as the special benefits it gives to the individuals. As the level of education of the individual increases, qualified labor stress is overcome and scientific and technological innovations gain momentum. As a result of the increased efficiency of the labor, the national income level is rapidly increasing, and the income generated is becoming fairer. The rate of return on education investments is higher than the rate of return on physical capital investments, as education in increasingly educated societies is more democratic, facilitates economic and political stability, and reduces crime rates. Educational expenditures accelerate economic development due to the increased return on investment spending in the long run.

(International Council of Higher Education and Education Report of Turkey, 2013, p.15) Therefore, it is necessary to increase the quality and quantity of distance education programs that are more cost-effective in developing countries.

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The Importance of Student's Skills Portfolio

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ABSTRACT

The dream of each student is to succeed in his studies and get his diploma, but he does not think about his skills portfolio which serves as a framework for self-assessment, career planning preparation. Most of the students ignore the importance of this element which is the passport to the world of work. It doesn't only summarize the best work but it also focuses on abilities in terms of a list of skills. The portfolio facilitates the search for job by giving clear directions to students to follow as it contains the most important guidelines which are: the personal project, the professional project, CV and letter of motivation, job interview, company culture and the intercultural management. In this study, 2nd year students participated in an assessment experiment and provided skills portfolio which is a kind of self-evaluation and an inventory of all their acquired knowledge. Their work indicated that they were motivated to learn about themselves and the workplace.

Keywords: Personal project, Professional project, CV, application letter, Job interview, company culture, Intercultural management.

INTRODUCTION

As students enter college, most do not imagine being responsible for their own learning. They believe that, somehow, teachers make them learn or, in some cases, prevent them from learning. Many even see assignments, required courses, and exams as obstacles to get around on the way to their ticket to the future—the degree. While there has been talk for many years about professors moving from “sage on the stage” to “guide on the side,” e-portfolios are developing as a teaching/learning context where this is likely to happen. The practices associated with e-portfolio—e.g., designing “authentic” assignments, using engaging and active pedagogy, periodic self-, peer- and teacher-formative assessments, and requiring students to reflect on their learning—help to move *both* professors and students into a teacher/learner relationship where “guiding” really works. Emphasis shifts from delivering content toward coaching and motivating students as they try to solve problems that are of genuine interest to disciplines, professions, or communities. While additional research will be completed on e-portfolios *per se*, there is already promise in the fact that good e-portfolio programs use a combination of practices already shown individually to be effective in helping students learn. (See, for example, research on such practices in Bransford, Brown, and Cocking [2000]).

Literature Review

Here are some quotes of some important authors that define portfolio. For instance [1] “It is a powerful visual tool that provides evidence of self-assessment, personal reflections, learning, growth and development and a comprehensive and complex overview of skills.”

According to Kimball portfolio [2] “seeks to encourage students to become dynamic participants in their own learning...students are not merely the users of the system; they are, or should be, the authors of it”.

Whereas, Yang defined portfolio as [3] “a compilation of students’ work, which documents their effort, progress and achievement in their learning, and their reflection on the materials negotiated for the portfolio”. [4] “A portfolio is a container of documents that provide evidence of someone’s knowledge, skills and/or disposition” [5] (Bird Barton & Collins Teacher Portfolios. Hall explained a portfolio as [6], “A professional portfolio is a collection of material, made by a professional [teacher], that records and reflects on, key events and processes in that professional’s [teacher’s] career”. According to Shulman, Wolf and Dietz, [7] “A teaching portfolio is defined as a structured collection of evidence of teacher’s work across the diverse context and over time and framed by deliberation and reflective writing”. Xu. [8] Therefore, portfolio development is not a short event but it is long process through continuous reflection by including different learning activities.

THE STUDY

Skills portfolio is a means of communication which helps students to communicate adequately and precisely about his competence, qualifications, skills, aptitude for planning and experience. It can also link learning to the world of work [9] Romova & Andrew examined the benefits for learners who work with portfolios as pedagogical tools. It helps students develop judgment, and even social responsibility. This skills portfolio is very important as it helps the student to launch new challenge; to rely on himself and discover his potentials;

thing that will help him to have access to the world of job and the workplace. The present study aims to show the impact of the realization of this portfolio on the future Engineer. The portfolio is a primordial tool for job search and interview. It helps him to introduce himself to others. It is a written document that can be considered as a self description and self evaluation. Hence the student has some personal data which will be later useful for his professional life. The skills portfolio will facilitate many tasks especially the ones related to job search and recruitment. The personal information that the student incorporates into his portfolio can greatly reflect his abilities as an individual as well as become a useful tool in marketing himself to employers,

Students generally use skills portfolios to collect their work, reflect upon strengths and weaknesses, and strive to improve their branding image. First of all the teacher makes a presentation of the skills portfolio and its different components

- A-Personal project
- B- Professional project
- C-CV and letter of motivation
- D-Job interview
- E-Company identity card
- F-Company culture
- G-Intercultural management

The first step: "The personal project". The student must think about himself in order to be aware of his strengths and weaknesses, his needs and his deep motivations, his MBTI profile and his organizational behavior. The student must know his "know-how" discover his Competence and his Communication skills; his ability to have an active listening. To what extent he is able to resist to change and stress. Is he able to adapt himself to team working and what about his attitude toward problem solving, his flexibility and adaptability to time management? Can he adopt Positive Attitude toward work pressure? What about his self-confidence. His know-how impact his behavior and his creativity and his way of communicating. To what extent he has willingness to learn and respect discipline and responsibility and also to have networking skills and Professional competences. [10] Gallagher" also maintains that reflection is a major component of portfolios as it helps students to learn from experience and practice, thereby helping them to bridge the theory practice gap." He says "through the reflective process students are able to identify gaps in knowledge and/or skills and competence, but also to reconfirm and document strengths, skills and knowledge".

The second step: "The professional project" it's the key for successful professional insertion. It pushes the student to analyze himself and to do a self-evaluation and evaluation of his environment and the workplace. Having a clear professional project helps to structure his CV and letter of motivation. It leads to a good job search and open new horizons. It must be SMART. The student elaborates a work which is a kind of introspection that can clarify his way. He has to highlight his personality; his motivation; aspirations and experience. The student must establish list of all the experience he has achieved during his training, summer job; curricular activities in his school of engineer and work done in associations.

The third step: "The CV and the application or motivation letter".

Well written and organized CV must pick up the attention of the recruiter and it's a key to a perfect job interview. The CV must contain Some components such as (personal details/date of birth, languages that student masters well and also refers to some activities that may highlight the student profile.

The application letter or the motivation letter must express clearly what the student would like to do, why he applies for this job, why did he choose this company. The motivation letter must reflect the personality of the student, his professional choice and his motivation. It has to be attractive enough to push the recruiter to invite the candidate for a job interview.

The job interview: The student has to follow three steps for having a successful job interview. (Before-During-after the interview).

Before: the student must do some prospection about the company ;to know the recruiter profile (consultant, DG ,chief of project; director of human resources etc...) the location of the company ,the working hours ,the turnover ,its culture etc ...Prepare himself to give the maximum of information and to be convincing in his arguments; in another word he must expect the unexpected.

During: The body language and eye contact are very important during the job interview. Also the non verbal language impacts the candidate behavior.

After: A week later or two the candidate must inquire about his acceptance or refusal and its reasons.

The fourth step: The company identity card: the student prepares the identity card of the company he has the intention to apply for. The identity card is the collection of all the information related to the company.

The fifth step: “The company culture». The student must be aware of the cultural dimensions of the company, the origin of the national and regional culture; the relationship between the employers.

The sixth step: “The intercultural management ». Cultural dimensions influences perceptions, interpretations and actions of people doing different works and tasks in a company. The ignorance of the cultural dimension can lead to some incidents, critical situations and cultural conflicts.

FINDINGS

After the realization of the student’s skills portfolio, the student has database which he can update each time he has realized a new task or he has got a new certificate.

Once the student’s skills portfolio is ready after five weeks of work; the department of communication and language at ENSIAS (Ecole Nationale Supérieure d’Informatique et d’Analyses des Systèmes) has established two techniques of evaluation. The first one is organizing “Professional coaching day” the aim of this event is to invite company directors, human resources responsible of different sectors and from socio-economic domains to participate either by giving presentation or public speech on specific topic or to participate to round tables .All these events are prepared and organized by the 2nd year students who are supervised by the teacher. We have also some professional recruiters; at this moment the student present his CV and letter of motivation and have some job simulations.

The second step of the evaluation of the student’s portfolio is done by the communication teachers (English and French) .The student is expected to have an oral presentation(10 mn) about his portfolio and then answer questions about his personal and professional skills .[11]

“During the process of preparing an assessment portfolio, learning is enhanced as students are encouraged to reflect on their experience, identify learning needs and initiate further learning” (Harris, Dolan, & Fairbairn). This experience is a new pedagogical technique in coaching students and guiding them toward the workplace with well organized document which is the skills portfolio. But it wasn’t successful 100%The skills portfolio. We had three categories of students:

The first category which represents 85% of the students who adhere to the realization of this portfolio and were willing to achieve the target aim and also participate to the organization of “the professional coaching day». The evaluation of their work was successful. They responded eagerly to the achievement of this task which helped them to analyze themselves and their behavior through self inquiry and self prospection. This work helped and prepared them for different kinds of job interviews .At that level the student is aware that his skills portfolio will allow him to be more personal and creative in order to exhibit his skills ,experience, knowledge and projects. The second category which represents 10% of the students who prepared their portfolio but didn’t come to make the presentation of their work and didn’t participate to the “ professional coaching day». The third category which represents 5% of the students who neither wrote the student’s skills portfolio nor attended the “ professional coaching day». The problem of this last category (5%) is that these students have personal problems such as lack of self-confidence, stage -fright (public speaking) and procrastination. So teachers and coaches have to supervise those students and coach them in order to overcome such weaknesses and to regain self-confidence, self- esteem and self confirmation.

CONCLUSION

The elaboration of the student’s skills portfolio is a primordial task as it reflects a positive image of the student and it lets him identify his strengths and areas of improvement it reinforces its application letter and figures out his 3 K (Knowledge ,Know-how ,Know to be). It s also a good tool for teachers to detect students who are in difficulties and help them to overcome some personal difficulties and prepare them for the workplace.

This experience was conducted with 2nd year students of school of computer science engineers, it can be extended at the level of the faculties and schools of the university in Rabat (Morocco). The students’ feedback

was positive and they were satisfied with their skills portfolio .Teachers and academicians in order to narrow the bridge between the working life and the educational system can create partnership with companies .So the company can benefit as it will recruit the adequate profile in the adequate job.

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The Indonesian vocational Students' Understanding on Educational Activities Center Toward Characteristic of User Location Accessibilities

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ABSTRACT

The utilizing of parking requires an efficiency and effectiveness in its application in accordance with the characteristics of parking users especially for Indonesian vocational students. Furthermore activities center located in big cities will be faced with fulfillment to a very large parking location requirement whereas the commercial value at that land location is more expensive because it is located in the city centers. A case study has already implemented to collect the data about parking users for educational students. An activities center based on Non-commercial institutions located in the city center will increasingly difficult in providing parking space because the characteristics of its users are not a commercial rate users. Educational institute in the higher education requires the supplying of large parking lots because of these institutions user almost all use private vehicles due to the unavailability of special mass transport at that institution. For making parking lots using efficiently that appropriate the users' characteristics at educational institutions that have more than 10 hours of operational activity requires an efficient management system based on effective service time. It can be concluded that the problems caused by ineffective and inefficient parking system can be solved based on the application of understanding in accordance with good accessibility characteristic at the education activities center location.

Key word : Indonesia vocational students' understanding, Activities center, Characteristic users

INTRODUCTION

The increasing number of SMK students in Indonesia, especially in big cities, is increasing in line with global competition in improving education quality and competitiveness. Schools or educational institutions located in major cities have significant increases in student quantity annually. Large student expansion requires educational facilities and supporting facilities that support a scientific and educational education culture. Students of vocational education in Indonesia have a high increase in line with the needs of large vocational workers. Schools and Educational Institutions located in dense commercial areas and high land use require the development and understanding of users of the condition of the built parking system. The location of the parking is one of the most important facilities and the need for educational institutions in big cities that require placement and availability of sufficient land. Urban transport systems that do not allocate special transportation modes to school students encourage students to leave school by private vehicle. The available area of the park should be able to accommodate the parking needs of the activity system of the school or non-commercial institution. Efficient and effective parking systems require parking operational methods and forms to accommodate parking users in accordance with the service system's timing. Determination of the required unit of parking space requires proper identification according to user characteristics. The characteristics of parker users in educational institutions or schools especially those located in big cities require an understanding for the use of school support facilities to improve the ease of activity in school well and orderly. The parking area requires estimates and parker methods calculated based on the volume of parking users. And the order and efficiency of the parking is based on the parking user's understanding of the location and the accessibility to which parked vehicles are placed. The application of understanding of vocational students in Indonesia to the accessibility of the central location of activities in accordance with the characteristics of the users requires the development of techniques to improve efficiency in land use in Non-commercial institutions in Capital town.

THE STUDY

Parking is a condition not a vehicle that is temporary, being stopped is a temporary state of a vehicle for a while with the driver not leaving his vehicle.

Parking Characteristics

Parking characteristics include:

1. Volume

Parking volume is the number of vehicles using the parking facility at a time

2. Parking Capacity

Parking capacity is the number of vehicles that can be accommodated maximally in a parking facility at a certain time

3. Parking Accumulation

Parking accumulation is the number of parking vehicles prior to the survey plus the number of vehicles entering minus the number of vehicles out at the same time period.

4. Parking Length

Parking Duration is the time span of a vehicle's vehicle somewhere in one unit of time

5. Parking Usage Level

The rate of parking usage is the rate of use of one parking space obtained by dividing the number of parking vehicles by parking area / parking lot number for a certain period

6. Parking Index

Parking index is the percentage of the number of parking vehicles occupying the parking area. This characteristic is one way to know the level of parking requirement

7. Parking Availability

The availability of parking is the multiplication of the number of parking lots provided with the parking time divided by the average parking duration.

8. Parking Requirement

Parking requirements can be calculated using the formula of dividing the number of vehicles parking with the value of parking turn over ((number of vehicles) / (available parking space))

Determination of Parking Space Units (SRP)

The determination of parking spaces units (SRP) is divided into three kinds of vehicles and based on the determination of SRP for passenger cars are classified into three classes. As in Table 1

Table 1 Determination of Parking Space Units (SRP)

Category	Parking Space Unit (m ²)
1. a. Car passenger Type I	2,30 x 5,00
b. Car passenger Type II	2,50 x 5,00
c. Car passenger Type III	3,00 x 5,00
2. Bus/truck	3,40 x 12,50
3. Motorcycle	0,75 x 2,00

(source : parking planning and operating guidelines.1998)

Pattern Parking

The implemented parking pattern is in accordance with existing conditions in accordance with the needs of the system activity and space capacity. There are several parking patterns that have developed both in big cities and in small towns. The developed parking pattern is as follows:[3,5,6]

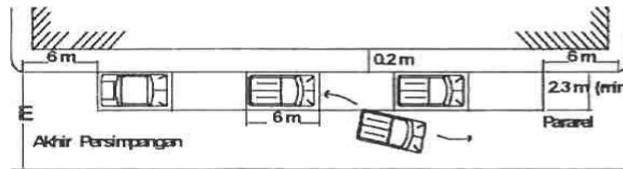
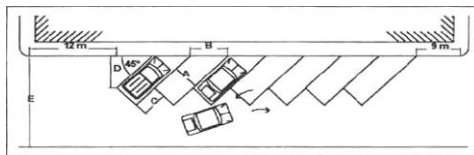


Figure 1 Parallel parking arrangements

Angle = 45°



Angle = 90°

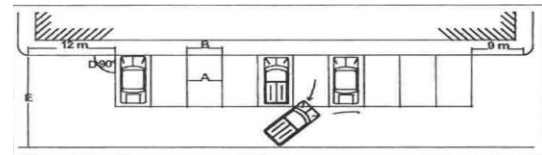


Figure 2 The parking procedure forms of the angle 45° and 90°

Existing parking conditions at campus area with parking area 329,90 m²



Figure 4 Existing off street parking I

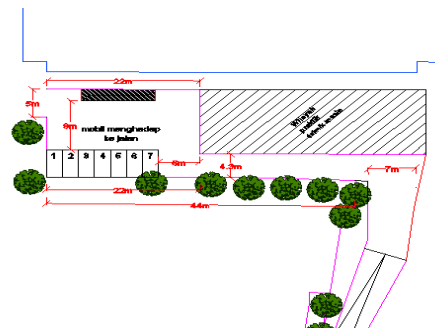


Figure 5. Design of parking zone I

The parking location I conditions are parking plans with :

1. SRP four-group wheel I is 2.3 m x 5 m

2. Parking in area 1 is Off Street Parking parking or off-street parking
 3. Pattern parking
 4. According to parking angle 90^0 with the provision of effective space maneuver of 6.2 m, “Warning”
- With the factors above the area 1 is only able to accommodate the parking needs of 7 vehicles.
Existing parking conditions at campus area with parking area Area 950,85 m²



Figure 6 Existing off street parking II

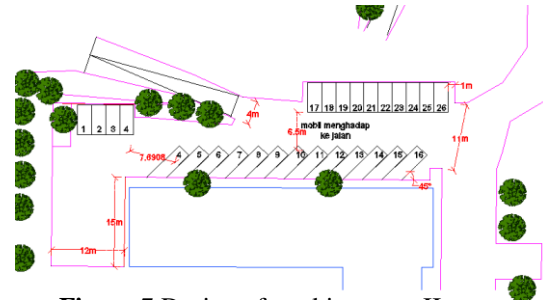


Figure 7 Design of parking zone II

The parking location II conditions the parking plan according to:

1. SRP four-group wheel I is 2.3 m x 5 m
2. Parking on area 2 is Off Street Parking or off-street parking
3. Pattern parking
4. According to the parking angle 45^0 with the provision of a 1 m 3 lane alleyway, Warning

FINDINGS

The method used in this study is a spaciousness survey with data collection through the questionnaire design.

The utilise of this method has done to determine the research variables used :

1. Variable of Characteristic behavior
2. Variable of Characteristic time parking vehicle
3. Variable of Vehicle volume number

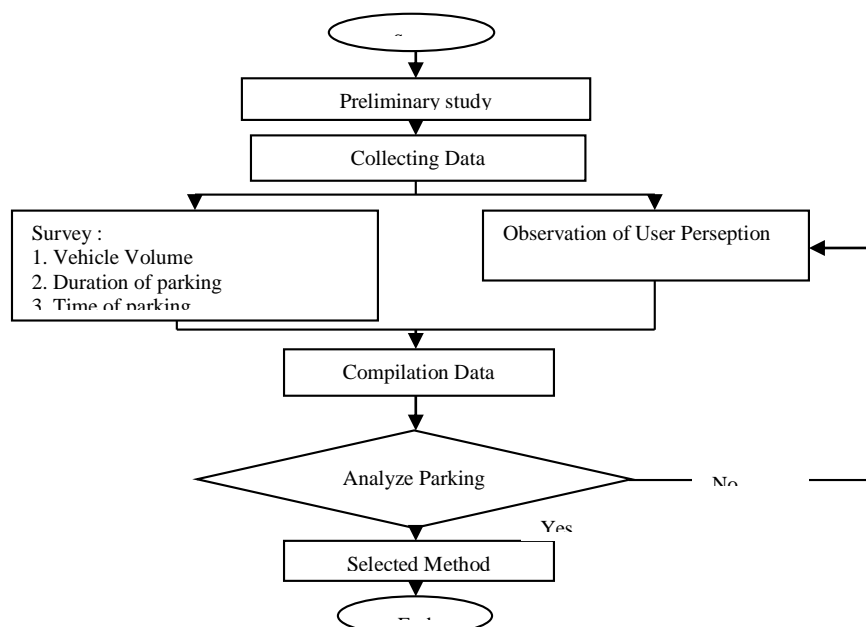


Figure 8. Research Flow Chart

Parking User Characteristic

Vehicles using parking locations are based on vehicles entering and exiting the parking area. It is done to know the volume of vehicles in accordance with the time of their activities. Characteristics of parking users at vocational schools with the highest number at the time of Tuesday

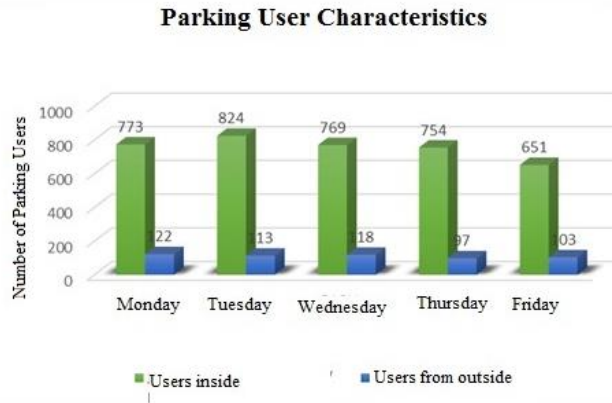


Figure.9. User Characteristic

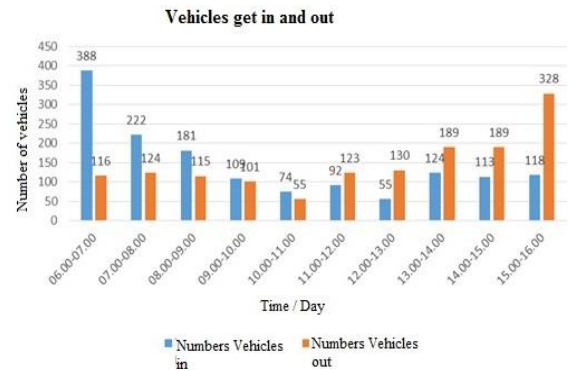


Figure.10. Vehicle Volume

In and out vehicles occur during hours of busy activity resulting in a lack of user accessibility to reach the central location of activities. So it is necessary to implement a parking system that can accommodate at peak hour with the right parking method. Refer to the data analysis can be gained that at 08: 00-09: 00 is the peak hour of the employees and students arrival in UPI, and the peak of the vehicle out occur at 15: 00-16: 00 which is the time up for working employees, lecturers and student activities. And the duration of the vehicle parked is used to assess the incoming and outgoing vehicles, parking location in accordance with the time of service. With the number of vehicles 25 for duration of 1-2 hours and the number of vehicles 15 for the largest duration of 9-10 hours activity activities in non-commercial locations on campus is determined based on teaching and learning activities in accordance with the activities of vehicle users. Parking accumulation is used to determine the number of vehicles parking, and it also used to plan the parking area as needed. From the survey results show that the volume of vehicles and activity time characteristics greatly influence the behavior of the parking location. The duration of vehicles in the parking area determines the need for parking space and causes the level of the need for large parking spaces. So the ease to use the parking space during peak hours will be difficult to access.



Figure.11. Parking Duration



Figure.12. Parking Accumulation

Understanding the behavior of parking users by using the approach of parking user participation in a classroom with the sweeping of the efficient parking model with the estimated model with the unit of parking space method which is calculated from the value of the parking index obtained. So the behavior can understand the model of the parking usage method which is effective and efficient to facilitate the parking user to reach the location where the activity center will be



Figure. 13. Result understanding of parking behavior **Figure. 14.** Understanding Proces of parking behavior

CONCLUSION

The total volume of vehicles greatly affect the ease in the required capacity of parking space required. Characteristics of parking users determine the level of parking duration based on the type of activities undertaken in the ongoing vocational education activity system. The duration of the parking time requires sufficient parking space capacity due to the increased volume levels during busy activity hours. The model of the parking method based on the determination of the unit of parking space calculated from the parking index value determines the unit capacity of the parking space effectively and efficiently. Understanding of parking user behavior from the model explanation with the method of user participation interaction on the parking method will determine the ease of accessibility to the center of activity

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The Interconnection of Mathematics Achievement Levels and the Academic Performance of Science Undergraduates at Suan Sunandha Rajabhat University

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ABSTRACT

This study investigates the interconnection of mathematics achievement levels and the academic performance of undergraduate students at the faculty of science and technology. Linear Regression Analysis and Pearson product Moment Correlation Coefficient are utilized for results interpretation. The correlation is being categorized from 13 majors. Data collected is from the sample of 788 online report submitted by science graduated students who have graduated during the academic year 2012-2016. The results of the study indicate that there is a positive significant linear correlation between the mathematics achievement and the academic performance. Linear Regression analysis shows that 53.8% of the curriculums, mathematics achievement have a significant effect on the grade point average.

INTRODUCTION

In higher education setting and from the lens of educators, any study result or formally academic achievement or performance is the learners' individual development in obtaining knowledge literacy, skills and attitudes. In addition, the academic achievement is also used as an indicator of qualitative characteristics and competencies based on the learning process standardized by higher education institutions. In fact, study result relates directly with various other factors and not limited to the learning process. Bloom, 1976 cited in Vinijkul, S., identifies Learner himself or herself, Instructors, Learning Activities, and Learning Atmosphere as factors attributed to students' achievement. It can therefore be inferred that learner's academic performance is also the indicator toward any academic institution's achievement in providing the educational services.

Bussaban, K. and & Prapasuwannakul, N. 2016 depicts that the Science and Technology undergraduate study results can be attributed to background knowledge or the prior academic performance. The most vital foundation for the development in Science and Technology is Mathematics. It is also considered crucial for the human resource development in the field of Communications, Reasoning and Problem Solving. Thipkong, S., 2002 underscores this view by specifying that for Thailand to advance its foothold in highly sophisticated technologies requires extensively uninterrupted research and development. Advanced technologies are for the scientists who require advanced mathematics for clarification, experimentation and predictive analytics. Referencing Kulnajsiri, P., 2002, Mathematics as a tool for studying Science and Technology. Mathematics is deployed to assist in human development in the area of problem analytics and analysis, prediction, planning and optimal decision-making. Bankar, K.A., et al, 2009 report their finding that score of mathematics of the accounting students commands positive influence on study result and is statistically significant.

The administration of courses and curricula at the Faculty of Science and Technology, Suan Sunandha Rajabhat University in Thailand undertake the view that mathematics is a tool in advancing Science and Technology. This is reflected in having one or two advanced mathematics subjects as a required course in every program being offered. Nevertheless, specific issues are being reported, for instance, student's negative view toward Mathematics and insufficient foundation. The impacts lead to final grades on the mathematics related subjects.

Astonishingly, 50 percentile of the students earn D grade, a barely pass. This causes major concern to the administrators to further resolve the potentially soon to be debacle if the incident persists. This gives rise to the questions on whether or not this group of students needs some kind of educational supports, would this group of students yield eventual study result in the low to substandard category and/or would this group of students depicting any quality of the learning process. Since there is no definitively concrete finding on these issues till date, we therefore undertake the study to discover whether or not by installing mathematics subjects into any program of study to identify any direct interconnection to the academic achievement of undergraduates of Science and Technology as a result. The objectives of this study are (1) to study the levels of interconnectivity on of success in taking mathematic subjects and academic achievement in each curriculum and program of study being offered and (2) to study if the success in taking mathematic subjects would attribute to the academic achievement in each curriculum and program of study being offered and at which percentile.

THE STUDY

The data gathering stage

The primary data employed in this study is from the students' academic results reported to the university's registrar system and who are the graduates of the Faculty of Science and Technology, Suan Sunandha Rajabhat University in Thailand during the academic year 2012-2016. In fulfilling the study objectives, the sample of 788 online reports submitted are used based on cluster sampling technique. In lieu of 13 programs of study, 50 online reports submitted in each program are randomly selected.

Variables

In this study, students' mathematics achievement is evaluated and measured by adopting an average grade of mathematics and statistics courses in each curricula or the program of study while the Academic performance is measured by using grade point average

Statistical Analysis

Pearson product Moment Correlation Coefficient is useful when the research tried to determine whether two variables are related, the strength of the relationship between the variables and what type of relationship exist. The coefficient of determination or r -squared value denoted r^2 is use to determine percent of the variation in y (The Academic performance) explained by the variation in predictor x (mathematics achievement). Simple linear regression is designed to summarize and study relationships between two continuous (quantitative) variables, average grade of mathematics and grade point average and to predict the influence of x on y .

FINDINGS

Finding of the study indicated that there was a positive significant correlation between the students' mathematics achievement and their academic performance all programs at 0.05. The Pearson Correlation coefficients are presented in Table 1. They show quite strong association for program in Chemistry, Food Science and Technology, Biotechnology, Informatics Mathematics.

Table1: The Pearson Correlation Coefficient

Programs	Pearson Correlation
Chemistry	0.929
Food Science and Technology	0.877
Biotechnology	0.831
Informatics Mathematics	0.818
Biology	0.796
Home Economics	0.788
Industrial Microbiology	0.744
Applied Physics	0.721
Applied Statistics	0.705
Computer sciences	0.675
Information Technology	0.664
Food Industry and Service	0.617
Environmental Sciences	0.574

Results of the simple linear regression analysis are presented in Table 2. They indicate that are 86% of the variation in students' academic performance is explained by their mathematics achievement for Chemistry students' program and 68.5% ,66.4%,62.7%,61.5%,48.9%,44.7% of the variation in students' academic performance is explained by their mathematics achievement for Biotechnology, Informatics Mathematics, Biology , Home Economics , Applied Statistics and Computer Sciences students' program of study, respectively.

For Food Science and Technology, Industrial Microbiology, Information Technology, Food Industry, Environmental Sciences and Service programs, the same model is not applicable due to the fact that the statistical testing is not satisfied and is not a strong belief that it is appropriate.

Table 2: Statistics value for linear regression analysis

programs	β_0	β	R^2_{adj}	F	Durbin	P-value for normality of the error distribution	
Chemistry	1.305	0.625	0.860	370.015	2.165	0.200	*
Food Science and Technology	1.601	0.493	0.765	229.141	1.303	0.200	
Biotechnology	1.295	0.797	0.685	118.594	1.962	0.200	*
Informatics Mathematics	1.607	0.464	0.664	105.539	1.615	0.200	*
Biology	2.037	0.348	0.627	98.344	2.033	0.200	*
Home Economics	1.997	0.408	0.615	111.393	1.979	0.027	*
Industrial Microbiology	2.126	0.320	0.545	59.632	1.154	0.200	
Applied Physics	2.281	0.363	0.505	37.787	1.834	0.001	
Applied Statistics	1.831	0.419	0.489	61.396	1.864	0.089	*
Computer sciences	1.857	0.413	0.447	56.748	2.024	0.200	*
Information Technology	2.176	0.291	0.435	74.945	1.218	0.148	
Food Industry and Service	1.928	0.348	0.370	34.470	2.513	0.014	
Environmental Sciences	1.865	0.415	0.321	35.462	0.985	0.200	

* appropriate model

Linear Regression analysis shows that 53.8% of the curricular, mathematics achievement has a significant effect on the grade point average.

CONCLUSIONS

This study aims at identifying the interconnection among academic achievement and the success in taking mathematics subjects and to confirm that the latter has direct influence and impact on the former for the graduates of Science curricula in offer. The result of conducting the study depicts the interconnection of success in taking mathematics subjects and the academic achievement using Grade Point Average (GPA) represented in linear shape. Of 13 different programs of study undertook, in line with one another find the same direction.

The tendency of high interconnection is appeared in the Chemistry, Food Science and Technology, Biotechnology and Informatics Mathematics program of study representing linearity of $r > 0.8$. Furthermore, the study does further support the hypothesis that success in taking mathematics subjects can be employed to predict the academic achievement of students in the following programs of study: Chemistry, Biotechnology, Informatics Mathematics, Biology, Home Economics, Applied Statistics and Computer Sciences.

For rest of programs of study, the factor on the success of taking mathematics subjects is not insufficient to be employed in predicting academic achievement using GPA. By taking into consideration success in taking other subject to be an additional factor is a possible alternative as of this time.

Since mathematics subjects, for example, calculus and statistics, are offered during the first year of study, the success in taking these subjects are inevitably of vital source of preliminary indicator in providing necessary assistance to the student taking any program of study.

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The Investigation of Environmental Risk Perception and Attitudes Towards the Environment in Secondary School Students

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ABSTRACT

In the study, secondary school students' perceptions of environmental risk perceptions and their attitudes towards the environment were investigated. The study was conducted on 1003 secondary school students from Ankara, Turkey. Survey method is used in this study which is a descriptive research. To determine state of students' environmental risk perception the Environmental Appraisal Inventory (EAI) was used. New Ecological Paradigm (NEP) scale was used to determine student attitudes towards the environment. Multivariate analysis (MANOVA) has been used to determine whether class, school type and gender makes a difference in the risk perceptions. The relationship between environmental risk perceptions and environmental approaches were determined the Pearson correlation coefficient. In the MANOVA test, it was determined that the genders, school type and class levels showed significant difference in terms of scores obtained from the EAI scale.

INTRODUCTION

The dominant social structure in the world creates and shapes new environmental problems. In the history of humanity, human intervention in nature has never reached as large a scale as it is now. Humans have now become a fundamental and decisive factor in the system of the earth. Human activities cause global environmental changes which humans suffer from. Hazards that affect the environment can be either human-induced, such as technological risks, or an act of nature, such as volcanic eruptions or meteorites. There are two types of human-induced global environmental changes. The first type can be directly effective on a global scale, for example, on oceans or the atmosphere. The second type involves the accumulation of regional changes that cause a global impact; for example, though it is local, the destruction of a forest area as a habitat for a large number of species can be effective on a global scale as it will cause a substantial portion of all species in the world to disappear (Turner et al., 1990). Certain environmental problems that are influential today generally include the greenhouse effect or global warming, the depletion of ozone layer, hazardous materials and wastes, the degradation of water resources and wetlands, the destruction of forests, urbanization, and population growth. Environmental problems that arise as human intervention in nature increases have brought about risks that threaten the life on earth. In this regard, risk can be considered a social structure of modern society. Risk perception that is the main component of risk analysis is most often used in the context of natural hazards and threats to the environment or health (WHO, 2013). According to Ulrich Beck who introduced the concept of risk society in 1992, modern societies have been occupied in identifying and managing risks for a long time (Zwick & Renn, 2002). Risk here refers to the likelihood of the undesired side effects of an action or an event (Renn, 2003). Risks are also associated with incidents that have undefined origins and signs (Karger & Wiedemann 1996). Unlike the point of view of science and technology, the perception of risks by non-experts is not objective (Karger & Wiedemann, 1996; Meili, 2005). Risk perception refers to the evaluation and adoption of sensory perceptions or information about risks and hazards in an individual's mind. Experts usually equate a risk with the expected average loss (damage) per unit of time. However, non-experts perceive risks as a complex, multidimensional phenomenon that has a decisive impact on the perceived risk size in case of risky situations and in which even the subjective expectation of loss (damage) plays a secondary role (Renn, 2003). The factors of risk perception for non-experts include the following (Slovic 1987; Renn, 2003; Bennet & Calman, 2010): the identification of risk sources and the causes of risk (natural or anthropogenic), the possibility of dominance and personal control, the familiarity with risk sources, the willingness to take risks, the likelihood of a risk source causing a disaster, the objective distribution effect of benefit and risk, the reversibility of risk results, personal experiences with technology and nature, and exposure. Sandman has formulated the risk perception as Perceived Risk (R) = Hazard (H) + Outrage (O). Risk perception is the subjective judgment of people about the features and intensity of a risk. It is composed of two components: hazard and outrage. Hazard (technically and scientifically) refers to the combination of the likelihood of a particular event (e.g. an increase in cancer rate, a catastrophic accident) and the

severity of its consequence. Outrage (the subjective component) focuses on an opposite situation of the risk dimension. This category includes the nature management of risk. The basic components of outrage factors include "the involuntary nature of the issue, the artificial (industrial) nature of the risk, the use of cover-up or silence, attempts to engage message recipients to persuade them about the issue, the occurrence of accidents, double truths around the issue, conflicts of interest, contradictory messages and inequitable distribution of risk". Anantho (2008) defines risk perception as the subjective judgment of individuals about the seriousness and characteristics of a risk. since the 1970s, research on risk perception has focused on why people perceive risks differently (Chauvin, Hermand & Mullet, 2007) and has been conducted on the basis of different approaches and models. Research based on a techno-scientific approach (Marks, Martin & Zadoroznyj, 2008) considers risks to be identifiable and measurable and associates risk perception with the visible, familiar, clear, controllable, forgettable, voluntary and rapidly observable nature of risks. The psychometric model also accepts that risk perception is determined by risk characteristics as it is suggested by the technoscientific approach and it also suggests that there may be other factors that affect risk perception (Slimak, & Dietz, 2006). According to the comprehensive personality model, personal attributes such as extroversion, compatibility, conscientiousness, emotional consistency and mental capacity are considered in assessing risk perception (Chauvin, Hermand & Mullet, 2007; Slovic, 2007). According to the value-belief-norm theory, sociodemographic and sociostructural properties and religious beliefs as well as personal values affect risk perception either directly or through the worldview (Stern, et. al., 1999). The risk society approach that became widespread in the 1990s suggests that risk has played an increasing role in life and the concept of risk is related to the social structure composed of historical, social and cultural content (Yalçinkaya & Özsoy, 2003). Risk and risk perception are evaluated differently by people in line with their own attitudes and moral values. People generally do not want to be informed about undefined risks; they prefer to ignore them when they feel they have no effective defense against threats (e.g. in case of unavoidable risks, WHO, 2013). The 1989 report of the U.S. National Research Council (NRC) noted that the perception level of technological risks changed with the economic level. Similarly, Riechard and McGarrity (1994) found that the risk perception among young people significantly differed by socioeconomic status; however, there was no general change in the level of risk perception between the low and high socioeconomic level groups as the difference was specific to the risk source. Risk perception, on the one hand, is influenced by people's moral values, on the other hand, shapes their behavior (Sandman, 2013). In general, psychologists have identified two ways of thinking since the 1980s. The first is characterized by a simple reasoning that focuses on the relevant information filtered by intuition. The second is characterized by a mature capacity and a conscious analytical way of thinking that evaluate a broad range of knowledge (including statistical data). The second way of thinking is a typical scientific assessment, while the first is the common way of thinking shared by many people (scientists are included in this group if they act as "ordinary people"). Communication based on reasoned arguments such as effective risk management practices, relevant safety statistics, etc. cannot affect those who have the first way of thinking (Bennet & Calman, 2010). These two ways of thinking highlight how to reframe information, among the greatest challenges of risk communication, in a manner to be understood by ordinary people. The results of a multinational GlobeScan survey in 2013 demonstrate the importance of these studies. According to the results of this survey, environmental concerns among people around the world have been in decrease since 2009 and have now dropped to the lowest level of twenty years. It should be noted that protective measures taken by health care institutions are more effective when the risk is perceived more clearly by the society (Sandman, 2013; World Health Organization, 2013). Research of two decades ago reported increased public awareness of ecological risks in parallel with the growing awareness of environmental degradation and sustainability (Dunlap & Merting, 1995; Slovic, 1996). The decline in environmental concern in recent years despite the increased environmental problems indicates the complex nature of the interaction of factors that influence risk perception.

The results of risk perception research based on different approaches and models are of key importance in guiding risk management and contributing to risk mitigation activities. Environmental risk analyses concerning public opinion focus on how people assess various technological and environmental risks and react to environmental risks, how these risks are presented and communicated, and how risks are organized in social processes. The identification of public perceptions of environmental risks forms a basis for an effective strategy of environmental risk management (Frewer, 2004). In line with these arguments, this study attempts to investigate secondary school students' environmental concerns as they will influence the future environmental policy of the nation. As risk perception can be regarded as a sign of concern, the study aims to identify participants' environmental risk perceptions. It is of major importance to understand risk perceptions and underlying processes in order to be more informed about the way how people evaluate.

METHOD

The study was conducted on 1003 students studying in secondary schools. Survey method is used in this study which is a descriptive research. A 26-item environmental risk perception scale, based on the Environmental Appraisal Inventory (EAI) developed by Daneshmandi and MacLachlan (2000), was used in the study. The 7-point Likert-type scale (1 = no danger, 7 = extremely dangerous), which includes items about technology and

human-induced hazards, natural disasters and risks related to daily life, was translated into Turkish and used by the researchers. A 5-point Likert-type scale (New Ecological Paradigm), developed by Dunlap and Van Liere in 1978 and revised in 2000, was used to determine student attitudes towards the environment.

Data Analysis

Data obtained from both scales (NEP-EAI) describe as mean and standard deviation. A factor analysis was conducted for the 26 risk items for all 1003 respondents combined. To identify the loadings of the 26 risk items, Principal Axis Factoring was used with promax rotation method.

Multivariate analysis (MANOVA) has been used to determine whether class, school type and gender made a difference in the risk perceptions and environmental approaches of the students. The relationship between environmental risk perceptions and environmental approaches were determined by calculating the Pearson correlation coefficient.

Sample

In terms of gender, 56% of the students were male and 44% were female. The age groups of the participants were between 15-16 years (63%) and 17-18 years (34%). Grade-level distribution was as follows: 70% of the students were in grade 9 and 10, 30% were in grade 11 and 12. In terms of schools, 43% of the students were attending Anatolian High School, and 57% were attending Technical High School.

FINDINGS

The data obtained from EAI scale describe mean and variance in Table 1. The mean and variance values are ranked from high to low.

Table1. Mean ranking of EAI items

Rank		Mean	Variance
1.	18. Impure drinking water	5,96	1,520
2.	19. Large fires	5,81	1,522
3.	11. Water shortage (e.g. drought, water depletion)	5,79	1,631
4.	15. Change to the ozone caused by pollution	5,68	1,600
5.	1. Water pollution	5,64	1,701
6.	4. Pollution from factories	5,63	1,542
7.	16. Earthquakes	5,63	1,620
8.	24. Chemical dumps	5,61	1,654
9.	22. Radioactive fallout	5,55	1,618
10.	17. Soil erosion	5,45	1,555
11.	14. Radioactivity in building materials	5,43	1,718
12.	7. Acid rain	5,39	1,726
13.	20. Floods or tidal waves	5,29	1,618
14.	21. Germs or micro-organisms	5,24	1,589
15.	3. Pollution from cars	5,16	1,660
16.	25. Video screen radiation	5,16	1,726
17.	5. Pollution from burning rubbish	5,01	1,668
18.	23. Fumes or fibers from synthetic materials	4,94	1,722
19.	6. Smoking in public buildings	4,93	1,865
20.	26. Pesticides and herbicides	4,93	1,790
21.	2. Storms (e.g. lightning, hurricanes, tornados, snow)	4,89	1,686
22.	12. Noise	4,56	1,848
23.	13. Visual pollution (e.g. billboards, ugly buildings)	4,50	1,928
24.	9. Number of people (e.g. crowding, population explosion)	4,35	1,877
25.	8. Pollution from office equipment	4,07	1,780
26.	10. Fluorescent lighting	3,54	1,954

When the table is examined can be noticed that 'impure drinking water' was the item given the highest mean rating, while the item 'fluorescent lighting' was considered the least threatening by the sample.

The Barlett's Test of Sphericity was used to see whether or not data have a normal distribution with multiple variables. The results of the chi-square (χ^2) test are found to be significant, showing that data have a normal

distribution with multiple variables (Tabachnick & Fidel, 2005). The Kaiser-Meyer-Olkin (KMO) value is found to be 0.946, an acceptable level. The results of the Bartlett test are also significant ($\chi^2 = 12740,23$; $p < 0.00$). In research articles, findings should be given here and the above-mentioned principles should be considered.

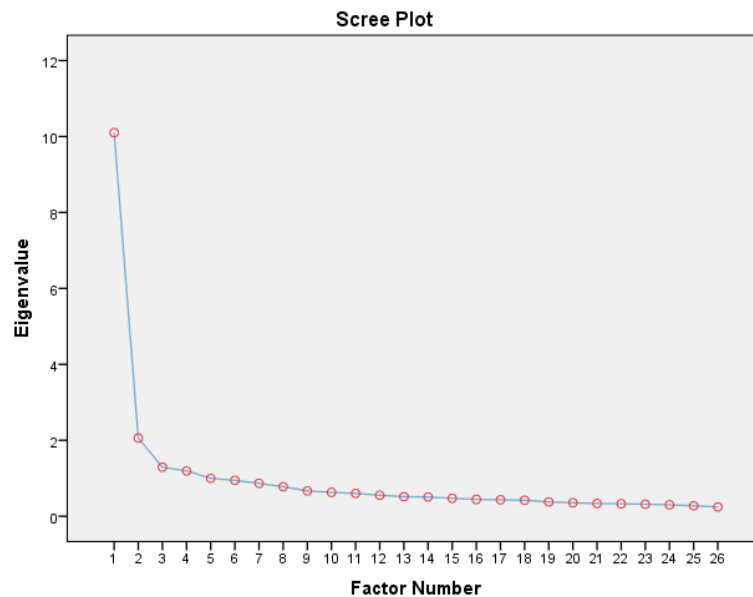


Figure 1. Scree plot for 26 item EAI scale.

The sample matrix developed by the promax rotation was analyzed using the principal axis factoring method. Figure 1 shows scree profile of items. When the scree plot is evaluated it is determined that the factor structure of EAI scale fit three factorial solution.

Table 2. Results of rotated factor analysis on the EAI scales' items

	Factors		
	Industrial Risks	Natural Disasters	Everyday Life Risks
24. Chemical dumps	0,880	-0,047	-0,072
25. Video screen radiation	0,695	-0,089	0,145
14. Radioactivity in building materials	0,674	0,050	-0,002
22. Radioactive fallout	0,627	0,144	-0,063
15. Change to the ozone caused by pollution	0,606	0,242	-0,055
11. Water shortage	0,522	0,166	-0,061
23. Fumes or fibers from synthetic materials	0,480	0,044	0,232
26. Pesticides and herbicides	0,454	-0,154	0,211
1. Water pollution	0,434	0,183	0,016
4. Pollution from factories	0,431	0,234	0,086
17. Soil erosion	-0,048	0,803	0,065
19. Large fires	0,077	0,775	-0,038
16. Earthquakes	-0,009	0,757	-0,014
18. Impure drinking water	0,256	0,688	-0,175
20. Floods or tidal waves	-0,036	0,592	0,213
8. Pollution from office equipment	-0,212	0,106	0,766
10. Fluorescent lighting	-0,11	-0,058	0,725
13. Visual pollution (e.g. billboards, ugly buildings, litter)	0,203	-0,049	0,529
12. Noise	0,199	-0,062	0,524
9. Number of people (e.g. crowding, population explosion)	0,159	-0,059	0,463
5. Pollution from burning rubbish	0,127	0,208	0,431
6. Smoking in public buildings	0,000	0,211	0,411

In the initial factorial analysis, it was found that three items (Pollution from cars, Acid rain and Germs or

micro-organisms) are included under more than one factor. So these three items were omitted and the factorial analysis was repeated

The first factor includes those risks concerning industry originated issues, the second, natural threats, the last one, in daily life experienced problems. Therefore, the factors are called “industrial risks” (Cronbach’s $\alpha = 0.88$), “natural disasters” (Cronbach’s $\alpha = 0.87$), and “everyday life risks” (Cronbach’s $\alpha = 0.79$). The item analysis shows that the corrected item total correlation coefficients are above .20.

The mean and standard deviations values obtained from the EAI subscales are given in Table 3 along with students’ class level.

Table 3. Means and Std. Deviation of EAI –subscales according students’ class level

EAI Subscales	Class	N	Mean	Std. Deviation
Industrial risks	9	363	5,564	1,101
	10	338	5,365	1,158
	11	302	5,363	1,282
	Total	1003	5,436	1,180
Natural disasters	9	363	5,797	1,196
	10	338	5,591	1,194
	11	302	5,464	1,435
	Total	1003	5,627	1,278
Everyday life risks	9	363	4,394	1,237
	10	338	4,443	1,229
	11	302	4,440	1,266
	Total	1003	4,424	1,242

Table 3 shows that natural disasters are most risky perceived by participants. The mean values of industrial risks and natural disasters subscales tend to increase as the level of class decreases.

Table 4. Means and Std. Deviation of EAI –subscales according students’ school types

EAI Subscales	School type	N	Mean	Std. Deviation
Industrial	High School	431	5,666	1,107
	Vocational High School	572	5,263	1,204
	Total	1003	5,436	1,18
Natural	High School	431	5,662	1,217
	Vocational High School	572	5,601	1,323
	Total	1003	5,627	1,278
Everyday life	High School	431	4,586	1,214
	Vocational High School	572	4,302	1,25
	Total	1003	4,424	1,242

The mean values of all types of subscales which high school students have, are higher than the mean values that vocational high schools' students have (Table 4).

Table 5. The means and std. Deviation of EAI –subscales according students' gender

EAI Subscales	Gender	N	Mean	Std. Deviation
Industrial risks	Male	558	5,195	1,245
	Female	444	5,738	1,016
	Total	1002	5,435	1,180
Natural disasters	Male	558	5,445	1,357
	Female	444	5,853	1,133
	Total	1002	5,626	1,278
Everyday life risks	Male	558	4,224	1,269
	Female	444	4,674	1,163
	Total	1002	4,424	1,243

The female students have higher mean values in all subscales than those male have.

Table 6. MANOVA results

Variables	Wilks Lambda	F	df	Error df	p	η^2
Level of class	0,972	2,372	12	2609,002	0,005	0,010
School type	0,966	11,711	3	986	0,000	0,034
Gender	0,953	16,324	3	986	0,000	0,047

To detect the effects of level of class, type of school and gender on the students' environmental risk perception multivariate analysis of variance was conducted. The Wilkis Lambda values indicate multivariate significance. According to η^2 value for gender it points out 4.7 % of variance of the dependent variables. In addition, η^2 values of .034 and .010 for type of school and level of class respectively indicate explained variance between 3.4 % and 1 % (Table 6).

Table 7. Flow up test results

		Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Level of Class	Industrial	16,748	4	4,187	3,274	0,011	0,013
	Natural	19,743	4	4,936	3,166	0,013	0,013
	Everyday life	11,644	4	2,911	1,967	0,097	0,000
School type	Industrial	24,103	1	24,103	18,845	0,000	0,019
	Natural	0,001	1	0,001	0,001	0,979	0,000
	Everyday life	9,168	1	9,168	6,196	0,013	0,006
Gender	Industrial	59,269	1	59,269	46,339	0,000	0,045
	Natural	43,923	1	43,923	28,174	0,000	0,028
	Everyday life	39,53	1	39,53	26,714	0,000	0,026

The ANOVA results show that level of class led to a significant effect in the subscales of industrial risks and natural disasters and their η^2 values state that it can account for only 1.3% of the variance, indicating that it has a small-size effect. Gender, on the other hand, led to significant effects in all subscales and their η^2 values indicates that it accounts for 4.5 % of the variance for the industrial risks, for 2,8 % of the variance for natural disasters and for 2.6 of variance for the everyday life risks. The other independent variable, the type of school, have significant effect on subscales of industrial risks and everyday life risks.

Table 8 point out the Pearson correlation coefficients between EIA subscales and NEP subscales. The Pearson correlation coefficients ($r=.429$) between NEP subscale and Industrial risks subscales indicates moderate positive association. Furthermore, the correlation coefficients between Natural disasters subscale ($r=.367$) and everyday life risks ($r=.254$) indicate that the strength of association between the variables is weak.

Table 8. Pearson correlation coefficients between EAI-subscales and NEP subscales

	Industrial risks	Natural disasters	Everyday life risks
	,429**	,367**	,254**
	0,000	0,000	0,000
DSP	,079*	-0,016	-,072*
	0,012	0,612	0,022

** p<.001 * p<.005

While correlation coefficients between NEP subscale and all three EAI subscales each are significant at p value of .001, DSP subscale have quite weak association between Industrial risks subscale and also Everyday life risks.

CONCLUSIONS

In the study, environmental risk perception was analyzed in term of salience. For this sake, items are ranked from high to less risky perceived. It is remarkable that the items related with water locate among the high risky perceived items, for instance “impure drinking water”, “water shortage” and water pollution”. This result can be expected since the high media attention afforded to this issue in recent times. In addition, since issues regarding to water can bring forth potential health problems, students have perceived these water related items in EAI-scale most risky. In addition to this conclusion, it is expected that the students’ risk perception regarding water issues were pessimistic when limited water sources of Turkey are taken into consideration. In the present study, mean values of items ranged between 5.96 and 3.54 while in another study which was conducted by Atav & Altunoğlu (2010) before seven years with the same scale, it was detected that mean values of items ranged between 6.58 and 3.98. It can be concluded that as time passes, the students are more optimistic in term of environmental risk perception.

In the current study, it was attempt to define the students’ perception patterns in scope of environmental issues. For this purpose, obtained data by EAI scale was evaluated by factor analysis. According to these analysis, EAI-scale have three factors. The first factor was entitled as industrial risk since its items were mainly related with human activities which had adverse effect for environment and nature. The items of second factor represented natural threats and of this reason, it was named as natural disaster. The last factor which was named as everyday life risks consisted of the items related with people’s usual daily experiences. The results of factor analyses indicated similar factorial structure with the results of original study (Walsh-Daneshmandi, & MacLachlan, 2000). In addition to factor analyses, the item analysis was performed and obtained high Cronbachs’ α coefficients for each subscales displayed strong internal consistency. In the light of these findings, EAI-scale can be evaluated as reliable and valid measurement tools.

In the study, the environmental risk perception of secondary school students was analyzed with respect to level of class, school type and gender by MANOVA test. Results of the test indicated that there was a statistically significant effect of these independent variables in favor of girls, high school students and the 9th class students. Particularly gender was one of the most effective variable when the values of η^2 were interpreted (Table 6 & Table 7). Although the effect size of gender was quite low, it was detected that gender was a source of variance for each EAI-subscale while school type had statistically significant effect on industrial risks and everyday life risks subscales and level of class was an effective independent variable on industrial risks and natural disasters subscales. According to literature related with environmental concern, females consistently reported more pro-environmental views and greater levels of concern about specific environmental problems than man did (Xiao & McCright, 2015). According to gender socialization hypothesis, women were more concerned than men for environmental problems that pose significant health and safety risks for people, because women learn connecting with other people and expressing concern about their well-being through socialization into their society (Freudenburg & Davidson 2007). The another significant variable on environmental risk perception was type of school. Taskin (2009) and Tuncer, Ertepinar, Tekkaya, & Sungur (2005) found out that there was a significant difference in scope of environmental attitudes and concern between students from different school types. Especially Taskin (2009), in the same manner of the present study, pointed out that vocational high schools’ students had less pro-environmental worldview and also less concern towards environmental issues and he explained these results with the blaming the same-sex education and the decrease of education quality in vocational high school. In addition to this explanation, Tuncer, Ertepinar, Tekkaya, & Sungur (2005) concluded that the significant difference of environmental concern and attitudes in favor of private school between students from different school types. Despite the Turkish educational research literature offered very rare empirical evidence regarding to biology or environmental education in vocational high schools, Kaya and Gürbüz (2002) found out that students in vocational high school stated that lesson hours for biology were insufficient, also they perceived the biology lesson was less important. In same direction, Cerrah and Ayas (2000) pointed out that biology teacher evaluated biology curriculum prepared for vocational high school as not appropriate for students’

knowledge level and interest. In accordance with these previous researches, the fewer environmental risk perception of students in vocational high school can be explained by the effects of curriculum and general educational aims of this schools in contrast to other types of high schools. It was aimed firstly that the students acquire the vocational formation in vocational high schools and of this reason, there is no sufficient time and resources (laboratories, physical construction of school etc.) in such schools for delivering knowledge in academic manner and provide pro-environmental affection, behavior etc.

In the study, it is found out that EAI subscales had positive moderate association with NEP subscale. The higher NEP subscale scores indicate endorsement of pro-environmental worldview which is represented by existence of ecological limits to growth, importance of maintaining the balance of nature, and rejection of the anthropocentric notion (Dunlap 2008). In contrast to this, DSP subscale showed very low associations with EAI subscales (Table8). In present study, high DSP scores indicate the endorsement of the rejection of anthropocentric evaluation of environmental issues. The results of some previous studies pointed out that the individuals from Turkey were confused or undecided regarding clearly rejection of anthropocentric worldview (Atav, Altunoğlu, Sönmez, 2015; Erdogan, 2009). Thus, EAI subscales can be used in future research to predict endorsement of a pro-environmental worldview. The NEP scale has been reported as predictive of support for pro-environment policies, perceived seriousness of air and water pollution, and self-reported pro-environmental behaviors (Dunlap, Van Liere, Mertig, & Jones, 2000). Although there is empirical evidence that an association exist between EAI subscales and NEP subscales, Walsh-Daneshmandi, & MacLachlan (2000) suspect that the EAI is predictive of at least some of these constructs and they suggested future investigation for predictive potential of EAI scale regarding supporting pro-environmental policies and pro-environmental behaviors.

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The Investigation of Pre-Service Primary School, Science and Mathematics Teachers' Teaching and Learning Conceptions¹

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ABSTRACT

The purpose of the current study is to investigate pre-service primary school, science and mathematics teachers' teaching and learning conceptions. The sample of the study consists of 50 science, 65 mathematics and 77 primary school teacher candidates from a public university in Turkey. In this survey study, the data were collected through "Teaching and Learning Conceptions Questionnaire" developed by Chan and Elliot (2004). The Turkish version of the scale adapted by Aypay (2011) has 30 items with the two subscales, namely constructivist and traditional. Data were analyzed using descriptive statistics, MANOVA, Pearson's correlation, and independent sample t-test. There was significant difference in the constructivist subscale scores of pre-service teachers according to their gender in favor of females. Also, there was significant difference in the traditional subscale scores of pre-service teachers according to their attended education program in favor of pre-service mathematics teachers. The pre-service mathematics teachers' traditional subscale scores were less than the others'. In addition, there was a significant negative, but low relationship between academic achievement and the traditional subscale scores. Besides, there was a significant positive, but low relationship between academic achievement and the constructivist subscale scores.

Keywords: Pre-service teachers, Primary school, Science, Mathematics, Teaching and learning conceptions

INTRODUCTION

The terms teaching and learning are at the opposite side of each other in the sense of meaning. While learning is mostly based on student-centered education, teaching is based on a teacher-centered education (Aypay, 2011). Most teachers have previously had tendency to use teacher-centered education in their classroom (Wright, 2011). It is a bit difficult for teachers who use traditional teaching methods in their classes to actively implement constructivist education in the following years (Pajares, 1992). However, in studies that have been carried out recent years, it has been stated that most teachers tend to use student-centered education in their classes (Weimer, 2002). For this reason, it is important to give importance to the student-centered education in pre-service education, especially of teachers who have a great contribution to the education of their students. Thus, supportive policies are needed for the realization of student-centered education during the university education of teacher candidates (Lamanauskas, 2012). In developing these policies, it is thought that the determination of teaching and learning conceptions will be effective in student or teacher-centered education preferences of teacher candidates.

Teaching and learning conception are defined by Chan & Elliot (2004) as the beliefs that teachers have about their preferences of teaching and learning and their ideas about the role of teachers and learners within the process of knowledge acquisition. There are two main conceptions opposing each other in teaching and learning. These are traditional conception and constructivist conception (Aypay, 2010). Traditional conception in teaching

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utilizes teacher-centered teaching strategies. In this conception, it is seen that teacher is the source of knowledge and that student is the passive receiver of knowledge. On the other hand, the constructivist conception uses student-centered teaching strategies due to the fact that this type of learning helps students develop critical thinking and collaboration skills and learning takes place in environments where students are able to participate actively (Chan, 2004; Bıkmaz, 2017). This is because at the core of constructivism there is learner's constructing and applying knowledge. What is in question is not the repetition of the information, but the transfer and restructuring of the information. Constructivist learning is not just about listening and reading; students are required to have active participation in the learning process such as discussing, defending thoughts, developing a hypothesis, questioning and sharing thoughts (Perkins, 1999). Therefore, teaching and learning conceptions of individuals are an important component in different disciplines.

It is stated that beliefs about mathematics play an important role in the process of learning mathematical knowledge (Sezgin-Memnun, 2015). It is seen that teachers like students also have beliefs regarding the nature, learning and teaching of mathematics; Especially "traditional" and "constructivist" beliefs, which are adopted by teachers, seem to have an influence on mathematics teaching of teachers (Howard, Perry and Lindsay, 1997). The beliefs of teacher candidates and teachers regarding the nature and teaching of mathematics influence the teaching methods they use in the classroom; it is also stated that the beliefs of teachers influence the beliefs of students on this subject. (Baydar and Bulut, 2002). In a similar way, it is emphasized that constructivist approach can be used easily at every stage of science teaching (Singh and Yaduvanshi, 2015), and that the teaching approaches that science teachers use in the classroom environment are effective in teaching science efficiently (Garbett, 2011).

When the literature is examined, there are many researches in which teacher candidates' teaching and learning conceptions are examined in terms of different variables. Some of these researches examine the teaching and learning conceptions of teacher candidates in general (Aydın, Tunca and Alkın-Şahin, 2015; Baş and Beyhan, 2013; Saıcı, 2013; Oğuz, 2011), some of the researches are based on gender-based differences (Kayan, Haser and Işıksal-Bostan, 2013; Aypay, 2011; Başpınar, 2015; Eren, 2009), some of the researches examine the followings; the differences of these conceptions according to the level of class (Eryılmaz-Çeviren, 2016; Kayan, Haser and Işıksal-Bostan, 2013); the difference according to the education program (Bilgin and Aykaç, 2016; Chan, Tan and Khoo, 2007) and differences according to academic achievement (Chan, Tan and Khoo, 2007).

The Turkish education system has implemented the traditional teaching and learning approach for a long time. The constructivist-approach based curriculum has been applied since 2005. Thus, educating teacher candidates in the constructivist teaching concept is considered as a critical aspect in the training of new teachers, as well as, the overall development of teaching and learning conceptions. It seems to be of great importance to determine the teaching and learning conceptions of teacher candidates who are expected to apply constructivist approach in future. The goal of the current study is to investigate the teaching and learning conceptions of primary school, science and mathematics teacher candidates and then to compare them in relation to some variables (gender and attended education program). In addition to it, the other purpose is to study the relation between the academic achievement and the constructivist sub scale scores.

THE METHODOLOGY OF THE STUDY

The current study is a quantitative research designed in the survey model. The participants of the study were pre-service teachers attending different education programs at an education faculty. The sample of the study consists of 50 science, 65 mathematics and 77 primary school teacher candidates from a public university in Turkey, 2016-2017 academic year.

Current study, the data were collected through "Teaching and Learning Conceptions Questionnaire" developed by Chan and Elliot (2004). The Turkish version of the scale adapted by Aypay (2011) has 30 items with the two subscales, namely constructivist and traditional. Cronbach Alpha values of the TLCQ were calculated by Aypay (2011) as 0.71 and subscales of the TLCQ were calculated for constructivist and traditional as 0.88 and 0.83, respectively. Cronbach Alpha values of the TLCQ were calculated as 0.89 and subscales of the TLCQ were calculated by researchers for constructivist and traditional as 0.85 and 0.88, respectively. In the analysis of the collected data, descriptive statistics, independent sample t-test, MANOVA, and pearson correlations were calculated.

FINDINGS

This study examined in detail pre-service primary school, science and mathematics teachers' teaching and learning conceptions. Furthermore, this study examined the pre-service primary school, science and mathematics teachers' teaching and learning conceptions in terms of some variables (gender, attended education program,

academic achievement) with independent sample t-test, MANOVA, and Pearson correlations procedure.

The difference of the pre-service primary school, science and mathematics teachers' "Teaching and Learning Conceptions Questionnaire-TLCQ" scores according to their gender are presented in Table 1.

Table 1: Independent sample t-test analyses of the pre-service primary school, science and mathematics teachers' TLCQ scores according to their gender

TLCQ	Gender	n	Mean	SD	t	p
Constructivist	Female	142	4.60	0.43	3.84	0.001*
	Male	50	4.33	0.46		
Traditional	Female	142	3.00	0.89	-1.057	0.292
	Male	50	3.15	0.77		

*p<0.05

As seen in Table 1, there was a significant difference between "constructivist conception" scores of pre-service primary school, science and mathematics teachers according to their gender and this difference was in favor of female pre-service teachers. But, there was no significant difference between "traditional conception" scores of pre-service primary school, science and mathematics teachers according to their gender.

The scores that pre-service primary school, science and mathematics teachers obtained from TLCQ are presented in Table 2.

Table 2: Scores that pre-service primary school, science and mathematics teachers obtained from TLCQ

Questionnaire	2 Subscales	n	Min. Score	Max Score	Mean	SD
TLCQ	Constructivist	192	2.25	5.00	4.53	0.46
	Traditional	192	1.00	5.00	3.03	0.86

The results of the MANOVA test performed to determine whether there was a difference between the TLCQ scores of pre-service primary school, science and mathematics teachers according to their education program are presented in Table 3.

Table 3: The results of the MANOVA test on whether there was a difference between the TLCQ scores of pre-service primary school, science and mathematics teachers according to their education program

Effect	Value	F	Hypothesis df	Error df	p	η^2	
education program	Wilks' Lambda	0.755	14.151	4	376	0.000*	0.131

*p<0.05

As seen in Table 3, there was a significant difference between TLCQ scores of pre-service primary school, science and mathematics teachers according to their education program [Wilks Lambda (Λ) = 0.949, F(4, 376)=14.151, p=0.000, η^2 =0.131]. MANOVA analysis for the TLCQ scores of pre-service primary school, science and mathematics teachers according to their education program are presented in Table 4.

Table 4: MANOVA analysis for the TLCQ scores of pre-service primary school, science and mathematics teachers according to education program of study

TLCQ	Education program	n	Mean	SD	Df	F	p	η^2	Difference
Constructivist	Pre-service primary school teachers (1)	77	4.51	0.48	2	0.133	0.876	0.001	-
	Pre-service science teachers (2)	50	4.55	0.40					
	Pre-service mathematics teachers (3)	65	4.54	0.47					
Traditional	Pre-service primary school teachers (1)	77	3.17	0.85	2	29.860	0.000*	0.240	2-1 1-3 2-3
	Pre-service science teachers (2)	50	3.54	0.66					
	Pre-service mathematics teachers (3)	65	2.48	0.71					

*p<0.05

As seen Table 4, there was a significant difference between the "traditional conception" subscale in the TLCQ of

pre-service teachers according to their education program.

There was a significant difference between traditional conception scores of pre-service teachers in terms of pre-service science teachers and pre-service primary school teachers and this difference was in favor of pre-service science teachers. Thus, pre-service science teachers' traditional conception scores are higher than pre-service primary school teachers' scores.

There was a significant difference between traditional conception scores of pre-service teachers in terms of pre-service primary school teachers and pre-service mathematics teachers and this difference was in favor of pre-service primary school teachers. Thus, pre-service primary school teachers' traditional conception scores are higher than pre-service mathematics teachers' scores.

There was a significant difference between traditional conception scores of pre-service teachers in terms of pre-service science teachers and pre-service mathematics teachers and this difference was in favor of pre-service science teachers. Thus, the pre-service science teachers' traditional conception scores are higher than pre-service mathematics teachers' scores.

The relationship between pre-service teachers' TLCQ scores and their academic achievement are presented in Table 5.

Table 5: The relationship between pre-service teachers' TLCQ scores and their academic achievement

		Academic achievement
Constructivist	Pearson correlation	0.286**
	Sig. (2-tailed)	0.000
	N	192
Traditional	Pearson correlation	-0.230**
	Sig. (2-tailed)	0.001
	N	192

**p<0.01

The coefficient of correlation in Table 5 shows that there exists a positive and low significant relationship ($r = .286$) between Constructivist conception and Academic Achievement. Besides, there exists a negative and low significant relationship ($r = -0.230$) between Traditional conception and Academic Achievement.

CONCLUSIONS

The first result of the current study has shown that there is a significant difference between the “constructivist conception” scores of teacher candidates according to their gender. The constructivist conception scores of female teacher candidates are higher than of males. However, there is no significant difference between “traditional conception” scores of teacher candidates according to their gender. Kayan, Haser and Bostan-Işıkşal (2013) have determined that there is a significant difference according to gender in the beliefs of the primary school mathematics teacher candidates regarding mathematics teaching and learning. It has been stated that this difference is in favor of women in both constructivist beliefs and traditional beliefs subscales. Likewise, also in studies conducted by Aypay (2011) and Eren (2009), it has been determined that female teacher candidates adopt constructivist approach more. However, it is seen that different results are obtained in some studies. For instance in the study that was conducted by Aydın, Tunca and Alkın-Şahin (2015), it has been found that teacher candidates have adopted constructivist conception more than traditional conception in teaching and learning and male teacher candidates are more inclined to constructivist approach than female teacher candidates. On the other hand, in the study conducted by Başpınar (2015), it has been determined that there is no significant difference in the subscales of both constructivist beliefs and traditional beliefs according to gender in the primary school teacher candidates' beliefs regarding teaching and learning mathematics. In a similar way, Bilgin and Aykaç (2016) and Chan, Tan and Khoo (2007) have determined that there are no significant differences in the teaching and learning conceptions of teacher candidates according to genders.

The second result of the study shows that there is significant difference in the traditional subscale scores of teacher candidates according to their fields of education. The traditional subscale scores of mathematics teacher candidates were less than of the others. Similar results were obtained in some studies in which the differences between teaching and learning conceptions of the teacher candidates in different branches were examined according to the program they studied (Bilgin and Aykaç, 2016; Chan, Tan and Khoo, 2007).

The third result of the study has shown that there is a significant negative, but low relation between academic

achievement and the traditional subscale scores. Besides, there is a significant positive, but low relation between academic achievement and the constructivist subscale scores. In the study conducted by Chan, Tan and Khoo (2007), it has been determined that the teaching and learning conceptions of teacher candidates differ according to academic achievement.

It may be advised to conduct new studies in different branches in a larger sample group due to the fact that different results have been obtained both in the literature and in the current study, where the differences of the teaching and learning conceptions of teacher candidates have been examined according to the gender and the education program.

New studies may be conducted due to the fact that few studies were found regarding to determining the relation between the teaching and learning conceptions of the teacher candidates and their academic achievement.

Quantitative research methodology is used in this study and mixed method studies may be conducted in order to obtain in-depth results in subsequent researches.

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The Investigation of Pre-Service Science Teachers' Self-Efficacy Toward Technological Pedagogical Content Knowledge

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ABSTRACT

Technological developments in the international arena have affected many countries' education systems, as well as being in many areas. As a result of the integration in the education of technological developments, it has caused the change of the professions in the field of education and training, especially in the institutions that educate teachers. The purpose of this study was to investigate pre-service science teachers' self-efficacy toward technological pedagogical content (TPACK) throughout one academic term. The research was carried out with a total of 41 pre-service science teachers from Duzce University in 2016-2017 fall academic years. The study employed an experimental method, namely the pre-test / post-test pattern used with a single group. The data were collected by using the "Technological pedagogical content knowledge (TPACK) self-efficacy scale for pre-service science teachers on material development" developed by Balçın and Ergün (2016). The collected data was analyzed using paired-samples t-test. Also, data are evaluated on 0.05 level relevance and its percentage, frequency, average and standard deviation levels are calculated. When 41 pre-service science teachers' self-efficacy level toward TPACK was evaluated, it was found that their level increased at the end of fall semester (when compared to the beginning of that semester). According to the findings obtained in the research, gender did not affect the TPACK self-efficacy for pre-service science teachers on material development.

Keywords: Technological pedagogical content knowledge (TPACK), self-efficacy, pre-service science teacher, material development

INTRODUCTION

In recent years, the use of technology in science education has been an emerging theme. This has entailed equipping pre-service science teachers with necessary knowledge and skills to effectively integrate technology into the teaching process. In other words, pre-service science teachers are now expected to have technological pedagogical content knowledge (TPACK), which refers to a blend of technology, pedagogy and content knowledge, to enable creative and meaningful technology integration decisions in specific learning contexts. TPACK is also defined as the knowledge of choosing suitable pedagogical methods and technological tools while teaching a subject, using technology to solve difficulties encountered by learners, and supporting students' knowledge and understanding with technology (Mishra & Koehler, 2006). The theoretical framework of TPACK is used in the process of defining, researching and developing knowledge of effective technology integration of teachers both in Turkey and in the world.

Formed by the intersection of content, pedagogy and technology knowledge, TPACK emphasizes that this knowledge should be addressed, not independently of each other, but in an interactive manner (Mishra & Koehler, 2006). For example, it is not enough for a teacher, who wants to use a research and inquiry-based teaching strategy in science class to teach astronomy and space sciences, to have content knowledge of only subject matter (e.g. planets), or only teaching method knowledge within the scope of pedagogical knowledge (e.g. inquiry-based teaching strategy) or only technology knowledge (e.g. simulations). Taking difficult concepts, possible misconceptions and students' prior knowledge about planets into consideration, the teacher should have knowledge of determining technological tools that can be used in the teaching of the subject, have skills to comprehend how those technological tools and materials will support students' inquiry-based learning process, and

have competence to figure out how and when to integrate technology into the teaching process. This example indicates that TPACK is a cluster of information generated by the synergy and interaction of content, pedagogy and technology knowledge with each other. TPACK -oriented in-service training programs are implemented to ensure that teachers can integrate educational technologies into the teaching process (Bell & Bull, 2008; Guzey, 2010). These technologies are slow-motion animations, computers, probeware (instruments that make scientific measurements), SMART Board (multimedia applications) hypermedia (simulation), microscopes, web 2.0 tools, internet, video, camera, video-camera and hyperstudio (Angeli & Valanides, 2005).

It has been observed that teachers are challenged in classroom practices due to the fact that technology education focuses on theoretical knowledge rather than practice, and technological tools and materials are taught irrelevantly of their field of application (Genç & Genç, 2013). New approaches developed to overcome these challenges emphasize the application of curricula which concentrate on the interaction of technology, teaching methods and subject areas (Harris & Hofer, 2011). It is stated that in-service training programs aimed at improving teachers' technology integration knowledge should be designed by taking into account culture and context (Valanides & Angeli, 2008). In-service training programs prepared in accordance with reflective and authentic models suggest that teachers be encouraged to participate as active learners (Tantrurungroj & Suwannatthachote, 2013). Such methods as direct instruction, lesson plan development, fieldwork, peer education, participation in online communities and teacher design teams are highlighted in in-service training programs of pre-service science teachers. The use of such models as practical applications, cooperation, discussion and learning through design is proposed for pre-service science teachers' TPACK development (Jimoyiannis, 2010). It has, however, been observed that most TPACK in-service training programs are implemented in short periods of time, and more importantly, the literature on how teachers apply the knowledge and skills they have learned from these programs to classroom practices is limited (Baran & Canbazoğlu Bilici, 2015). The effect of TPACK in-service training programs on pre-service science teachers' TPACK levels was measured using questionnaires, interviews, lesson plans and classroom observations (Graham et al., 2009; Gough & Roehrig, 2009; Kafyulilo, Fisser, & Voogt, 2014). However, these scales were generally applied at the beginning and end of the training program, which did not allow for enough time to analyze their long term effects. This situation has called for longitudinal studies to examine the effect of TPACK in-service training programs on pre-service science teachers' TPACK self-efficacy and classroom practices (Baran & Canbazoğlu Bilici, 2015).

The aim of this longitudinal study is to fill a critical gap in the literature by investigating the effect of TPACK training programs - structured within the theoretical framework of TPACK – on pre-service science teachers' TPACK self-efficacy levels. Teachers' self-efficacy is one of the factors affecting their achievements and goals in their professional lives (Çakıroğlu, Çakıroğlu & Boone, 2005). Teachers with high levels of self-efficacy are more willing and determined to solve a problem they encounter in their professional lives (Bandura, 1977). Teachers with low levels of self-efficacy, on the other hand, have difficulty establishing an effective learning-teaching environment and giving confidence to students in the teaching process (Tschannen-Moran & Woolfolk Hoy, 2007). Similarly, the integration of technology into the teaching process depends on teachers' self-efficacy beliefs regarding technology knowledge and technology use (Abbitt, 2011; Ertmer & Ottenbreit-Leftwich, 2010; Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010; Wang, Ertmer, & Newby, 2004). Teachers' self-efficacy beliefs regarding TPACK play an important role in technology use (Lee & Tsai, 2010). In this regard, studying and longitudinally examining teachers' TPACK self-efficacy levels will provide information on one of the factors affecting teachers' use of technology in the teaching process.

METHOD

The effect of TPACK training programs on pre-service science teachers' TPACK self-efficacy levels was assessed using a single-group repeated measurements design, which is one of the experimental designs used to evaluate the cause-and-effect relationship between variables (Büyüköztürk et al., 2008; Karasar, 2005). A single-group repeated measurements design is used to investigate whether there is a time-dependent statistically significant difference in participants' behavior by measuring their pre-test and post-test scores for dependent variable (Uluyol, 2011). The independent variable of this study is activities carried out in the Instructional Technology and Material Design course and the dependent variable is pre-service science teachers' TPACK self-efficacy levels. The aim of the study is to measure the effectiveness of the independent variable by carrying out repeated measures for the dependent variable.

Sampling

The study sample consists of 41 third-grade pre-service science teachers (3 males, 38 females) taking the course of Instructional Technology and Material Design in fall semester of 2016-2017 academic year.

Activities within the Scope of TPACK

Instructional Technology and Material Design course included 23 different activities (Table 1) designed in accordance with the course content and Science Teaching Curriculum. The aim of this course is to teach pre-service science teachers the practical application of science education technologies specific to their field of study (scientific measurement instruments, simulations and animations etc.) and non-specific to their field of study (web 2.0 tools, SMART Board, tablets, etc.). Trainers provided participants with theoretical knowledge about an activity and then allowed them to perform it individually or as a group. The activity was completed with the feedback given about its products.

In addition, participants were presented with samples of technology-enriched materials at the beginning of the academic year and given information on plans of a technology-integrated sample lesson. At the end of this activity, participants were divided into groups of four to prepare technology-enriched products within the scope of a science topic. During the fall semester, they were given the opportunity to prepare their technology-enriched products for 4 hours each week. They presented their products at the end of the lesson every week. Trainers provided feedback about the products and shared their latest version with all participants.

Table 1. Some of the Activities in the Training Program

Activities in the Training Program
Algodoo
Scratch
Concept map
Mind Map
Comics
Chem Sketch
Equiz Show
Movie Maker
Toufee (Flash Video)
Antropi Teach
Eclipse crossword
Pdf annotator
Macromedia flash8
Blog
3D Printer
Models
Power Point
EBA

Data Collection

A Scale of Technological Pedagogical Content Knowledge Self-Efficacy (Balçın & Ergün, 2016) was used to measure the change in participants' TPACK self-efficacy levels after the implementation of the training program. The TPACK self-efficacy scale was administered as pre-test and post-test in the first week and last week of the fall semester, respectively.

TPACK is a 40-item and 5-point Likert type scale composed of 8 factors; TPACK, TK (Technological Knowledge), and CK (Content Knowledge) and PK (Pedagogical Knowledge) belonging to minor fields of science, and CK, PCK (Pedagogical Content Knowledge), TCK (Technological Content Knowledge) and TPK

(Technological Pedagogical Knowledge) belonging to major fields of science. Participants were asked to respond to statements using the scale ranging from “strongly agree,” “agree,” “neither agree nor disagree,” “disagree” and “strongly disagree.” Responses to positive items were measured by assigning the value of 5 to “strongly agree,” 4 to “agree,” 3 to “neither agree nor disagree,” 2 to “disagree” and 1 to “strongly disagree.” Responses to negative items were measured by assigning the values in reverse order at the evaluation stage.

The Cronbach alpha reliability coefficient of the overall TPACK was found to be .855 for pre-test and .887 for .887 post-test. The Cronbach alpha reliability coefficient values of the eight subscales for pre-test and post-test ranged from .866 to .892.

Data analysis

Data were statistically analyzed using the SPSS, version 20.0. Shapiro-Wilk values were examined to determine whether the data obtained from TPACK- SES (Self-Efficacy Scale) showed a normal distribution or not. Shapiro-Wilk values were greater than significance level .05 (p pre-test = .567; p post-test = .495), indicating that the data set had a normal distribution. A t test was performed to assess the change in participants' self-efficacy levels during the training program in the fall semester and to determine whether the effect of the training program persisted afterwards (Büyüköztürk, 2007, p. 71).

FINDINGS

Mean scores of the scale and subscales show that post-test scores are higher than pre-test scores (Figure 1). The separate analysis of the mean scores of subscales indicate that participants' self-efficacy levels increased as a result of the training program.

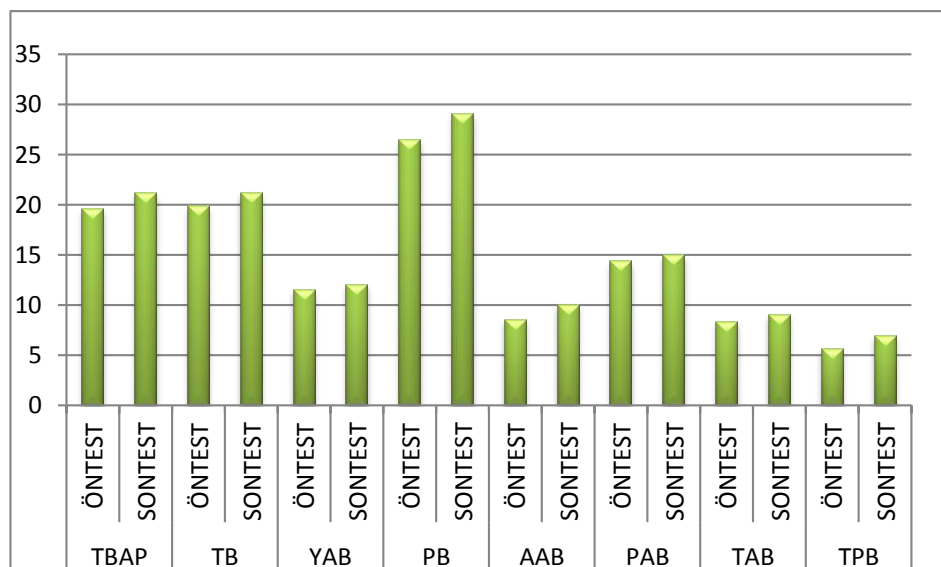


Figure 1. TPACK -LAS Mean Scores of TPACK -LAS Pre-test and Post-test

Table 2 shows the t -test results on whether there is a significant difference between TPACK - SES pre-test and post-test scores.

Table 2. T-Test Results of TPACK - SES Pre-Test and Post-Test Scores

Tests	N	X	S	sd	t	p
Tbap pre	41	19,56	1,226	40	6,449	.000
Tbap post	41	21,12	1,977			
Tb pre	41	19,83	1,358	40	5,198	.000
Tb post	41	21,17	2,011			
Yab pre	41	11,51	,978	40	4,835	.000
Yab post	41	12,05	,893			
Pb pre	41	26,46	1,247	40	12,568	.000
Pb post	41	29,02	1,491			
Aab pre	41	8,54	,925	40	9,832	.000
Aab post	41	9,95	1,284			
Pab pre	41	14,37	1,220	40	4,068	.000
Pab post	41	14,95	1,284			
Tab pre	41	8,32	1,439	40	4,617	.000
Tab post	41	9,02	1,458			
Tpb pre	41	5,63	,888	40	6,741	.000
Tpb post	41	6,90	1,091			
Total pre	41	114,22	3,206	40	18,498	.000
Total post	41	124,20	3,970			

Table 2 indicates that across the scale, there is a statistically significant difference between participants' post-test and pre-test scores.

CONCLUSIONS

This longitudinal study investigated the effect of TPACK on pre-service science teachers' self-efficacy beliefs. T-test results indicate that participants' post-test self-efficacy scores are statistically significantly higher than their pre-test self-efficacy scores after the fall semester training program. Similarly, Graham et al. (2009) reported in their study with 15 science teachers with different professional experience that participants' TPACK, TPK, TCK and TK self-efficacy levels increased after a training program conducted. They also stated that the increase in participants' TCK levels were higher than the increase in other knowledge levels. Kafyulilo, Fisser and Voogt (2014) determined in their study with 12 science teachers that the highest increase in participants' self-efficacy levels after a TPACK-based training program was observed in TCK, followed by TPACK, TPK and TK. In light of studies with similar results, it is possible to state that TPACK-based in-service training programs with an emphasis on the use of technological tools and materials contribute to the improvement of teachers' technology-based knowledge structures (TPACK, TCK, TPK and TK).

Although Ansyari et al (2012) did not find a statistically significant difference between participants' pre-test and post-test CK scores after a 3-week TPACK-based in-service training program organized for English teachers, they found that trainers' instructional methods in TPACK-based trainings may have an effect on participants' CK self-efficacy levels. They stated that the increase in participants' self-efficacy beliefs regarding all knowledge structures (TK, PK, PCK, TCK, TPK and TPACK) except CK after the in-service training might be due to the fact that instructors who taught in the training program focused on technological knowledge and pedagogical knowledge rather than course knowledge. In this study, participants' CK self-efficacy levels might have been affected by the fact that they failed to give adequate answers to course-focused questions addressed by instructors. For example, some participants' inability to answer the question of how acceleration-time, velocity-time graphs of their motion should be as they walk towards a motion detector in the activity on the use of scientific measurement instruments (probeware) might have made them recognize a gap in their content knowledge and affected their self-efficacy levels.

The results show that there is a statistically significant difference between participants' pre-test and post-test

self-efficacy scores regarding the contextual dimension of TPACK -SES. This might be due to the emphasis on contextual factors (teacher beliefs, culture, school resources, classroom physical environments) affecting technology use in classroom activities. Contextual dimension is generally ignored in TPACK studies. However, the increase in participants' self-efficacy scores as a result of the contextual dimension addressed in this study is consistent with results of other studies which emphasize the importance of focusing on contextual dimensions affecting TPACK (Koh, Chai, & Tay, 2014).

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The Levels of English Language (Efl) Among Students of Public Upper-Secondary Schools in Poland. The Approaches Towards Assessments of Different Type of Students –Formative Assessment and Adjustment of Education Requirements

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ABSTRACT

The article intends to elaborate on aspects of teaching English mainly students' level of language proficiency that they represent when they enter upper secondary schools in Poland. The author is to present various levels of knowledge represented among students during their first year of upper secondary school. Furthermore, the author is to present methods and lexical contents which are covered during the language lessons to finally show students assessment criteria imposed on each of a student, how they differ. The article analysis the language teaching process and adjustments made to it considering different type of students and alterations done to requirements along mentioned teaching process. All to find out if such changes mostly done is good faith can be examples of fairness and equality and imposed with best interest of students or not.

Keywords: English as a foreign language, upper-secondary school, language proficiency, formative assessment and adjustment of education requirements.

INTRODUCTION

The 21st century developed plurilingual and comprehensive (in contrary to 20th century monolingual) approach towards languages. Late 20th century policies of the European Union assumed that at some point in individual's life one will acquire second language through some kind of formal type of learning¹. The approach towards those whose first language belongs to one of the dominant languages (English, Spanish, German and French) is different to those whose languages are minor languages (Swedish, Finish, Polish, Czech, Hungarian etc.) where often high level of fluency in second language acquisition is expected.

Even though, the number of people who are able to communicate in the English language is raising every year as people are taught foreign languages through public and private education (language schools). Still, very young Poles do not speak any foreign language unless one of parents is a foreigner. Typically only through education young Poles are able to speak one or two foreign languages. The Polish education system of today is based on the Education System Act of 7 September 1991 (with further amendments) which states that, "Education and upbringing serve the developing of young people's sense of responsibility, admiration of the fatherland and respect for the Polish cultural heritage, while being open, at the same time, to values of European and world's cultures. The objective of the school is to provide each pupil with conditions necessary for his/her development and to prepare him/her for the fulfillment of family responsibilities and civil duties based on the principles of solidarity, democracy, tolerance, justice and freedom"². As far as the language acquisition is expected for students to know at least one foreign language – preferably English – and ideally two foreign languages as it was stated during the European Council Meeting in Barcelona in 2002³. Mainly for this reason

¹ J. McPake, T. Tinsley (2007). *Valuing All Languages in Europe* [online]
<http://archive.ecml.at/mtp2/publications/Valeur-report-E.pdf> [1 July 2017].

² [ibe.unesco.org](http://www.ibe.unesco.org), (2010). *World Data on Education* [online]
<http://www.ibe.unesco.org/sites/default/files/Poland.pdf> [20 March 2017]

³ In a document entitled *Presidency Conclusions* one can read: 'mastery of basic skills, in particular by teaching at least two foreign languages from a very early age' [online]
https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/71025.pdf [30 May 2017].

countries like Poland introduced foreign language education at very early stage of public education both in primary school and lower-secondary school where students are required to study two foreign languages⁴. Teaching languages in Poland is mainly done through different types of public and private schools (private language schools too). Structurally speaking, the education system in the Republic of Poland is based on pre-school institutions as well as primary, lower-secondary, and upper-secondary schools. It is obligatory for every pupil to study (attend school) until they are 18 years old. As far as foreign languages are concerned English is one of the most popular foreign languages taught in Europe and Poland is no different⁵. Mainly, due to the historical influences the languages popular in Poland were Russian and German respectively. However, after 1990 when Poland became a democratic country, and especially after 2004 when it joined the European Union Polish education system favoured English as the main foreign language. Undoubtedly, it is connected with the significant shift towards multilingualism. Various types of actions can be seen to promote language learning, as a result there are greater opportunities than ever to learn not one but often two foreign languages within public education system. As, there is even greater emphasis in European countries for additional language learning. However, among primary school students there are only 7,9% of them who learn a second foreign language in Poland⁶. During this stage of education the entire emphasis is placed on first language teaching, which itself is a new concept as previously students started learning a foreign language much later.

English language teaching in Poland

Each pupil in Poland attending a public school starts with preparatory English language classes as early as in pre-school. Students aged 3-6 are engaged in 15 minutes long classes and when they are aged 7-9 in 30 minutes long classes during which they have possibility to learn different aspects of English like: numbers 1-10, colours, toys, animals, parts of human body, clothes, food, birthday, adjectives and adverbs of movement, members of family, shopping and goods, parts of house, house equipment, sport disciplines, days of the week, seasons, the weather, musical instrument, means of transport, outdoor games, holidays (Krajewska, 2015, pp. 18-26). Students learn new language through educational games, songs, quizzes etc. As it is believed that “children usually have a tendency to be dedicated and excited learners, without the inhibitions which older children bring to their schooling” (Koutsompou V., 2013, pp. 27-37). For this reason Polish Ministry of Education decided to introduce foreign language teaching as early as pre-school and primary school educations. It is mostly done through different methods of foreign language teaching, parts of lessons are conducted using more traditional approaches like especially popular during the early stage of teaching the Total Physical Respond Method, which bases on engaging students in a conducted lesson through actions (Larsen-Freeman, 1990, p. 54). Such classes are usually based on activities like dancing, singing, drawing, painting, etc. This method is used in primary school in classes between grade 1-3 and even more in pre-school activities which are dedicated to young students of English. Additionally, the Direct Method is used while teaching as it is intended for students to be exposed to a foreign language as early as possible, to be able to imitate newly acquired language. Furthermore, as it is believed teaching students entire sentences will allow them to learn vocabulary and grammar fast – learning by repetitions (drills). “It is these basic patterns that constitute the learner's task. They require drill, and more drill, and only enough vocabulary to make such drills possible” (Richards, Rodgers, 1999, p. 46). Both pre-school and first stage of language education in primary school in Poland bases on learning through

⁴ One can read: „Since September 2008 a foreign language classes were to be taught in primary school and a second language will be introduced to lower-secondary school” [in: Guza, L. *Lower-secondary students are to study two foreign languages* [online] <http://praca.gazetaprawna.pl/artykuly/28041,gimnazjalisci-beda-sie-uczyc-dwoch-jezykow-obcych.html> [20 July 2017]

⁵ „English is the most widely spread foreign language which is taught in European schools. In the previous issue of Key Data on Teaching Languages at School in Europe 2008 it was stated that English dominates in Europe as it is used in 14 countries. In countries where it was not state which language should be chosen English also is the most popular language”. [in:] Gorowska-Fells, M. (2012). *Kluczowe dane o nauczaniu języków obcych w szkołach w Europie 2012* [Key Data on Teaching Languages at School in Europe 2012], w: Czasopismo dla nauczycieli. Języki: obce w szkole [Foreign languages in school], Warsaw, p. 53.

⁶ Wittenberg A., Klinger K. (2015). *Nauka języków obcych w polskich szkołach: Uczniowie są niczym niemowcy* [online] <http://serwisy.gazetaprawna.pl/edukacja/artykuly/897091,nauka-jezykow-obcych-w-polskich-szkolach-uczniowie-sa-niczym-niemowcy.html> [15 July 2017].

discovery and playing educational games as it is desirable that the learning process to be pleasurable for pupils, grading students which at this point is used more as a process of rewarding them and not necessarily giving them feedback .

However, language teaching in grades 4-6 changes. There are approximately 290 teaching hours of foreign language devoted to three years, meaning that there are at least 3 hours of English per week lasting 45 minutes each. At this point each topic is devoted to different themes like: man, house, school, work, family and social life, food, shopping, travelling and tourism, culture, sport, health, wild life. Each lesson is divided into tasks where students are practicing exercises devoted to listening, speaking, reading and writing.

Those who complete the primary school enter the lower-secondary school (gymnasium) which last for 3 years. Pupils aged 13-16 from now on are required to learn two foreign languages – normally English and German much seldom French, Spanish or Italian. Here, the topics which are going to be covered are divided into 14 themes – human, home, school, work, family and social lives, food, shopping and services, tourism and traveling, culture, sport, health and nature (Tittenbrum, Piotrowska, 2012, pp. 10-20). On each lesson students are exploring the abovementioned theme through discussions, reading articles, listening to dialogs, writing stories, essays, etc.

The levels of language proficiency in Polish public school

As far as levels of proficiency are concerned pupils start their education as beginners to obtain the level of A1 (where A represents – basic user, B – independent user, and C – proficient user)⁷ during their early primary school years and A2 at the end of it. As far as lower-secondary education is concerned students are required to reach B1 the level of language proficiency and at the end of their public education in upper-secondary school the level of B2 of language proficiency. Pupils' development is examined through standardized test which is set by the Central Examination Board and assessed by Regional Examination Boards. The exam itself is obligatory and it has an impact upon the admission to upper-secondary circle of study in contrary to lower-secondary circle of study where the results are not taken into consideration during the admission. It serves as an guideline for parents and teachers in most cases.

In reality students entering the upper-secondary school represent different levels of language proficiency which can be verified on various ways. At first students entering upper-secondary school are equipped with lower-secondary leaving certificates which show their grades. In addition, they have results of their standardized foreign language exam. Both results may only serve as a guide and need to be verified because during the final year students' results tend to be overstated by teachers. It is done in good faith, as teachers want their students to finish with distinction or as far as those whose performance at school was unsatisfactory to let them finish school. If it comes to the standardized foreign language exam set by the Central Examination Board it is impartial, still it is designed in a way that students are provided with answers that they have to choose. It is worth saying, there are no deductions for answering it wrong. Students when they do not know the answer are encourage to guess it. Not to mention, that most times they guess right answers because of their instinct. So instead of learning the language they are taught how to distinguish a right answer among wrong ones. Also, the answers that the student can choose from are very different, for students it is very easy to spot at least one answer which is completely wrong. Another way how the language level can be checked is by language placement test, it is also a multiple choice exams, mainly for this reason teachers often erase answers and ask students to write the correct answer instead. Some of educators also choose to speak with students to see what is their language fluency. Generally speaking students take an external exam after lower-secondary school to gather enough points to be accepted to a school of their choice. They can choose three of them and only than they set a priority. If they do not collect enough points to be accepted to a school of their first choice they need to reapply to a second priority and if not succeeded to their third one.

Once a student is in school, normally a class with approximately 35 students is divided into two groups. Sometimes such groups are formulated according to their levels of language proficiency and sometimes not as for example students attend a technical school were they are divided by professions they are willing to specialize

⁷ For further information see: (CEFR – Common European Framework of Reference for Languages) [online] https://www.coe.int/t/dg4/linguistic/source/framework_en.pdf [30 May 2017].

in. Some schools, however not many, developed a strategy to create language classes to which students attend depending on their language proficiency despite the actual grade they are in. For most of schools such arrangement is impossible as there are other classes that are required to be run in smaller groups like: physical education and professional classes in technical schools. However, the reality for majority of schools is that within one group of 12 students (each class needs to be divided when there are at least 23 students in it) there are students with mixed abilities students.

Characteristic of foreign language teaching in upper-secondary school

Theoretically, the approach used in public education system is the process of individualization of studying to ensure the ideal conditions for students to achieve success by taking into consideration their needs and potential. The curriculum is adapted to students' individual abilities by using the *eclectic approach*⁸ while performing classes.

The main aim behind language teaching in upper-secondary school is to prepare students for upcoming matriculation exam which is required to enter university. At the upper-secondary level there are 450 hours for two foreign languages, which around 300 of them are dedicated to the first language (English) and around 150 hours to the second (German, French, Spanish, sometimes Portuguese. Nowadays, there is a growing demand for Asian languages like Chinese and Japanese which are becoming extremely popular in Poland. The number of hours dedicated for a main foreign language is 300: 2 for the first year, 2 for the second, 2 for the third and 4 for the final year of study (technical school) whereas for the extended level there are 510 hours: 2 hours for the first year, four for the second year⁹, four for the third year and seven for the final year of studying. Students entering any type of upper-secondary schools choose classes – normally they specialize in two subjects. The number of such two subjects are extended. If it comes to English, students have a chance to prepare for matriculation exam or the extended form of it. Still, students whose number of hours are not extended can choose to pass extended version of matriculation exam. Here, the first year of upper-secondary school is normally treated as a catch up year for each students so their language abilities will be at more or less the same level. Only later the classes should be challenging and though provoking even though the topics are not different from the lower-secondary school. Teacher is not concentrating its efforts on covering basic vocabulary, it is being revised quickly during the early stage of the lesson when students are asked simple questions as an introductory part to find out how familiar they are with the material.

In theory, it needs to be stated that within curriculum at upper-secondary school there are no beginner students as obligatory the English language is taught in lower-secondary school for this reason a foreign language school be revised and its knowledge expanded. For this reason students should use already known vocabulary and structures to be encouraged to acquire new lexical forms and grammatical structures.

For this reasons, teacher performance needs to be very flexible as within one language group there are usually students with mixed abilities. As, such situation brings a lot of challenges ahead of a teacher who needs to work with both weak and strong students with those whose abilities to absorb new material are much better and those who needs far greater amount of time. There are also those whose background knowledge is greater than others who are struggling with basic aspects of English both vocabulary and grammar. Not only have they various starting levels of English as they have been studying in different lower-secondary schools they also learn at very different speed. Above already mentioned situation teachers often deal with students with dyslexia, dysgraphia and dysortography not to mention students with lower than average intellectual development.

Mainly, for above mentioned reasons when assessing students teachers need to take various approaches. The approach towards students is stated in the Advancements on Educational Requirements to Psychophysics Possibilities Results from Students' Individual Needs. It needs to be stated that such adjustment should not be done by eliminating elements of the curriculum but by dividing each of the aspects of lesson into these aspects necessary for the language process so the student will be able to succeed on the next lesson. As far as assessment is concerned mistakes where teacher is able to recognize a piece of vocabulary is considered correct, it is acceptable for the student to write in print or use a computer, also students have more time to answer and

⁸ A method of language teaching that combines various approaches and methodologies to teach language depending on the aims of the lesson and the abilities of the learners [online]

<https://www.teachingenglish.org.uk/article/eclectic-approach> [10 July 2017].

⁹ The following number of hours is dedicated to foreign language teaching in a technical school.

write exams and each of exercises are to be explained to them. The assessment itself should cover shorter parts of materials. As far as all students are concerned formative assessment (assessment for learning) should be used as before, during and after the process of learning students should be aware what is he/she going to achieve during the learning process (aim of learning), what is being covered and what is the most important what student during the learning process has acquired throughout the learning process – should be discussed.

CONCLUSION

Undoubtedly, there is a high demand for quality English lessons to be performed in public schools where mixed ability students are treated accordingly – to help them achieve their educational goals. Also, it needs to be said that most of the changes are done in good faith so to help those in need. Still, the reality seems to show, that instead of helping students, teachers allow them to seek excuses not to try harder. As, in reality educators often need to prolong the time students have for answering and writing assignments. As a result students with educational problems are rarely involved during English language classes where new material needs to be introduced on every lesson which lasts 45 minutes. For this reason students are given shorter exams, easier tasks so the time is not spend only on them, as it has to be remembered that there are at least 10 other students in a language class and some of them might require more difficult tasks to be covered during classes. Also, it needs to be said that the matriculation exam is the same for all kind of students, the only help allowed is that such students are given 30 minutes longer when writing their exam. Unfortunately, as a result such students are struggling to pass from class to class as teachers do not have time during classes to help them and additional hours are not provided. Either such student will attend a private language school or private classes or they will have huge difficulties obtaining required 30% during their matriculation exam. It is commonly observed that such students graduate from the upper secondary schools without obtaining matriculation exam. For this reason, each student should be treated differently, help of any kind should only be restricted to certain amount of time, not prescribed for life.

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The Meaning of Global Citizenship in the Community Activities of International Married Immigrant Women From Korea

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ABSTRACT

The purpose of this study is to examine the meaning of global citizenship in the community activities of immigrant women in international marriages. To this end, I interviewed three transnational community officers of Korean women in international marriages. I wanted to find out what these Korean women are doing through the community and the meaning of global citizenship. The results of the study are as follows. First, it showed behavior that resisted social prejudice and discrimination. Second, there was an activity for cultural coexistence between the home country and the country of residence. Third, they practice transnational respect for humanity through the community. The conclusions of this study are as follows. Immigrant women in international marriages have various influences on their home country and their country of residence through community activities, and their activities are carrying out global citizenship by practicing service and harmony.

Keywords: Prejudice and Discrimination, Community, Global Citizenship, Korean Immigrant Women in International Marriages, Respect for Humanity.

INTRODUCTION

Korea has a unique phenomenon in which 84.6% of migrants are women. This is because marriage of foreign women has increased by 28% every year from 2002 to 2013 (Statistical Yearbook of Immigration and Foreign Policy, 2015: 48). Married immigrant women are subject to considerable difficulties, prejudices and discrimination in Korean society. They are in the position of daughters-in-law, wife, and mother in each family in Korea, but suffer considerable conflicts due to language barriers, cultural differences, and low economic standing (Seol Dong Hoon, 2005). However, foreign married immigrant women do not show a passive attitude to their reality. Rather, they actively rebuild their lives. Married immigrant Filipino women residing in Korea form a community to share employment related information and link social networks. It also supports women who suffer from violence and conducts collective action. It also stabilizes economic survival in the Korean society through the Philippine community and complements the position of immigrants (Kim, Jung-sun, 2012: 65, 73). Similarly, Korean-American women who have left Korea since the 1950s and married abroad have also formed communities in their own countries. Married immigrant Korean women carry out a variety of volunteer activities in their country of residence and form their own network. These community activities are now more than a generation ahead of foreign married immigrant women residing in Korea. The experience of the married immigrant Korean women in the foreign community will help to understand the phenomenon of the Korean multicultural society. The purpose of this study is to explore the meaning of global citizenship in Korean marriage. This study will have two effects. First, it will be an opportunity to renew the awareness of Korean married women in Korean society. Second, we can understand foreign married immigrant women who are currently engaged in similar community activities in Korea. Third, we can expand the understanding of Korean society's multicultural reality. Accordingly, the research questions are as follows. First what are the community activities of married immigrant Korean women? Second, what is the significance of global citizenship in the community activities of married immigrant Korean women?

THEORETICAL BACKGROUND

2.1 Internationally married immigrant Korean women

The international marriage of Korea began when the US military presence began due to liberation and the Korean War. At the time of the Korean War, the exit that the Korean women chose for themselves and their families was marriage migration. However, some married immigrant Korean women experience prejudice and discrimination in American society. Even in the Korean community within American society, they are either left out or in a position of alienation (Park, Hae-gwang, 2015: 151). The identity of married immigrant women married to Filipino soldiers remains quite firm and patriotic. However, in Korean society, being considered outsiders these women are not an object of interest (Kim Minjung, 2015: 277). Korean women who married and

migrated to a Japanese farming village are proud of their identities and self-culture, and are active in social activities. However, they are exposed to the obstacles and exclusiveness of the Japanese community (An Tae-yoon, 2011: 71). Married immigrant Korean women actively live their lives in the country of residence, but they are experiencing prejudice and discrimination in the society of the country where they live and even in Korea are not given much attention. In addition, previous studies on married immigrant Korean women mainly deal with individual cultural adaptation and identity, and there is almost no research on the community activities of married immigrant women. Therefore, this study examines the community activities of married immigrant women.

2.2 World citizenship

The increase of migration and the development of communication have restructured the whole world into a narrow area. Therefore, the problem of one region is not the problem of the region alone, and it can affect all the regions of the world. Therefore, global consciousness, that is, global citizenship, is demanded from the members of modern society. (2007: 127, 131) is a component of global citizen consciousness, which is divided into citizen consciousness, multinational consciousness, global community consciousness, and national community consciousness. In addition, Kim Seon-mi (2007: 132-140) divided global citizenship into four categories. First, it is a field of international thinking that has critical thinking and analytical ability about international social issues and responsibility for world problems. Second, it is an area of international understanding. This means multicultural understanding and understanding and insight into international issues. Third, the domain of international values and attitudes refers to contributing to humanity and public good. Fourth, in the field of social relations, it was called as cooperation for solving the problems and the ability to network with various members of society. Individuals with global citizenship therefore need the ability to think critically and rationally about what is happening in the international community. In addition, global citizenship means to actively participate as a democratic citizen with humanity and to work together on common problems. Therefore, the purpose of this study is to examine what the global citizen factors are in the community activities of Korean married immigrant women.

RESEARCH METHOD

3.1 Collecting research participants and data

For this study, we conducted in - depth interviews with three research participants in the internationally married Korean women 's community. The characteristics of the study participants are as follows.

<Table 1> Characteristics of participants

Research participants	age	Residence period(year)	residence	Job	Migration background
Research participants	70s	about 50	USA	Entrepreneur(Company)	Family immigration
Research participants 2	70s	about 40	Germany	Entrepreneur(Hotel)	Nurse
Research participants 3	60s	about 40	USA	Pastor	Marriage immigrant

The study participants are from the United States and Germany, with a residence time of around 40 years. Interviews took place in October 2016, and interviews took more than 60 minutes for each individual. The questions were about the content, purpose and reason of community activities. Before the interview, the purpose of the study and the rights of the participants were discussed with them. We also recorded the results after obtaining consent for the recording. We asked the participants to review the recordings for transcription and modification. All the parts that required revision were revised.

3.2 Method for research

The purpose of this study is to explore the meaning of global citizenship in community activities of married immigrant Korean women. The qualitative research was carried out to achieve the purpose of the study. Qualitative research is conducted when researching a specific group or seeking a more detailed understanding of a particular issue (Creswell, 2007; Hung-Sik Cho, et al., 2010: 65). Qualitative research places a lot of interest on 'meaning' and the focus is placed on discovering that meaning. It also focuses on the historical, social, and cultural contexts associated with specific situations (Kim, Byung-chan, 2010). In-depth interviews were conducted for this qualitative research. Qualitative research will be an appropriate method for examining the meaning of global citizenship, since there are places where we can see married immigrant women organizing and working in their communities.

RESULTS

The purpose of this study is to explore the meaning of global citizenship in the community activities of international marriage immigrant women. The results of the study revealed three meanings and two sub - themes, respectively. The results of the study are shown in <Table 2>.

<Table 2> result

Meaning	Subtopics
1. Resisting discrimination and prejudice	1) Prejudice and discrimination in home and host society 2) Through prejudice and be unity
2. Activities for cultural coexistence	1) Service activities without discrimination of nationality 2) Adapted to the foreign culture
3. Practice transnational respect for humanity	1) Constantly serving 2) Help each other to live together

4.1 Resisting discrimination and prejudice

Community activities of research participants are meant to restore their self-esteem against the discrimination and prejudice imposed on them in their home and country of residence.

4.1.1 Prejudice and discrimination in home and host society

"Even at that time if I did speak English I was discriminated against, so even if I went to another country and spoke English fine, I couldn't speak English in Korea. Also, when I went to the market in Korea they noticed that I had come from the US and they looked at us differently from the way they look at Koreans. Apparently we look a little different because we lived in a foreign country for a long time." (Research participant 1)

" The children were teased at school and came home and cried. Mom Why did you marry my dad? If you had not married dad, the school kids would not have made fun of me as chinese. Obviously it can't happen overnight but I want to resist those stereotypes that I've been a victim of." (Research participants 3)

Participant 1 refers to a discriminatory experience she had experienced when she came to Korea. As a result of living in a foreign country for a long time, the differences between them have appeared, and therefore they have experienced different attitudes despite them all being Korean. In addition, study participant 3 shows a willingness as a mother to resist the racial discrimination their children receive in their country of residence. This shows a psychological constraint that research participants have a sense of social affiliation in their home country and countries of residence. Social affiliation is a psychological sense of belonging regarding family, friends, colleagues, and other members of society regardless of how psychologically close or far they are. This becomes the basis for individual self-esteem (Lee and Robbins, 1995; Pretty, 2002; Liaoning and Kim, Kyung-min, 2016: 40). This exclusion of social intimacy and belonging is the reason why married migrant women form their own community and maintain their own sense of belonging.

4.1.2 Through prejudice and be unity

"Youth shelters, free meals, protection of abused women, donation of rice cake soup for Korean seniors, donation to Las Vegas police, experience of traditional Korean culture, support for US soldiers and their families, Kimchi 20 boxes, (Including the activities of Las Vegas, Washington State, Minnesota, North Texas, Oklahoma, etc., quoted in the 12th World KIMWA guide book).

Research participants are members of the international marriage Korean women's community and carry out various volunteer activities in their areas of residence. Such service activities help with the weaknesses in the society and alleviate conflicts, fulfill the needs of others, and strengthen the character of citizens of citizens. This can be understood as the practice of national citizenship and global citizenship. National citizenship means the character of citizens and ability to contribute to the maintenance and development of a democratic community as a citizen of the political community. This can also be understood as a global citizenship (Kim, Namjun, 2015:12).

4.2 Activities for cultural coexistence

Cultural coexistence is indispensable for various nations to be in harmony. In this regard, international marriage women looked at how they are doing.

4.2.1 Service activities without discrimination of nationality

"We serve in American society as well as Vietnamese people. What we want to do next is sponsor married immigrant foreign women who have difficulties in adapting to Korea. We are ready to sponsor multiple people to do that even today." (Research participant 1)

Married immigrant Korean women are helping not only Koreans but also immigrants from other countries when they serve in their own communities. They also want to help foreign married immigrant women in Korea. As such, Korean immigrant women are focusing on the needs of others, regardless of nationality, race and political interests. This indicates that we are practicing activities that contribute to goodwill and public well-being which are some of the characteristics of global citizenship.

4.2.2 Adapted to the foreign culture

"I have to adapt quickly. We have to learn what they do. I have to in order to live comfortably. Because we lacked language skills, I had to work with my body. I hated to hear people say "They can not speak and they can not work." Because we were not able to speak well we watched others and just worked. So we got recognition. And then I learned the character of the people of the country little by little, I realized what I had to do and gradually changed." (Research participants 2)

Korean women who migrated from their own countries tried to learn the habits and attitudes of the people of the country and the way they worked in order to adapt. This effort to adapt has played a role in linking Korean married women to the society of the countries in which they reside.

4.3 Practice transnational respect for humanity

The community activities of married immigrant Korean women are not oriented toward a single nationality, but are based on affection and compassion toward all human beings.

4.3.1 Constantly serving

"We do a lot of volunteer work in the branch. If those in international marriages do not serve the Korean associations or other organizations can not do big events." (Participant 1)

"When other people helped those who have been sent to prison under false charges or helped women in international marriages we helped with them." (Research participants 3)

To marry and immigrate to a different country means that their lives should be taken by the roots, moved to the new environment in a way that they can live. In this environment, they chose not just to focus on themselves, but to serve others and give of themselves. This can also be seen as a cooperative spirit, another component of global citizenship. In other words, global citizenship means to demonstrate cooperation, (Kim Seonmi, 2007) to network with various members of society as one area of the social relationship of global citizenship and solve common problems.

4.3.2 Help each other to live together

"There are people who have been in international marriages for a long time and while they lived in foreign countries never visited Korea. It's because of money. We want to help some of those people, and we have to look also for those people with difficult family situations." (Study participants 2)

Among Korean women in international marriages living in a foreign country some are successful, but more people are living in an environment where they have never been to Korea for decades after marriage. The community of Korean women in international marriages is working very diligently to prepare measures for these people. Married immigrant Korean women are communicating, helping, sharing, and practicing philanthropy not only for themselves but also for everyone who lives near them. These practices demonstrate and put into practice the character of global citizenship.

CONCLUSIONS

The purpose of this study is to explore the meaning of global citizenship in the community activities of internationally married immigrant women. The results were classified into two parts. First, what are the community activities of married immigrant Korean women. Second, What is the meaning of global citizenship in their community activities.

First, the community activities of Korean women are classified into the following three categories. First, there is resistance to discrimination and prejudice. Second, there was activity for cultural coexistence. Third, there was the exercise of transnational respect for humanity. Married immigrant Korean women are working with

international values and attitudes that contribute to humanity and the public good by organizing, serving, and sharing in their communities. It also demonstrates the characteristics of global citizenship by cooperating with various members of society to solve common problems. The significance of global citizenship in the married immigrant Korean women's community activities is cooperation. They are subject to discrimination and prejudice because of their different language and cultural settings in their respective countries of residence. However, they did not concentrate on their problems but instead listened to others who needed help and sought to cooperate with others. This is comparable with the survival strategies of the trees that grow on the volcanic islands. Jeju Island in Korea is a volcanic island with rocks beneath thinly covered soil. The trees extend their roots sideways to connect with the roots of other trees to overcome strong sea winds and typhoons. Rather than creating its own strong roots, the tree has a strategy of living with other trees through joining forces and cooperation. Just as the trees on the volcanic island coexist and survive, Korean women are also cooperating with others and living together through community activities. In the present situation where all the world is becoming a neighbor, these married immigrant Korean women can find the principle that all of us should pursue. Rather than pursuing a strategy to adhere to and protect the interests and rights of individuals and societies, it is important to think about how to move toward sharing and cooperating with each other.

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The Multilevel Structural Equation Model of Strategic Leadership Affecting The Educational Quality According to Standard For Internal Quality Assurance in Thailand

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ABSTRACT

As the strategic leadership of school administrators affects the quality according to the standard for internal quality assurance in schools, this research aimed at studying the consistency of the model and the influence towards individual level and organization level. The population was 3,763 school administrators and teachers in 84 schools while the sampling group remained 730 persons from 43 schools selected by multistage sampling technique. Data was collected by using a 5-rating scale questionnaire and a note form for the result of Ordinary National Educational Test (O-NET). The consistency between the model and empirical data of each influence was analyzed through the multilevel models. The findings indicated the χ^2 at 72.448, df at 67, χ^2/df at 1.081, P-Value at 0.303, RMSEA at 0.011, SRMRw at 0.0022, SRMRb at 0.009, CFI at 0.998, and TLI at 0.997. The value of these indexes represented the consistency between the model and empirical data with the “excellence” scale of the criteria. The strategic leadership of school administrators could affect the quality according to the standard for internal quality assurance in schools ($R^2 = 0.913$). The influence of individual level of the model was 0.955 with statistical significance at the 0.01 level. The influence of organization level of the model was 1.000 with statistical significance at the 0.01 level.

Key words: Leadership, Educational quality, School administrators

INTRODUCTION

The trend of globalization causes changes in various dimensions quickly. These changes are happened according to many important factors. First, it is qualified population which receive qualified education, so the strategy for effective management is required for quality of learners, learning outcomes, the internal quality assurance system, and cooperative building among organizations for educational development investment (The secretariat of national reform council, 2015). However, Thailand confronts with problems in quality of education which may affects the quality of learners in the country. The important evident which reflect the problems about the quality of Thai education are derived from the observation of international organizations and the assessment of domestic organizations such as the result of quality assessment from the Office for National Education Standards and Quality Assessment (Public Organization) and the result of the Ordinary National Education Test (O-NET). These two results found that most learners have knowledge in importantly fundamental subjects below the standard assessment. These results were similar to the study of Programme for International Student Assessment (PISA). It reported that Thai learners had knowledge in science subject in high level for 1%, and 74% of Thai learners had difficulty in Thai subject. For example, Thai learners couldn't read and interpret Thai language (Svasdivat Na Ayudhya, 2013).

These empirical evident held back the capability of national competition, so Thai education is necessary to have new educational management by the qualified system according to the strategic management from administrators who have leadership strategy. The leadership strategy will be a way to help the administrators to specify directions and analyze circumstances of their organizations for appropriate strategies. As a result, they will be able to perform these strategies, control and assess the outcome of their organizations' performance. The

strategies are essential to specify the achievement of the organization. The factors of organizational achievement include the knowledge and ability of administrators who have leadership strategy and the capability to think strategically (Wootton & Horne, 2010). Thus, the leadership strategy of administrators must be able to expect the future by wide perspectives in long period in order to specify directions of education. However, the leadership strategy still has flexibility in order to reach the objectives of organizations. It can be seen that this leadership will focus on the objectives considerably, but the strategy is ready to be changed as needed according to situations if the administrators will make it achieve towards the objectives of the organization (Somprach, 2016).

The strategic leadership is the state that the school administrators present their views of success of organizations in the future for a long period which is similar to the leaders who focuses on motivating personnel (Nahavandi, 2000) by giving them rewards resulting from their successful work assessment and giving authority to their personnel. Although the administrators greatly focus on the success of goal, the methods to reach that goal still have flexibility. Also, they can change the strategy as needed. Thus, the leaders of organization are essential to have ability to predict the future, specify directions and strategies, and use the strategies in their performance (DuBrin, 2006; Hitt, Ireland and Hoskisson, 2007). Therefore, the strategic leaders have to be responsible for many things, especially encouraging the strategic administration to reach the achievement (DuBrin, 1998; Hooper and Potter, 2001).

Davies and Davies (2004) gave that perspective that the strategic leadership was related to the development of strategies and organizational processes, leading and personnel development, the development of culture and value system, the development of distinctive competencies, and the development of Networks to activate power of members to develop their capabilities to reach higher levels and have more potential. Therefore, it caused awareness in the mission and vision of the group, which would motivate colleagues to have powers in developing their educational institutes better and encourage the strategic administration successfully according to the specified visions. Then, the leaders can create qualified jobs, have abilities in working and skills, and have knowledge and capabilities with a clear goal. The strategic leaders need to communicate and build understanding with other people to get participation. Colonel Stephen (2004) proposed the concept that the leaders with strategic leadership had important roles including (1) have the skills to specify goals, (2) provide vision and focus, master in command and peer leadership skills, (3) inspire others to think and act, and (4) have goals, methods, and approaches together. Dubrin (2006) explained the characteristics of strategic leadership which consisted of (1) situations led by specifying directions, (2) stimulating and creating inspire for organizations, (3) initiating creation for survival of the organizations and giving rewards deriving from work achievement, and (4) reforming which emphasizes on leading for changes.

Therefore, the administrators should have strategic leadership because it is important for reformatory changes in quality of education according to the standard of internal quality assurance of Thailand. However, the administrators and personnel are necessary to help each other to specify directions and strategies for the success, and the most important thing is that the administrators need to motivate and inspire personnel to perform strategies so that they will be able to reach their goals.

According to the evident and above important idea, it showed that the quality of Thai education must be developed by strategic management by the educational administrators in centers, regions, areas, schools, and performers. Therefore, the researcher focused on studying the effect of the strategic leadership of school administrators on quality according to the internal quality assurance in Thai schools. The researcher used the concordance of the model and empirical data and the influence in organizational and individual levels by the analysis technique of the multi-level structural equation model (MSEM) in order to create concrete regulation in strategic drive for more effectiveness of the internal quality assurance in Thai schools. Also, learners can receive quality education actually.

THE STUDY

The researcher studied literature and related research and synthesized them to be variables and compositions in an interval scale and ratio scale as follows. An independent variable is the strategic leadership of administrators which composes of five parts below:

- X₁ : High level cognitive activity : HCA
- X₂ : Strategic direction : DIR
- X₃ : Strategic formulation : FOR
- X₄ : Strategic implementation : IMP
- X₅ : Strategic evaluation & control : EVC

A dependent variable is the quality for internal quality assurance standards in schools which has a composition in five parts as follows:

- Quality of learners : QLN
- Process management : PMN
- Learning management on student centered : LSC
- Effective internal quality assurance : EQA
- Achievement : ACM

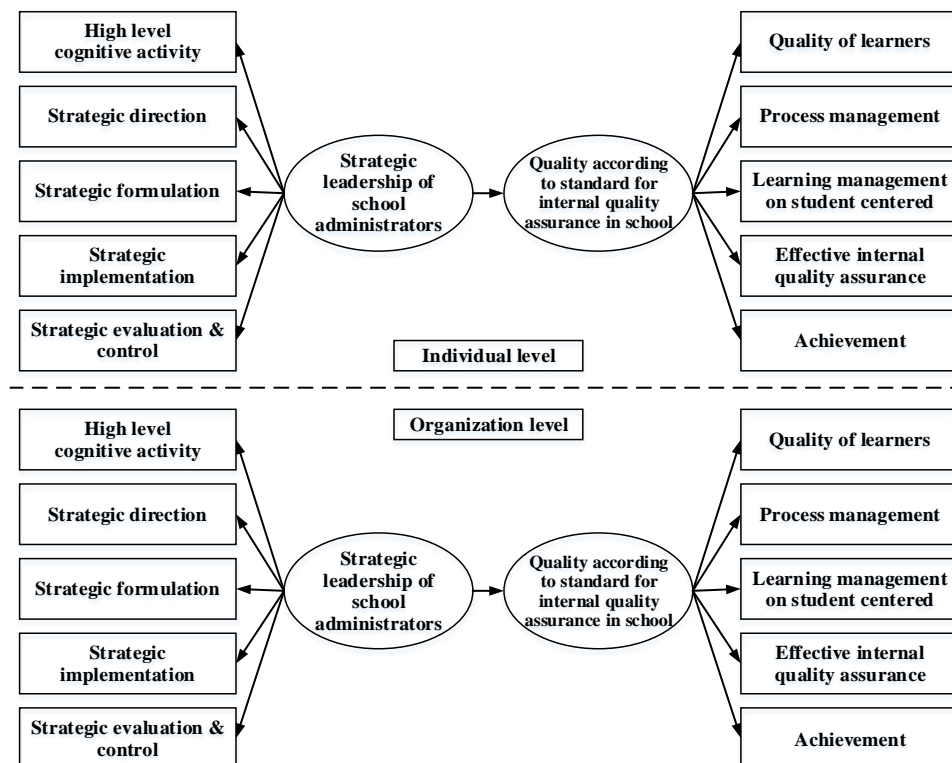


Figure 1. Conceptual Framework

Population: The population of this research were school administrators and teachers who work in Office of Secondary Educational Service Area 25 from 84 schools in a total of 3,736 people. Three stages sampling were selected to use in this study as follows;

Stage 1 Cluster Sampling: Categorizing school by locations of 10 campus then random 5 campus schools to be the representative of all campus concluding Kanlayanamitra, Prasart Phraya Phai, Nong Song Hong – Phol, Nam Phong – Kranuan, and Chumphae Man Chompoo.

Stage 2 Stratified Random Sampling: Grouping 4 school size by Budget administration and human resource management benchmark of Office of the Basic Education Commission (OBEC) as follows (1) school with the number of more than 2,500 students were considered to extra-large size; (2) school with the number of 1,500-2,499 students were considered to large size; (3) school with the number of 500-1,499 students were considered to medium size; and (4) school with the number of 1-499 students were considered to small size.

Stage 3 Simple random sampling: Simple random sampling was conducted to select school administrators and teachers from stage 2 by giving questionnaires randomly.

Sample: The sample of this research were school administrators and teachers total of 730 participants were specified by Cochran (1977) sample size formula at 99 percent of confident level with acceptable error ± 5 percent.

Research instruments: The primary data for this study were collected by rating scale questionnaire and learning outcome form for recording O-NET result of grade 9 and grade 12 in the class 2016.

FINDINGS

The consistency of Multilevel Structural Equation Models (MSEM) Strategic Leadership of school administrators affected to Quality Assurance in Education as shown in Table 1.

Table 1: Factor loadings, observable variable validity of school administrators' Strategic Leadership Multilevel Structural Equation Models (MSEM) that affected to Quality Assurance in Education

variable	ICC	Within level				Between level			
		β	SE	Z	R ²	β	SE	Z	R ²
Strategic leadership of school administrators : SLSA									
HCA	0.633	0.342**	0.076	4.481	0.117	0.999**	0.015	65.422	0.999
DIR	0.578	0.351**	0.076	4.606	0.123	0.999**	0.010	98.871	0.998
FOR	0.630	0.341**	0.072	4.725	0.116	0.998**	0.006	178.146	0.996
IMP	0.624	0.428**	0.072	5.980	0.183	0.996**	0.006	168.933	0.991
EVC	0.639	0.407**	0.078	5.194	0.166	0.999**	0.006	168.950	0.998
Quality according to standard for internal quality assurance in school: QSQA									
QLN	0.642	0.506**	0.075	6.789	0.256	1.000**	0.010	104.586	1.000
PMN	0.600	0.486**	0.064	7.578	0.236	1.000**	0.012	86.572	0.999
LSC	0.644	0.363**	0.081	4.486	0.131	1.000**	0.009	113.525	0.999
EQA	0.572	0.493**	0.059	8.419	0.243	1.000**	0.008	128.111	0.999
ACM	0.764	0.026	0.050	0.511	0.001	-0.451**	0.110	-4.096	0.203
χ^2 = 72.448		df = 67		χ^2/df = 1.081		P-value = 0.303			
RMSEA = 0.011		CFI = 0.998		TLI = 0.997		SRMRw = 0.022		SRMRb = 0.009	

* P-value < .05 , ** P-value < .01

The result of Strategic Leadership Multilevel Structural Equation Models (MSEM) of administrators affected to Quality Assurance in Education analysis were found that every latent variable contained more than 0.05 Intra class correlation: ICC (Shrout & Fleiss, 1979), which means the value of ICC were between 0.572 and 0.764. The structural equation models can be constructed as follows figure 2.

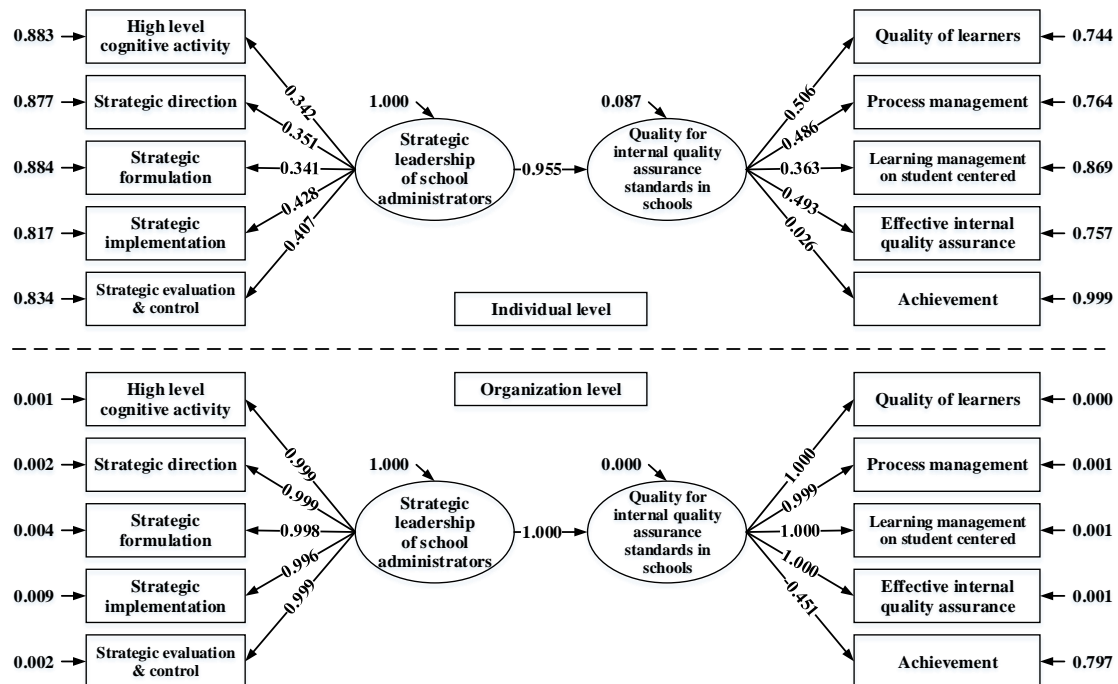


Figure 2. The Multilevel Structural Equation Models (MSEM)

Strategic leadership of school administrators affected to Quality Assurance in Education

Concerning preferences, the within level shown that standard solution (β) of the Multilevel Structural Equation Models (MSEM) strategic leadership of school administrators were positive: Standard solution (β) = 0.341 - 0.428 with .01 level of significant. Considering from each components, the highest level are strategic implementation

component that all of the standard solution (β) were positive: Standard solution (β) = 0.363-0.506 with .01 level of significant except standard solution (β) of achievement component were: standard solution (β) = 0.026. For others component, the highest level of Standard solution (β) were quality of learners.

For the between level, the Strategic Leadership Multilevel Structural Equation Models (MSEM) of school administrators revealed that standard solution (β) were positive: Standard solution (β) = 0.996 – 0.999 with .01 level of significant except standard solution (β) achievement were negative: Standard solution (β) -0.451.

The result were: the Chi-Square test of model fit (χ^2) = 72.448; the Degree of freedom (df) = 67; the Chi-Square test of model fit (χ^2) per Degree of freedom (df) = 1.081; P-Value = 0.303; root mean square error of approximation (RMSEA) = 0.011; standardized root mean square residual (SRMR) = SRMRw 0.022 and SRMRb 0.009; Comparative Fit Index (CFI) value = 0.998; and Tucker-Lewins (TLI) = 0.997, indicating that The Strategic Leadership Multilevel Structural Equation Models (MSEM) of school administrators affected to Quality Assurance in Education is valid and well fitted to empirical data. (Tabachnik and Fidell, 2007; Steiger, 2007; Hu and Bentler, 1999; Shama et al, 2005)

The results of the study on direct effect, indirect effect and total effect of strategic leadership among the school administrators towards internal quality assurance standard were shown in Table 2.

Table 2: The direct effect, indirect effect and total effect of multi-level structural equation model of strategic leadership of the school administrators affecting the educational quality according to standard for internal quality assurance.

Dependent variable	Affecting IQIA		
Independent variable	Direct effect	Indirect effect	Total effect
Within : SLSAw	0.955**	-	0.955**
Between : SLSAb	1.000**	-	1.000**
R ² of IQIA = 0.913			

* P-value < .05 , ** P-value < .01 , SLSA: Strategic leadership of school administrators , IQIA: Quality for internal quality assurance standards in schools

According to Table 2, it revealed the results of direct effect, indirect effect and total effect of strategic leadership among the school administrators towards internal quality assurance standard as follows. Based on the structural equation model at within level, it revealed that the strategic leadership of school administrators at within level (SLSAw) influenced the school internal quality assurance (IQIA) with none of indirect effect. The total effect was at 0.955. This indicated that the strategic leadership of school administrators at within level was highly influenced the school internal quality assurance with the statistical significance at .01.

According to the structural equation model at between level, it found that the strategic leadership of school administrators at between level (SLSAb) contained direct effect towards the school internal quality assurance (IQIA) with no indirect effect. Consequently, the total effect was at 1.000 which indicated that the administrators had high influences of the school internal quality assurance with the statistical significance of .01.

CONCLUSIONS AND DISCUSSIONS

The multi-level structural equation model of strategic leadership of school administrators towards the school internal quality assurance was relevant to the empirical data at excellent level which was also relevant to the evaluation of Tabachnik and Fidell, 2007; Steiger, 2007; Hu and Bentler, 1999 and Shama et al, 2005. The value index included Chi-Square test of model fit (χ^2) at 72.448, Degree of freedom (df) at 67, Chi-Square test of model fit (χ^2) of Degree of freedom (df) at 1.081, P-Value at 0.303, Root mean square error of approximation (RMSEA) at 0.011, Standardized root mean square residual (SRMR): SRMRw at 0.022 and SRMRb at 0.009, the Comparative fit index (CFI) at 0.998 and the Tucker-Lewins Index (TLI) at 0.997.

The model of strategic leadership assessment at within level found the total Standard solution (β) with the statistical significance at .01 prioritized by the forth aspect, strategy to action. Besides, the model of school internal quality assurance assessment was most found the Standard solution (β) with the statistical significance at .01 except the aspect of achievement which gained no statistical significance at .01 of Standard solution (β). The result was firstly introduced the aspect of students' quality. According to between level, the model of strategic leadership assessment found the total of Standard solution (β) with the statistical significance at .01 while the model of school internal quality assurance was most found the Standard solution (β) with the statistical significance at .01 excluded the achievement.

The strategic leadership can be indicated through organization image with the explicit goal of success gained from the setting of directions and strategies. To achieve the goal of success, the direction setting is in line with the vision, mission, and strategy of organization. As stated by Sanrattana (2014), people did not get success from fate; the success comes from the strategic action and adjustment in specific situation. This statement is also relevant to DuBrin (2006) that leader must recognize future prediction, direction and strategy setting and action. Moreover, Duggan (2013) has specified the elements of active strategic leadership towards people, i.e. (1) mission transference, (2) structure planning, (3) inspiration and motivation for target achievement and (4) power recognition for proper decision.

Consequently, high strategic leadership can actively drive the organization especially in developing and enhancing internal quality assurance standard. The previous research revealed that strategic leadership contained statistical significant impact the overview quality based on internal quality assurance standard of organization. It has been pointed out that the analysis of achievement was negative which was not significantly different. These elements did not reveal to be proportional compared with others since the proportion has not been approved by the expertise and that not approved by Confirmatory Factor Analysis: CFA. The results revealed the differences between this specific element and the others. The others were proved through the overview of empirical facts among administrators and teachers. The aspect of achievement was one of empirical data based on individual O-NET test of students; therefore, type of data consisted more specific and varied than the first part of data. This can be indicated that strategic leadership can affect the school internal quality assurance standard. However, it has no impact on students' achievement because the teaching arrangement is controllable. The administrator is able to arrange teaching setting except classroom management because it is teachers' roles. This can reflect that high strategic leadership can produce high internal quality assurance standard. Also, the quality and standard of internal quality assurance system can enhance efficient classroom management.

The impact of strategic leadership of director influenced the quality of school internal quality assurance standard with 0.953 of structural equation model at within level and 1.000 of structural equation model at between level. The numbers indicated that both levels significantly influenced institutes at .01. The strategic leadership was situated as a crucial role to promote the transformation of education quality for both organization and individual since strategic leadership has to motivate participants to participate for direction and strategy setting and action in order to achieve the goal. This is relevant to the statement of Davies and Davies (2004) that strategic leadership is related to strategic development and organizational process, leading and developing people, developing culture and value system, developing distinctive competencies, and developing networks in order to stimulate their competence with high potential. The strategy might motivate participants and that can improve better institute and support the successful strategic management based on the vision for quality action

SUGGESTION

Suggestions of this research were extracted from the study of strategic leadership that highly influenced the internal quality assurance standard. So, the system for strategic leadership, as a school administrator, should be developed to advance internal quality assurance standard as follows.

(1) The analysis of structural equation model suggested that the element of achievement is to be paid attention which should be extracted as a latent variable as well as employ path analysis of strategic leadership towards the assurance quality standard and achievement respectively.

(2) The analysis of structural equation model also suggested that some variables containing specific features that can be varied to another level based on multi-level analysis: organization, classroom, and individual.

(3) The organization influential analysis suggested high influences that might be caused by one site study. The study site contained similar aspects. Therefore, study site should be extended.

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The Neurocognitive Constructivist Guided-Inquiry Based Teaching Model For Promoting Attention Abilities

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ABSTRACT

The main aim of this study was to examine the improvement in students' attention abilities of Grade 11 students after the intervention of neurocognitive constructivist guided-inquiry based (NCGI) and conventional structured inquiry 5E (SI5E) teaching models to the experimental and control groups respectively. The NCGI teaching model was developed by researchers. The obtained samples were 34 students in the experimental group and 31 students in control group who had been randomly selected from three classes of Grade 11 students in one secondary school located in the northeastern of Thailand during the second semester of 2014 academic year. Researchers employed a 2 (teaching model: NCGI vs SI5E) x 2 (time of measure: pretest vs posttest) experimental design. Results of this study showed that there was no significant difference between groups on the dependent variables before the intervention. However, the dependent variables namely the auditory attention, visual attention (Thai letter) and visual attention (picture) were significantly differences between groups after the intervention. The developed teaching model NCGI has been proofed to be successfully enhanced students' attention abilities.

Keywords: Auditory attention, conventional structured inquiry 5E model (SI5E), neurocognitive constructivist guided-inquiry based teaching model (NCGI), visual attention.

INTRODUCTION

Current national science standards require an inquiry-oriented approach to teaching that permits students to experience science as an 'active process' that closely reflects the actual work of scientists (American Association for the Advancement of Science [AAAS], 1993; National Research Council, 2000, 2012). The expanding frontiers of cognitive and neural sciences propose a new opportunity to create a more comprehensive theory of human learning (Anderson, 2009). According to Anderson, the two emerging fields, namely neurocognitive learning and constructivist philosophy of science teaching and learning to be a context for integrating a neurocognitive model of information processing with modern perspectives on how students think and learn scientific ideas and ways of knowing through inquiry. The constructivist philosophy science teaching and learning has already become a major guiding model for instructional design in many subjects, particularly in the science subject. In addition, teaching students with the concept of discovering, critical thinking, questioning, and problem-solving skills are one of the main standards of science and technology teaching (Balım, 2009). Balım believed that constructivist guided-inquiry approach should be used in which students learn more effectively by constructing their own knowledge.

Cognitive function refers to an intellectual process by which one becomes aware of, perceives, or comprehends ideas, involves all aspects of perception, thinking, reasoning, and remembering (Mosby's Medical Dictionary, 2009). Advances in classroom curricula often come together with increased demands on students to have the higher order of cognitive functions in practice (Srikoon, Bunterm, Nethanomsak & Tang, 2017). Papakostas (2015) summarized that cognitive functioning is a broad construct involving attention (the ability to focus on a stimulus of interest against a background of stimulus considered irrelevant and potentially distracting),

immediate memory (the ability to remember something for a short time after it was presented), delayed memory (the ability to recall something presented in the distant past), cognitive speed (the rate at which different mental processes and tasks happen), and executive functioning (the ability to integrate sensory input and memory in order to complete a task).

Attention represents “a set of cognitive abilities that allow living beings to cope with the enormous amount of information flooding the sensory system, and to use this information in goal-directed and adaptive behavior” (Klaver, 2009: 204). It is the cognitive process of selectively focused on one aspect of the environment while ignoring other things and also been mentioned to as the allocation of processing resources (Fougnie, 2008). Sarter, Bruno and Givens (2003: 247) summarized that the efficacy of practically every step in the learning process, from the detection, selection, and filtering of sensory inputs to the manipulation of information in the working memory store, and the construction of associational chains to recall and rehearse information and to re-network it into a new context, has been conceptualized to be depending on attention functions and capacities. According to Luck and Vecera (2002: 235), attention is an essential part of the information process which involving the multiple dissociable cognitive processes and being related to each other. Therefore, attention can influence working memory learning outcomes (Loaiza & McCabe, 2013). It is needed for removing unwanted sensory inputs or irrelevant behavioral tasks and is worthwhile when some cognitive system or process receives too many inputs. Attention can function to limit the number of inputs and allow processing to stay in an effective way (Vecera & Rizzo, 2003).

CONCEPTUAL FRAMEWORK

The main aim of this study is to investigate the attention abilities after the intervention of both teaching models, namely neurocognitive constructivist guided-inquiry based model (NCGI) and conventional structured inquiry 5E model (SI5E). The attention abilities are the auditory attention, visual attention (Thai letter), and visual attention (picture). All teaching models are used to provide opportunities for teacher and students to learn how the student's knowledge, cognition, emotions interact with environments and how both variations occurred through learning process (Joyce, Weil & Calhoun, 2015). Current thought in educational neuroscience is blended to provide a perspective on modern learning theory and teaching model, especially in relation to some emergent ideas in correlations and patterns in the neurocognitive processing of information that focus on attention for improving students' learning abilities (Anderson, 2009).

Neurocognitive constructivist guided-inquiry (NCGI) teaching model

NCGI teaching model was developed by researchers and used to teach the experimental group. The syntax of NCGI teaching model consists of seven steps as follow: (i) Teacher introduces emotional arousal; (ii) Students set their learning goals; (iii) Students are encouraged to express their ideas or their prior knowledge as a baseline for making a connection with new knowledge; (iv) Teacher provides opportunities for students to present their knowledge by utilizing their multi-sensory in diverse aspects through hands-on activities or complex tasks. Students show their understanding by inquiring, exploring, and using the problem-solving skills to conduct the experiments or solve their problems. Teacher provides scaffolding, facilities, and assists students while they are doing their tasks to maximize their competencies; (v) Students construct their own knowledge by making the connections between the new knowledge and their prior knowledge or linking the classroom content to the community; (vi) Teacher practices some executive function tasks using the learned content, and (vii) teacher applies various strategies to monitor and evaluate students' learning. Students are encouraged to revise and reflect on the learning activities in order to detect any misconception occurred.

Structural inquiry 5E (SI5E)

On the other hand, the conventional SI5E teaching model was used to teach the control group. This SI5E model is the teaching model recommended by Thailand Ministry of Education and supported by the Institute for the Promotion of Teaching Science and Technology (IPST) (2012) in a standard classroom. The syntax of SI5E model consists of the five steps: (i) Engagement: Teacher introduces the topic that is intended to study, asks the students to make a specific topic, and interact with the material; (ii) Exploration: Teacher motivates the students to do experiment according to the proper laboratory manual procedure. Teacher explains the procedure for the inquiry method, followed by the preparation of apparatus while students perform the experiment and analyze the collected data; (iii) Explanation: Students are requested to prepare the experiment results and present the results to the class; (iv) Elaboration: Teacher questions the students with a prepared set of applied questions that relating directly to the topic of their previous investigation, and (vi) Evaluation: Teacher observes and takes notes of the students' performance including their discussion, the way they answer the questions, and how they conduct the actual experiment (Bunterm et al., 2014).

Attention abilities

Sternberg (2012) introduced attention is comprised of sustained attention, focus attention, selective attention, and divided attention. The process of attention begins with alertness, selected attention, and executive control. Based on the reviews of Sieb (1990) and further supported by Sternberg (2012), attention can be defined as the brain areas involved in attention are in the prefrontal association cortex (PAC). As a result of the PAC mechanisms, only one sensory stimulus activates the orientation, alerting, awareness, arousal, and cognitive systems and then, therefore, attention occurs. Furthermore, Gray, Rogers, Martinussen, and Tannock (2015) have determined the working memory mediates the pathway between attention and subsequent learning outcomes.

Previous research findings revealed that attention is the most essential information process because it includes organizing information into a coherent structure and optimizing conceptual understanding (Mayer, Kim, & Park, 2011; Yang & Chang, 2015). In addition, past researchers (Loaiza & McCabe, 2013; Yang & Chang, 2015) have proved that attention influences working memory outcomes. This is further supported by a recent study (Srikoorn et al., 2017) indicated that the learner brain findings are powerful for education only insofar as they have assisted to change our perspective of how learning and development happen. Previous studies demonstrated the strong relationship between working memory and science achievement (Danili & Reid, 2004; Gathercole, Pickering, Knight & Stegmann, 2004; Tsaparlis, 2005). In addition, it has been reported that working memory also showed the positive correlation with chemistry problem test (Tsaparlis, 2005). Ropovik (2014) found that working memory accounts for about 63 percent of the variation in the ability to learn. The variables in this study are elucidated in Figure 1.

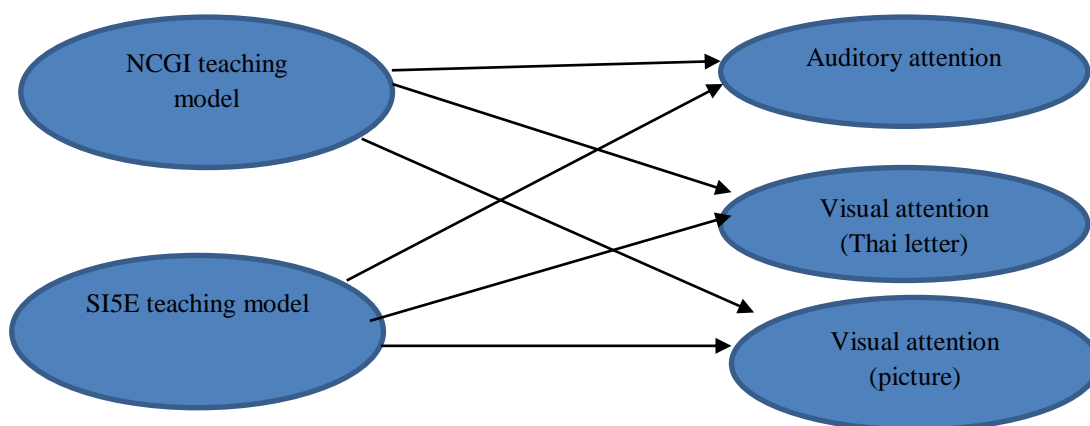


Figure 1. Conceptual Framework

PURPOSES OF THE STUDY

The main purpose of this study was to explore the influence of using NCGI teaching model on attention abilities compared to using SI5E teaching model. This research is a subsequent study after the developed NCGI teaching model was verified by the three experts in science education before implementing the actual study. More specifically, the study sought to achieve the following purposes:

- i. To identify Grade 11 students' auditory attention and visual attention in both experimental and control groups before and after implementing NCGI and SI5E teaching models respectively.
- ii. To study the differences between experimental group and control group in their auditory attention and visual attention.

METHOD

Research design and participants of the study

A 2 (teaching model: NCGI vs SI5E) x 2 (time of measure: pretest vs posttest) experimental design was employed in this study. The NCGI model was developed and implemented in the experimental group while the SI5E model was used in the control group. Participants' attention abilities were assessed in both groups before and after interventions. The participants were randomly selected from a total of 65 Grade 11 students from three

classes in a secondary school located at northeastern of Thailand during the second semester of 2014 academic year. The selected participants were equally distributed into the experimental and control groups after considering their gender and age. In order to remain the homogeneous, there were 34 students in experimental group (male students = 10; $M_{age} = 16.74$, $SD = .56$) and 31 students in control group (male students = 5, $M_{age} = 16.77$, $SD = .42$). This was to ensure that both groups were no differences either in their age ($t(63) = .31$) or their gender as well ($X^2 = 1.62$). This experimental design was employed in order to investigate the variation or changes in the attention abilities after the intervention of teaching model (NCGI or SI5E). In another word, this design is considered as a true experiment because it is generally associated with the conditions that directly affect the variation.

Research instrument

Attention battery test was used as research instrument. All the tests were administered in the Thai language to ensure the participants were clear about the questions. All the tests had been evaluated the goodness of fit test for construct validity as well as test-retest for testing the reliability by Bunterm et al. (2013). The attention battery test used to measure participants' audio and visual attention. Audio attention was measured by sound attention battery test while visual attention was measured by letter attention battery test and dot attention battery test.

Sound attention battery test was comprised of three sub-tests, namely simple task sound, sustained sound, and selected choice sound. In the simple task sound sub-test, the stimuli were sound frequency '500Hz'. Participant was given 50 trials and they were asked to press '1' immediately when they heard the sound (test-retest reliability value = 0.954). In the sustained sound sub-test, the stimuli were sound three kinds of frequency: 500, 1000, and 2000 Hz. The target stimulus was sound frequency '500Hz'. Participants were given 50 trials and were asked to press '1' immediately when they heard the target sound. The occurrence of the target stimulus was 20 percent. The occurrence of each distracter stimulus was 40 percent (test-retest reliability value = 0.946). In the selected choice sound sub-test, the target stimuli were 500Hz and 1000Hz sound. Participants were asked to press '1' if the stimulus was 500Hz and press '2' if the stimulus was 1000Hz. Participants were given 50 trials. Test-retest reliability value was 0.822. The letter attention battery test and the dot attention battery test were covering the same pattern of their four sub-tests. For example, the letter attention battery test including simple task letter, focus letter, sustained letter and select choice letter while the dot attention battery test including simple task dot, focus dot, sustained dot and select choice dot. Participants were given 50 trials for each sub-test.

In the simple task letter sub-test, the stimulus was a Thai alphabet "า". Participants were asked to press '1' immediately when the stimulus appeared on the screen (test-retest reliability value = 0.955). In the focus letter sub-test, the stimuli were two Thai alphabets "า" and "น". "า" was the target stimulus; "น" was the distracter. Participants were asked to press '1' immediately when the target stimulus appeared on the screen (occurrence of the target stimulus was 20%, test-retest reliability value = 0.938). In the sustained letter sub-test, the stimuli were 44 Thai alphabets. The target stimulus was "า". Participants were asked to press '1' immediately when the target stimulus appeared on the screen (occurrence of the target stimulus was 20%, test-retest reliability value = 0.959). In the select choice letter sub-test, the target stimuli were two Thai alphabets "า" and "น". Participants were asked to immediately press '1' when "า" appeared and press '2' when "น" appeared on the screen (test-retest reliability value = 0.966).

In the simple task dot sub-test, participants were asked to press '1' when a dot appeared in the upper left-hand side of a two by two grid (test-retest reliability value = 0.979). In the focus dot sub-test, the stimuli were two pictures, a dot appeared in the upper left-hand side of a two by two grid and a dot appeared in the upper right-hand side of a two by two grid. Participants were asked to press '1' when a dot appeared in the upper left-hand side of a two by two grid. The target occurred in 20 percent of trials. Test-retest reliability value = 0.976. In the sustained dot sub-test, the target stimulus was a dot appeared in the upper left-hand side of a two by two grid. The distracters were a dot that appeared in other locations of a two by two grid. Participants were asked to press '1' when the target stimulus appeared on the screen. The target occurred in 20 percent of trials (test-retest reliability value = 0.966). In the select choices dot sub-test, the target stimuli were a dot appeared in the upper left-hand side of a two by two grid and a dot appeared in the upper right-hand side of a two by two grid. Participants were asked to immediately press '1' when the first stimulus (upper left-hand dot) appeared and press '2' when the second stimulus (upper right-hand dot) appeared on the screen. Test-retest reliability value = 0.970.

RESULTS

Researchers used a 2x2 multivariate analysis of variance (MANOVA) to examine whether the developed NCGI teaching model would enhance the Grade 11 students' attention abilities better than using conventional SI5E teaching model. As the samples comprised of two groups, the researchers had to consider the following assumptions before the groups were treated equally. The first assumption was that there should be no outliers. The second assumption was that the all the dependent variables should be approximately normally distributed for each group and, finally, there was the homogeneity of variances. The results of this study are presented in accordance with the research aim that is indicated above and proposed in three sections according to the groups of dependent variables, namely auditory, visual (Thai letter), and visual (picture) attention. The findings are presented in two parts namely descriptive and inferential findings. The initial findings emphasize on the attention abilities of Grade 11 students before and after using the NCGI and SI5E teaching models in their science educational instruction. This is followed by evaluating the variation occurred from these two teaching models on Grade 11 students' attention abilities.

Attention was the dependent variable which consisted of two aspects, namely auditory attention and visual attention. The auditory attention variable was measured from these three tests: Simple sound, sustained sound, and select choices sound. Since the Box's M test was significant, so the level of significant was set at .001. There were significant main effects of pedagogical condition and time of measure, both of which were qualified by a significant pedagogical condition x time interaction effect, $F(3,61) = 61.523, p < .001$; Pillai's Trace = .752; $\eta^2 = .752$, observed power = 1.000. The univariate tests showed significant interaction effect for all three auditory attention tests. The interaction effect for simple sound, $F(1,63) = 91.106, \eta^2 = .591$; sustained sound, $F(1,63) = 113.164, \eta^2 = .642$, and select choices sound, $F(1,63) = 23.742, \eta^2 = .274$, were significance at $p < .001$. The results from pairwise t-tests of pretest showed that there were no group differences in all sub-tests of auditory attention variable. Table 1 indicates that the descriptive and inferential statistics of pre-test vs post-test performances revealed a better improvement in the experimental group who followed the NCGI teaching model compared to the control group who followed SI5E teaching model.

Table 1. Descriptive and inferential statistics of pre-test vs post-test for auditory attention

Dependent variables	Experimental group (N=34)					Control group (N=31)					Independent t-test
	Pre-test		Post-test		Paired t test (df = N-1)	Pre-test		Post-test		Paired t test (df = N-1)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Simple sound (range: 0-50)	27.29	3.958	41.09	3.334	21.323**	25.84	3.992	29.87	3.948	5.024**	1.475 12.413**
Sustained sound (range: 0-50)	28.53	3.816	40.00	3.348	18.391**	27.26	3.633	29.00	3.899	2.598**	1.373 12.233**
Select choice sound (range: 0-50)	28.85	2.298	36.85	1.438	18.492**	28.55	2.307	33.58	1.996	11.806* *	.533 7.632**

**p<.01; *p<.05

On the other hand, visual attention was measured in two parts: Thai letter and picture. There were four tests used to collect the accumulated data related to visual attention letter variable, namely simple letter, focus letter, sustained letter, and select choices letter. The Box's M = 55.590 ($p = .087$) showed the observed covariance matrices of the dependent variables were equal across groups. The data were appropriate to analyze with this technique. There were significant main effects of pedagogical condition and time of measure, both of which were qualified by a significant pedagogical condition x time interaction effect, $F(4,60) = 57.302, p < .001$, Pillai's Trace = .793, $\eta^2 = .793$, observed power = 1.000. The univariate tests showed significant interaction effect for all four visual attention tests. The interaction effect for simple letter, $F(1,63) = 24.605, \eta^2 = .281$; focus letter, $F(1,63) = 121.755, \eta^2 = .659$; sustained letter, $F(1,63) = 47.033, \eta^2 = .427$; and select choices letter, $F(1,63) = 19.944, \eta^2 = .240$, were significance at $p < .001$.

The results from pairwise t-tests of pretest showed that there were no group differences in all sub-tests of the visual attention (Thai letter) variable. Table 2 shows that the descriptive and inferential statistics of pre-test vs post-test visual attention (Thai letter) performances revealed a better improvement in the experimental group who followed the NCGI teaching model compared to the control group who followed SI5E teaching model.

Table 2. Descriptive and inferential statistics of pre-test vs post-test for visual attention (Thai letter)

Dependent variables	Experimental group (N=34)					Control group (N=31)					Inde-pendent t-test
	Pre-test		Post-test		Paired t test (df = N-1)	Pre-test		Post-test		Paired t test (df = N-1)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Simple letter (range: 0-50)	31.12	2.226	37.85	1.438	16.695**	30.74	2.206	34.52	1.913	8.545**	.683 7.994**
Focus letter (range: 0-50)	30.53	3.816	39.00	3.348	13.581**	29.29	3.617	29.32	3.219	.078	1.340 11.855**
Sustained letter(range: 0-50)	28.15	2.002	31.85	1.258	10.034**	28.00	1.673	28.42	.923	1.416	.320 12.441**
Select choice letter (range: 0-50)	29.74	2.538	35.79	1.431	13.158**	29.10	2.371	32.58	1.996	10.533* *	1.045 7.509**

** $p < .01$; * $p < .05$

The other part of visual attention was picture. There were also four tests used to collect the accumulated data related to visual attention picture variable, namely simple dot, focus dot, sustained dot, and select choices dot. Since the Box's M test was significant, so the level of significant was set at .001. There were significant main effects of pedagogical condition and time of measure, both of which were qualified by a significant pedagogical condition x time interaction effect, $F(4,60) = 70.904$, $p < .001$, Pillai's Trace = .825, $\eta^2 = .825$, observed power = 1.000. The univariate tests showed significant interaction effect for all dependent measures. The interaction effect for simple dot, $F(1,63) = 24.367$, $\eta^2 = .279$; focus dot, $F(1,63) = 90.290$, $\eta^2 = .589$, sustained Dot, $F(1,63) = 44.741$, $\eta^2 = .415$, and select choices dot, $F(1,63) = 20.135$, $\eta^2 = .242$, were significance at $p < .001$.

The results from pairwise t-tests of pretest showed that there were no group differences in all sub-tests of the visual attention (picture) variable. Table 3 shows that the descriptive and inferential statistics of pre-test vs post-test visual attention (picture) performances revealed a better improvement in the experimental group who followed the NCGI teaching model compared to the control group who followed SI5E teaching model.

Table 3. Descriptive and inferential statistics of pre-test vs post-test for visual attention (picture)

Dependent variables	Experimental group (N=34)					Control group (N=31)					Inde-pen- dent t-test
	Pre-test		Post-test		Paired t test (df = N-1)	Pre-test		Post-test		Paired t test (df = N-1)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Simple dot (range: 0-50)	38.21	2.267	42.00	1.255	8.697**	37.87	2.172	38.55	2.063	1.600	.607 8.055**
Focus dot (range: 0-50)	30.76	1.478	40.00	3.348	15.867**	30.19	3.229	29.06	3.366	-1.951	.902 13.118**
Sustained dot(range: 0-50)	29.88	1.788	32.91	1.311	9.904**	29.26	1.483	29.52	1.151	1.000	1.524 11.049**
Select choice dot (range: 0-50)	30.91	2.006	34.71	1.404	10.462**	30.29	2.209	31.65	1.907	4.900**	1.189 7.413**

** $p < .01$; * $p < .05$

DISCUSSION

The results of this study indicate that Grade 11 students who were exposed to the neurocognitive constructivism and more guided formed of inquiry teaching model showed greater improvements in their attention tests compared to their peers who were taught using the conventional structured inquiry teaching model. This result correlates with Srikoon et al.'s (2017) findings. Srikoon et al. revealed that the overall attention, working memory, and mood conditioning have been improved after the intervention of neurocognitive-based teaching model compared to the conventional structured inquiry model among the Grade 9 students in a high school located in Mahasarakham province, Thailand. This finding is also consistent with the past research findings from Rattanavongsa, Bunterm, Wattanathorn and Muchimapura (2013), Srikoon and Bunterm (2016), Uppasai and Bunterm (2015), Wangpoomyai, Bunterm, Wattanathorn and Muchimapura (2012), Wannatong,

Bunterm, and Wannanon, (2013), Wuekprakhon, Bunterm, Wattanathorn, and Muchimapura (2010), and Thorell, Lindqvist, Bergman, Bohlin and Klingberg (2009).

Researchers introduce this NCGI teaching model consists of several elements which have enabled students to move from structured to guided inquiry coupled with neurocognitive learning theory. The NCGI teaching model has provided students' gradual experience through different levels of inquiry thus motivating cognitive functioning abilities. The teacher is a key figure in implementing inquiry processes from the structured to the guided inquiry level. It is, therefore, imperative that teachers participate in the inquiry teaching program as they also develop professionally (Zion & Mendelovici, 2012). According to Zion and Mendelovici, learning by inquiry is a vital step in developing a scientifically literate, critically, logically and creatively thinking student.

This present study examined the effectiveness of the developed NCGI teaching model to enhance attention abilities of students. The current results helped to confirm the structural aspects of the school-related skills, attention abilities are able to be improved by a fascinating way that experience sculpts brain systems into their mature state (Byrnes & Vu, 2015). For education to truly benefit from these findings in a durable, deep way, for the full implications to become apparent, teachers must examine closely the theory on which good practice is built, to reconcile the new and exciting evidence with the developed NCGI teaching model. For example, affective and social neuroscience findings suggest, however, that emotion and cognition, body and mind, work together with students of all ages (Immordino-Yang, 2011).

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The Pedagogical Meaning of Challenge Spirit in the Life History of ‘Koryo Saram’

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ABSTRACT

This study explores the pedagogical significance of the challenge spirit reflected in Koryo Saram's life in Central Asia. The research participant selected for this study is Chae Yevgeniya, a third generation Korean or “Koryo Saram” living in Kazakhstan, one of the Russian Commonwealth or CIS countries. For the life history research, the team met her in Almaty in May 2014 and July 2016 to start the field research. The cooperative attitudes of the research participants as well as the positive and open mindedness about the life history research contributed as the fundamental role in bringing out the life stories from the research participants in much more natural way. The essential issues of this study, through life history of Koryo Saram, are to understand the socio-political context of that era and how the participant perceives and expresses the diaspora resulted from forced migration. The most prominent aspect shown through the life history of participant is the Spirit of Challenge. The term, Spirit of Challenge, presents how Koryo Saram overcame harsh economic and political oppressions. The spirit of challenge was attributed to the ethnicity of Korea, and this ethnic spirit could be defined as accumulation from the ‘Cultural DNA’ of Korean people. The pedagogical significance of this Challenging Spirit is manifested from passion for life, dedication and positive human relations at the workplace, and finally the ethnic pride as Koryo Saram.

Keywords: Koryo Saram, Life History, Challenge Spirit, Ethnic Spirit, ‘Culture DNA’

INTRODUCTION

This study aims to explore the educational meaning showed in personal life of Chae Yegeniya, the third generation of Koryo Saram living in Kazakhstan.

From 1864, farmers in the northern part of the Korean Peninsula began building villages across the Tumen River, cultivating a barren land in the Ussuri River basin and the residence of Koryo Saram increased gradually. This was mainly because of Korea's economic difficulty caused by Japanese capitalists' land plundering in the period of Japanese occupation in 1905. However, many independent activists with political inclination had started to move to the Far East with them since Korea's frustration of autonomy (Jung, Byeongjin & Nam, Biktoreu, 2011). However, in August 1937, according to Stalin regime's 'order' of deportation of 'people from Choseon' living in the Far East, about 170 thousands of Koryo Saram had been loaded on 60 transport trains and transferred to Middle Asia by November 1937. During these transfer, numerous Koryo Saram were died due to severe cold and hunger. As CIS(Commonwealth of Independent States) in the period of transformation after collapsing of Soviet Union had strengthened nationalistic policies focused on major race, the discrimination against minorities had more strengthened. Especially, Koryo Saram in Uzbekistan were under the double trouble

of discrimination and financial difficulty (Sung, Donggi, 2007). After losing their jobs only because of their ethnicity as Koryo Saram, they were dispersed all over the Russia, so their ethnic identity has been weakened (Kim, Jungwan, 2016).

The movie 'Koryo Saram: The Unreliable People', which won the best film of Asia from Toronto International Film Festival in 2007, is a documentary film based on the deportation of Koryo Saram living in the Far East of Stalin regime. It has the story of Koryo Saram's deportation from the Far East to Middle Asia by Stalin who labelled Koryo Saram as 'unreliable people' and of Koryo Saram in Kazakhstan where had made the whole country as one big concentration camp for the migrants.

Koryo Saram who had stayed out of Korea's attention suddenly became a hot issue in Korea as well as the world, and the academic studies on Koryo Saram were actively conducted. Among them, there are studies conducted by Ko Gayoung(2008), Bae Eunkyung(2008), and Hwang Youngsam(2008) addressing senior Koryo Saram's individual life histories who had no choice but to succeed. These studies showed the dynamic history of Korea and Koryo Saram' life change, and left curiosities about Koryo Saram's life and spirit.

This study wondered where the challenging spirit of Koryo Saram who have been living undaunted challenging lives in the extreme conditions came from. Also, this study searched where their unique identity as 'Koryo Saram' in the globalization of migration was from.

SPIRIT OF CHALLENGE AND THE CULTURAL GENE OF KOREANS

The challenging spirit is defined as an enthusiastic challenging attitude of individual or organization to make good use of opportunity in spite of uncertainty and dangerousness about the future (Woo, Yeonghui, 2016). The challenging trait was studied mostly pertaining to job performance. The challenging trait related to work is also described as the degree of mental capability, and all members are presented challenges to as the focal factor of satisfaction in degree of personal fulfillment (Kraut & Ronen, 1975). Given this, it can tell that the challenging spirit of persons, who are positive and adventurous, and feel personal achievement with innovative thinking in uncertain conditions and circumstantial changes, appears higher. The first action of human to challenge is self-confidence. Self-confidence brings the positive thinking, and the positive thinking brings passion and dauntlessness. This assertive mind creates the challenging spirit and the challenging spirit becomes life-changing motto.

In case of Korea, Korea achieved the "Miracle of Han River" from the ashes of the Korean War in 1950's, and Korea is still challenging to the world with untiring passion. It is said that this challenging spirit comes from Korean's national spirit. The national spirit is built by accumulation of peculiar psychology and culture to the people of that nation. Then, here comes a question: What is the peculiar culture to Korean?

Lee Hangu(2009) developed the logic of Korean cultural gene by raising the need to find a cultural gene in order to establish a Korean identity based on 'Identity' of Eriksson.

Because identity is not immutable but evolving with growth, it is said that identity changes according to circumstances. However, Lee Hangu(2009) determined that changing identity was radically different from falling into confusion without being able to establish identity. Therefore, there always remains such questions: 'Who are we?' and 'What people are we?' Culture gene is original elements of culture. It means that original idea or image, and one creative thought or theory are all culture genes and they are combined to create a new culture by forming a unique culture.(Lee, Hangu, 2009). Studying Korean's culture genes means studying human soul, so it is needed to be concerned about Korean's culture gene to know more about Korean (Hwang, Byeonggi, 2014).

According to Cho Yoonjae, the cultural characteristics of the Korean people are 'patience' and 'tenacity' and 'tenacity'(Lee, Hangu, 2009), and experts selected distinctive aspects such as 'naturalness', 'dynamics', and 'fun' and ordinary people chose 'politeness', 'tenacity', and 'culture of community' in the survey about Korean culture gene done by Korean Studies Advancement Center in 2012(Joo, Yeongha et al, 2012). Dynamics and tenacity of

Korean culture are acknowledged by many foreign people. Therefore, the first word, which foreign people learn from Korean, is 'hurry, hurry'. It is thought that the passionate and challenging spirit, and Korean power with tenacity may be the representative culture genes of Korean.

RESEARCH METHOD

This study is a research on life history with the story of personal life of a research participant. The study on life history is one of the qualitative research methods exploring certain individual's life. It is said that the study on life history is the research method, which allows to find how the person views his or her own life and which role and identification he or she shapes (Goodson & Sikes, 2001), and it helps to find social and historical context and the researcher can construct knowledge together with the research participant. Therefore, the study on life history is the research method focused on that individual's entire life, and it must be possible to understand social and historical context through the story of his or her life. Fulfilling that, the chosen research participant must have social and cultural typicality related to the study subject (Min, Seongeun et al, 2017).

The first time I met this research participant at the Korean Education Center in Almaty Kazakhstan to study on life histories of Koryo Saram in May 2014. This study continued from May 2014 to July 2015, and the data was collected for 3 times through vivid stories that Koryo Saram experienced. And the photos provided by the research participants were used as the ancillary data. The written approval for the opening of that photos and recording of the interviews was obtained. I got help from the Russian students studying in Korea for the transcription work. To bring out the exact meaning of Russian words in the transcribed data in the process of translation into Korean, several Russian students majoring Korean literature reviewed the transcribed and translated data. Analyzing the data selected through these process will be done on the third phase of the study of life history.

Table 1: Schedule of interview and the process of collecting data

The interview date	Place	Interview the time required	Other Details
2014.05	Korean Education Center in Almaty	2hours	Visiting Korean Education Center, exploring research participants and research methods, and having orientation for life history description
2014.05	Korean Education Center in Almaty	2hours	Presenting active attitude and willingly inquiring interview
2015.07	Korean restaurant in Almaty operated by nephew	2hours	Selecting a place for interview and inviting research participants

THE RESULT

Chae Yevgeniya is a typical model of female Koryo Saram of being weak in appearance but sturdy in spirit. Our research team ran an orientation for seniors at the school of elderly of Korean Education Center in Almaty about how to describe their own life histories. The reason why I got a strong impression from Chae Yevgeniya was her question: "Do you know Anna Karenina?" I was little hesitant, then she said "If you study me in depth, you can meet Anna Karenina, the passionate Russian woman.". This was the first time the research team met with her, and she showed willing to participate in the study. Because she wished to leave her story behind record for her children, grandchildren, and descendants to let them know tough but beautiful Koryo Saram's life. The educational meanings in her life are classified into four great categorizations.

4.1. *Passionate life in challenges and adventures*

Chae Yevgeniya moved to Tashkent, the capital city of Uzbekistan with her parents in 1950 at her age of 12. Since her father's hometown was Vladivostok and she was born in Yakutia, it is assumed that the reason of their migration is considered to come from her grandfather's migration. As she moved to Tashkent from a Russian rural area, she could experience a big city. She was good at Russian language in Uzbekistan as well as in Russia, she could be a model student at her school and a popular girl among students and teachers.

Chae Yevgeniya said her hobby was reading books, however it is thought that was more like studying than true reading. On this wise, Chae Yevgeniya strived to concentrate on her studies. Besides, she was challenging and adventurous to do something new as much as she concentrated in her studies. Her most favorite activities were like riding motorbike or skydiving.

“One of my hobbies was studying. I couldn't get the good score all the time, but I enjoyed the procedures of studying. During my college days, I did modern gymnastics, and even I won the first prize. My husband didn't let me do the motor sport due to its dangerousness, and I had to leave my parachute club because my weight was too light.”

It could be found that Chae Yevgeniya loved sports as well as reading books, and she enjoyed adventures and challenges. Her will of constant challenges regardless of the results seems extraordinary. She actually mentioned the novel <Anna Karenina>, and she did have a passionate romance. She proudly said she had raised her two children successfully without getting re-married after her husband died. It is assumed that the vivid memories of love made her small but sturdy in spite of her loving husband's absence. We, humans tend to build memories and to reminisce about them in hard times. It was possible to find a lesson from the case of Chae Yevgeniya that people try to overcome tough lives by doing such thing.

4.2. *Family and colleagues as a meaning of my life*

Every mother's love for her children is expressed in sacrificial love. To raise her two children without her husband, Chae Yevgeniya also worked as a chief of laboratory at the institute during daytime and taught chemistry at an evening university of technology at Chirchik during nighttime. She had to work as both mother and father for her children after her husband's death. She sent her son to a medical school to make him a doctor like her husband and her daughter to a college of education.

“I have taught at school and university for a long time. I worked very hard when I was young, however my income was small. It was too small to raise two children well. I couldn't do lecturing unless taking a doctorate, so I decided to be in the doctoral course. After I obtained the doctor's degree, I could get a job at 'Institute for General Science' and then became the chief of laboratory and I got good income. That job was the only work to be able to save my family with two college students.”



Picture 1. Colleagues in the Research Institute (the second right in the front row. Chae Yevgeniya)

As she interviewed, Chae Yevgeniya said she must get a better job and be at a better position to support her family, and it can be understood that she achieved them by challenging to the higher course (the doctoral course). Her two children were what she lived for and the meaning of her life. It is assumed that two main reasons, which made a women sturdy, were firstly love with her husband and secondly her devotion to her children.

Chae Yevgeniya said her former colleagues from the institute were like her family. She also said that her job was very important to her to be financially independent and to support her family, and her colleagues were like also family members.

“I think my job was the most important to me. I believe one's job is most necessary thing in one's life just like family, school, and religion. When you get a job, you can get to know the world through it and you can get through the world, I think. Of course, my job wasn't a part of a big famous company, but I believe the researches and studies that I've done were all necessary for our society to move forward. I think my colleagues were like my family and they were everything to my life. I am always grateful them, even now.”

Chae Yevgeniya's interview would encourage us to gravely think about our professionalism and work ethics. She found how precious the job and colleagues were in the belief of that the job gave a chance of not only financial support but also self-realization and the colleagues were 'like family'. She has been endeavoring to maintain healthy relationships with other ethnics as a member of minority in Kazakhstan.

4.3. *Pride and ethnic education as Koryo Saram*

Wherever they settled down, the first thing that Koryo Saram did was to build schools. They together built schools earlier than their own houses for the ethnic education. As we can see the high educational zeal in Korea, it was able to see the Korean's educational spirit from Koryo Saram. Chae Yevgeniya also had great interest in education, and had various opinions on operation of Korean Education Center. As she raised her son and daughter well through the system of education, she was very enthusiastic about education.

“My grandchildren have dreams and chances to study. And that is very important. My parents did their best to give us the best educational chances then, and now my children are sending their kids to the best schools. I believe as they come from better schools, they can achieve greater goals. I think, after parents fulfill their responsibility for the education of their children, it is up to the children's intentions and efforts that what they will do then.”

As shown above, Chae Yevgeniya had her own healthy philosophy of education as "Parents must be responsible for the children's education." It seems that she was fully aware of that there were correlations among parent's interest and support about education, and efforts and achievement of learners, as an education expert because she had years of experience in teaching at university. She also emphasized that the determination and efforts of corresponding learners were important. Chae Yevgeniya told about the social status of Koryo Saram in Kazakhstan as follows:

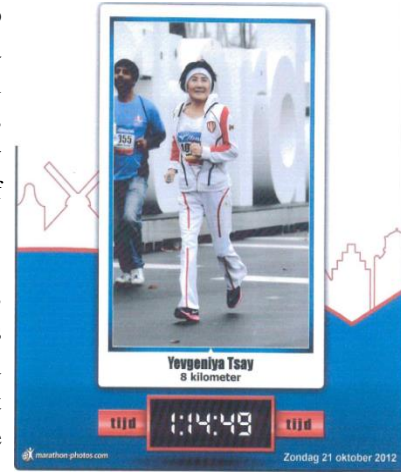
“Most of Koryo Saram in Kazakhstan are living well. They are successful not just in economical field but also in political field. I believe if our children contribute to the development of Kazakhstan, the presence of Koryo Saram here will be noticeable.”

Then she complaint about his son and daughter spoke in Russian with their kids at home. She expressed her discomfort about her son and daughter speaking in Russian, she spoke in Korean at home though. However, she expressed pride in her grandchildren because they answered 'Kareiski' for the questions of where they came from. It could feel that she had dignity and pride about her ethnicity.

4.4. Not 'My' but 'We': culture of community of the Korean people

There are studies, which have shown that people who have lived life to the full are happier and have high self-efficacy. Chae Yevgeniya considers herself very happy and valued person, and a necessary person in the family and society. And she tells those beliefs to her descendants pleasantly. Although her past was hard enough for her husband's early death, but it is thought that was a process and motive she lived a life of devotion.

“Anyway, my life was so tough and difficult, but my daily life was very happy and I think I am still needed by my family and this society. Because my children, grandchildren, daughter-in-law, and son-in-law... they are living happily and especially there is the most important thing in their lives, love. My children take very good care of me and spend much time speaking with me.”



Picture 2. Participating the Amsterdam Marathon

Chae Yevgeniya's most memorable thing with her children was that she participated in the Amsterdam Marathon at age of 75 and finished her 8km race with a record of 1hour 14minutes and 49seconds. As <Picture 2> shows, Chae Yevgeniya challenged to a marathon race with her son, daughter-in-law, and in-laws. Eventhough it is not easy for her age, she never stop to challenge if there is family with her.

“I think I am still young and can live longer, I want to join in their lives. I participated in the Amsterdam Marathon at age of 75 because my children invited me to join. I always enjoy sports and like to walk, and that is why they asked me in. I ran 8km with my son, daughter-in-law, and in-laws. That was the biggest celebration in my life.”

As we can see, Korean's culture gene was found in Chae Yevgeniya who had never been to Korea. She had designed and lived her life in the community, that is family, and it can tell that the tenacity and passion of her continuous challenges in spite of her age over 70 are the culture of the Korean people with Korea's tradition. It shows that the national spirit is alive and breathing in the point of community spirit and culture which emphasize 'We' then 'My'.

CONCLUSIONS

Through the life of Chae Yevgeniya, the educational implications of Korean's cultural gene are quite great, even though their origins and backgrounds are far different. This study can find her passionate life, positive relationships with others as a member of minority, and her will to inherit national pride and spirit as Koryo Saram.

Parents were strongly responsible for their children's education, and they continued to respect the ethnic spirit and maintain ethnic identity through cultural practice rather than language. They shared the sense of duty that attempts to leave their children with the ethnical scent and not to forget the least ethnical culture and language to retain the identity of Koryo Saram lapsing naturally in the course of time.

A patriotic act can be found in Chae Yevgeniya's efforts to keep the daily life rituals without simplifying them to show the greatness of her mother country and people. The journey of life of Chae Yevgeniya who still join in a race and challenge has not been finished yet. Her life, which overcame wretched past and became a member of the country and society, where she migrated in, successfully, awakens passion and challenging spirit of the youth living in our times. The challenging spirit, which Chae Yevgeniya showed, seems to be the representative cultural gene of Korean.

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The Perception of the Participants of the Familial Course on the Characteristics of the Exemplary Family

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Abstract

The exemplary family is a family that becomes the example towards the formation of a harmonious society. This is the dream of every family. However, the understanding about the formation of the exemplary family from the Islamic perspective has been neglected in forming a family. This study aims to study the perception of the participants who attended the course on the formation of the exemplary family, which is the 'Talk on Harmony' Program, towards the characteristics of the exemplary family according to Islam. The study design is a survey. The data were collected using the questionnaire instrument distributed to 63 participants of the familial course, which is the 'Talk on Harmony' Program, organized by the Malaysian Consultative Council of Muslim Women (*Majlis Perundingan Wanita Islam Malaysia* (MPWIM)), Islamic Da'wah Foundation Malaysia (*Yayasan Dakwah Islam Malaysia* (YADIM)) in Kuala Lumpur. The data were analyzed using the SPSS version 23 computer software, using descriptive statistics. Research findings show that the mean of the respondents' understanding of the characteristics of the exemplary family is high. This is reflected from examples such as, the family being an example to other families (4.47), a family who lives based on the teachings of the religion (4.52), a family who loves each other (4.55), a family who lives harmoniously in the society (4.45), and a family who is wise in managing its economy (4.37). It therefore shows that each family member must pay attention to refer to the Quran and Sunnah, and also the history of the prophet hood as their guidance in forming the exemplary family, as well as giving their cooperation in creating a successful exemplary family.

Key words: family, exemplary, harmonious, model, marriage

Introduction

A marriage is a type of worship that is encouraged by Allah the Almighty. One of the wisdoms of a marriage is to create a happy family. Through the bond of a marriage, a husband and wife is blessed by Allah SWT with offspring as their excitors. The fact is, every family member is in need of love and affection from each other. As said by Allah SWT in Surah al-Furqan (25), verse 74, which means:

"And those who say,"

"Our Lord! Grant unto us wives and offspring who will be the comfort of our eyes, and make us an example for the righteous".

According to the interpretations of al-Rahman (*Tafsir Pimpinan al-Rahman*), this verse states that all those who believe in Allah SWT would always make supplications to Him so that they are blessed with righteous and pious wives and offspring. In fact, they would also implore so that they are granted with vast knowledge to perform good deeds, and hence to be emulated by those who want to abstain from the prohibitions of Allah.

Thus, the demonstration of this happy family will form an exemplary family, and subsequently become the example and model for other families. An exemplary family is a family that can be emulated and can serve as a role model for other families. According to Hasan (1994: 111), an exemplary family is a family that could be made as a guide, a role model, a source of motivation and encouragement, and possessing all that are good and noble to be emulated by other people. Muhammad Uthman (1991: 25) said that an exemplary household is one that is centered on the Quran and Sunnah, is good in its governance of the household economy, is always clean, is built on the feeling of love and affection, is a family whose members are mutually responsible, and also emphasizes on the children's education. According to Sidek Baba (2010: 70), the exemplary concept is the main factor in educating children on how to learn and emulate good deeds from other people. In the appreciation of this exemplary family concept, the Malaysian Consultative Council of Muslim Women (MPWIM), the Islamic Da'wah Foundation Malaysia (YADIM) has created the Exemplary Family Awards, starting from the year 2014. It is a recognition of the family that has successfully raised and developed excellent and quality offspring. The recognition of the chosen exemplary family will result in it being used as a role model, and thus bring about a positive image to other families (YADIM 2014:4).

Methodology

This is a quantitative research which design is a survey. The data were obtained from the analysis of the content of the Quran, the *tafsir* (the interpretations of the Quranic verses), theses, books, paperwork and journals. These data are used to support, enhance, and refine, as well as to deepen the researchers' knowledge of the theoretical aspects (Ahmad Sunawari Long 2014:100). Data were collected using the questionnaires which were distributed to 63 respondents. These respondents were purposively selected (purposive sampling) among the participants of the familial course "*Program Bicara Sakinah*" (Talk on Harmony Program) held in Kuala Lumpur, which was organized by MPWIM, YADIM on the 26th of April 2016. Purposive sampling is suitable to be used in this study because the researchers are required to set certain characteristics which should be available in the respondents. This is mentioned by Ahmad Munawar & Mohd Nor Shahizan (2015: 62), who stated that this procedure requires the researcher to set certain characteristics of the respondents of the study. The use of the questionnaire is further supported by Othman (2013: 167) who said that through a questionnaire, information from the respondents can be obtained easily, cheaply and quickly. The data were analyzed descriptively to determine the frequency, percentage, mean and standard deviation using the SPSS version 23 computer software. Results of the Alpha Cronbach show that 0.98 of the respondents have good understanding of the characteristics and concept of the exemplary family.

Research Findings and Discussion

A total of 63 participants have answered the questionnaire about the perception towards the characteristics of an exemplary family. The respondents are the participants of the familial course "*Program Bicara Sakinah*" in Kuala Lumpur. Discussion of the findings revolves around the respondents' background and their understanding of the characteristics of the exemplary family.

Background of the Respondents

Research findings show that the respondents involved in this study are between the ages of 18 to 74 years old. There are 4 respondents (6.5%) aged 41 years old. This is followed by 3 respondents (4.8%) aged 30, 48 and 52 years old. Next, there are 2 respondents (3.2%) each for the ages of 36, 37, 42, 44, 49, 51, 53, 60, 64, 69 and 70 years old. Finally, there is one respondent for each of the following ages 18, 31, 33, 39, 45, 46, 50, 61, 63, 65, 68, 73 and 74.

Table 1: Gender

Gender	Frequency (N)	Percentage (%)
Male	10	16.1
Female	53	83.9
Total	63	100.0

Source: 2016 Questionnaire

Table 1 shows that most of the respondents are female aged between 18 to 74 years old, compared to the male respondents. Most of the participants are in their 20s and 40s, and are individuals in the process of shaping the characteristics and personality of their family members. It is thus a necessity for them to attend parenting courses such as the '*Program Bicara Sakinah*'. The fact is, family development according to Sayyid Qutb (2010: 236) is a process of fair distribution of duties between the husband and wife, in the effort of creating a family that is able to contribute to the survival of the religion and society in the future.

Table 2: Education

Occupation	Frequency (N)	Percentage (%)
Malaysian Certificate of Education	34	54.8
Malaysian Higher School Certificate (STPM)	2	3.2
Diploma	10	16.1
Bachelor's Degree	2	3.2
Others	15	22.7
Total	63	100.0

Source: 2016 Questionnaire

Table 2 shows the respondents' highest level of education, where 34 people (54.8%) own the SPM (Malaysian Certificate of Examination) certificate, 2 people (3.2%) with STPM (Malaysian Higher School Certificate), 10 respondents (16.1%) own a diploma, while another 2 of them (3.2%) hold a Bachelor's Degree. Meanwhile, the education level of another 15 respondents (22.7%) are not known. With this, majority of the respondents own a certificate in SPM (MCE), with 34 people (54.8%) compared to those with a higher level of education, which is a Bachelor's Degree at only 2 people (3.2%). The fact is, the parents' standard of education is very important in assessing their level of parenting skills. Studies have shown that parents with the highest level of education would demonstrate good parenting styles, which are in line with the education they have received. According to the study of Zarinah and Rozumah (2011: 62), a mother's level of education is her force and strength in educating and raising the children.

Table 3: Occupation

Occupation	Frequency (N)	Percentage (%)
Government	4	6.5
Private	9	14.5
Self-employed	27	43.5
Others	23	35.5
Total	63	100.0

Source: 2016 Questionnaire

Table 3 shows the occupations of the respondents involved in this study. 4 people (6.5%) work with the government agencies, 9 of the respondents (14.5%) work in the private sector, and 27 respondents (43.5%) are self-employed, while 23 of them (35.5%) are involved in other types of employment. The respondents' occupation in the category of self-employment is very high (43.5%), based on the respondents' age facts. The respondents' occupation in the category of government sector is relatively low (6.5%) because of the factor of the higher educational qualifications, as shown in Table 3. The truth is, employment is important in determining the level of the parents' parenting styles on their children's education. Research have shown that parents who have good occupation will educate their children well and spend their time wisely with them. According to Mustafa Daud (t.th: 4), the parents' income and employment status have a great impact on the development of their children's behaviour.

Table 4: Marital Status

Marital Status	Frequency (N)	Percentage (%)
Single	1	1.6
Married	50	80.6
Widowed	9	14.5
Others	3	3.3
Total	63	100.0

Source: 2016 Questionnaire

Table 4 shows the respondents' marital status. In this study, 1 person (1.6%) is still single, 50 respondents (80.6%) are married, 9 people (14.5%) are widowed, while another 3 (3.3%) fall in the category of others. Most of the respondents who participated in the parenting program fall into the already married category (80.6%), compared to just one person who is still single (1.6%), as shown in Table 4. This finding shows that there is a relationship between respondents who are already married and their employment distribution, and they are also more interested in taking part in familial courses to enhance their knowledge in family management. Hence, parenting programs are important in providing knowledge and skills for both parents in shaping their married life. Apart from that, parenting knowledge and skills are also equally important for individuals about to embark on their married life.

Table 5: Participation in Parenting Programs

Involvement	Frequency (N)	Percentage (%)
Yes	30	48.4
No	33	51.6
Total	63	100.0

Source: 2016 Questionnaire

Table 5 shows that the number of respondents in this study who participate in parenting skills programs are 30 people (48.4%). Meanwhile, 33 of them (51.6%) have never participated in any parenting skill programs. The percentage of respondents who are involved in parenting skill programs are at different levels. It can thus be said that the participation of the individuals in parenting skill programs, whether they are already married or not, is not important in the creation of a family.

Table 6: Understanding about the Characteristics of an Exemplary Family								
No.	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly agree	Mean	SD
C1	Is a role model to other families	0 0%	0 0%	3 4.8%	31 50.0%	24 38.7%	4.47	.69
C2	Would always keep in touch with each other	0 0%	0 0%	2 3.2%	34 54.8%	22 35.5%	4.45	.67
C3	Family members have mutual understanding between them	0 0%	0 0%	1 1.6%	35 56.5%	22 35.5%	4.47	.65
C4	Life is centered on the religion	0 0%	0 0%	2 3.2%	29 46.8%	28 45.2%	4.52	.65
C5	Loves each other	0 0%	0 0%	1 3.2%	31 50.0%	25 40.3%	4.55	.66
C6	calls upon other people to perform good deeds	0 0%	0 0%	1 1.6%	34 54.8%	23 37.1%	4.48	.65
C7	Practices effective communication	0 0%	0 0%	1 1.6%	34 54.8%	23 37.1%	4.48	.65
C8	lives harmoniously in the society	0 0%	0 0%	1 1.6%	34 54.8%	23 37.1%	4.48	.65
C9	always perform congregational prayer	0 0%	0 0%	3 4.8%	34 54.8%	21 33.9%	4.42	.69
C10		0 0%	0 0%	3 4.8%	32 51.6%	23 37.1%	4.45	.69
C11		0 0%	0 0%	2 3.2%	28 45.2%	28 45.2%	4.55	.66
C12	Holds knowledge	0 0%	0 0%	7 11.3%	34 54.8%	17 27.4%	4.29	.77
C13	sharing session at home	0 0%	0 0%	1 1.6%	37 59.7%	19 30.6%	4.45	.66
C14	Practices having meals together with all family members	0 0%	0 0%	1 1.6%	37 59.7%	19 30.6%	4.45	.66
C15	Always perform recreational activities together	0 0%	0 0%	6 1.6%	31 59.7%	20 30.6%	4.39	.78
C16	Will always be present at the mosque for activities to enliven the house of Allah	0 0%	0 0%	3 4.8%	33 53.2%	22 35.5%	4.44	.69
C17	Contributes good ideas to the society	0 0%	1 1.6%	4 6.5%	32 51.6%	20 32.3%	4.39	.79
C18	Would always extend help to the society	0 0%	1 1.6%	4 6.5%	32 51.6%	20 32.3%	4.39	.79
C19	Strives to resolve family conflicts in the best way possible	0 0%	0 0%	1 1.6%	38 61.3%	18 29.0%	4.44	.67
C20	Takes care of their health by practicing a healthy diet	0 0%	1 1.6%	2 4.8%	34 54.8%	20 32.3%	4.42	.76
C21	Manages the family economy wisely	0 0%	1 1.6%	3 4.8%	34 54.8%	20 32.3%	4.37	.75
C22	Would actively engage themselves in community activities	0 0%	1 1.6%	4 6.5%	36 58.1%	17 27.4%	4.31	.76

Source: 2016 Questionnaire

Table 6 shows the respondents' understanding about the characteristics of an exemplary family. C1 item "An exemplary family is a role model to other families" (Mean = 4.47). This characteristic is emphasized in the works of Hasan (1996: 112-113) and Muhammad Khairul & Rafikul (2011: 81-98) who said that parents should become the role models to their children, to educate the children so that they will set good examples to the society, to give them encouragements and motivation to build up their confidence, to become the children's supervisors and advisors, to emphasize on their education, as well as to always monitor their children's interaction with other people. C2 item "The members of an exemplary family would always keep in touch with each other" (Mean = 4.45) and C3 item "The members of an exemplary family have mutual understanding between them" (Mean = 4.47). These characteristics are mentioned in the research of Muhammad Khairul (2011: 92), who stated that two-way communication plays an important role in the family institution, which requires both parents to interact wisely with their children. The strength of the family institution begins with good communication techniques used by the parents. This is further supported by Christopher Spera (2005: 130), who explained that parents could approach their children by getting involved in the children's after-school activities, such as by helping them with their school work, keeping track of their school progress, and by monitoring their activities with their friends.

C4 item "An exemplary family's life is centered on the religion" has a mean of 4.52. According to Muhammad Thalib (1993: 124), every parent needs to guide their children to lead their lives based on the religion and faith in Allah SWT, because they would be held accountable for their children's wellbeing in the hereafter. As a matter of fact, the father as the head of the family needs to guide and lead all of his family members towards the attainment of Allah's pleasure. The mean value for the C5 item "The members of an exemplary family love each other" is 4.55. As stated by Sidek Baba (2010: 115), parents need to show reasonable love and affection for their children, even when the latter make any complaints to them. As for the children, the display of their love towards the parents is made by showing respect towards their parents' commands. The C6 item "An exemplary family calls upon other people to perform good deeds" (Mean = 4.48). This characteristic is mentioned by Muhammad Thalib (1993: 166), who said that parents need to educate their children to do good deeds so that there will be no damage, hostility, bloodshed and life-threatening situations.

The mean for item C7 "An exemplary family practices effective communication" is 4.42. This is supported by Sidek Baba (2010: 108), who stated that a family that practices effective communication makes their children's thinking skills to develop and new ideas to be generated. In fact, the best example in communicating is through the examples shown by the individual who is speaking or giving the advice. Imam al-Ghazali defines good communication as one that is done from the heart, with the heart, and would subsequently develop a type of belief. Zaaba on the other hand, stated that communication is the process of strengthening a person's intellect and character, which is healthy thoughts. As for item C8 "An exemplary family lives harmoniously in the society", the mean is 4.45. Muhammad Thalib (1993: 145) mentioned that a family that lives and socialize in a society would establish good ties and rapport with their neighbors. This is achieved by visiting their neighbors regularly and having mutual respect for each other. The mean for C9 item "An exemplary family always perform congregational prayer" is 4.55. This characteristic is mentioned in the work of Nur Dalilah and Raihanah (2013: 157) who said that congregational prayer will have a positive impact on the development of an individual, as well as hindering a person from experiencing life problems.

C10 item "An exemplary family holds knowledge sharing sessions at home" has a mean of 4.29. The research of Muhammad Khairul and Rafikul (2011: 93) found that successful families have unity and family planning. This is because family activities will strengthen family ties since each family member would make time to perform their activities together. The mean for C11 item "An exemplary family practices having meals together with the family members" is 4.45. Noorfizah (1995: 15) mentioned this characteristic in her study, whereby family members are encouraged to always practice eating together. This is highly demanded because children could be educated properly in accordance with the teachings of the religion while having their meals together. In fact, the practice of eating together enables for a major part of the children's behaviour to be educated in accordance with

the Islamic teachings. C12 item “An exemplary family always perform recreational activities together” (Mean = 4.39). Noorfizah (1995: 87) also mentioned that performing recreational activities help to form a more intimate relationship among all the family members, apart from enabling them to enjoy a different atmosphere compared to that at home. Meanwhile, A'dawiyah (2004: 90) stated that family members who perform recreational activities are able to clear their minds of their problems, reduce stress, and also keep their bodies healthy. This is because, Islam encourages its followers to always stay fit and to abstain themselves from various diseases.

C13 item “An exemplary family will always be present at the mosque for activities to enliven the house of Allah” (Mean = 4.44). According to Mohd Nur (2013: 302), a mosque is the place where the characters and morality of the Muslim generation are nurtured. As demonstrated by the Prophet Muhammad SAW and his noble companions by always bringing their children to the mosque to perform congregational prayers once they are able to take care of their own cleanliness and to fulfill their own needs. The mean for C14 item “An exemplary family contributes good ideas to the society” is 4.39, and the mean for C15 item “An exemplary family would always extend its help to the society” is 4.39. Muhammad Thalib (2009:148) mentioned this characteristic by stating that all forms of human relations are the ultimate relationship in human life, and it is thus the duty of each individual to create a relationship bond in order to be blessed by Allah the Almighty. The research of Mohd Yusof and friends (2011: 42) found that familial and social relationships are important in ensuring the stability of the community's well-being.

C16 item “An exemplary family strives to resolve family conflicts in the best way possible” (Mean = 4.44). Based on the research of Nur Dalilah and Raihanah (2011: 161), it is found that a family whose members have poor level of prayer will create opportunities for family conflicts to happen. The mean for C17 item “The members of an exemplary family take care of their health by practicing a healthy diet is 4.42. This characteristic is mentioned by Nur Zahidah and Raihanah (2011: 40) in their study. They said that a family that is in good health and does not suffer from any illnesses, be it physically or morally, would benefit the individuals in the family. C18 item “An exemplary family manages the family economy wisely” has a mean of 4.37. The characteristic of managing the family economy wisely is mentioned by Siti Rahayu and Yu Kin (2013: 3). According to them, a good family is a family that is wise in controlling its financial management, whether in making purchases using coupons or doing so during sales, in order to save money which could be used for other purposes. Nur Zahidah and Raihanah (2011: 40) also stated that a family's economy has a huge impact on its members' peace and happiness in life. Therefore, every family needs to be encouraged to attain prosperity and goodness for its family members, such as having a stable income, a strong economy, good accommodation, education, as well as having the support of the whole family. C19 item “The members of an exemplary family would actively engage themselves in community activities” (Mean = 4.31). The work of Muhammad and Rafikul (2011: 96) found that a good religious leader is a person who is both respected and emulated by the associations in his or her society. In fact, the religious leader also plays an important role in the society.

The analysis of the mean scores presented show that the respondents' understanding of the characteristics of an exemplary family is at a good level for the establishment of exemplary families. Therefore, each family member would give their mutual cooperation and support for each other. Meanwhile, the family module of the State of Malacca (2005) specifies that in terms of strengthening the family and household institution, there are several noteworthy aspects such as the appreciation of Islamic values and practices, communication, and also the management of the family economy, in portraying the atmosphere of positive family life and vice versa.

Conclusion

Based on the findings of the research and the discussion made about them, it can be concluded that each participant of the familial course “*Program Bicara Sakinah*” has the knowledge related to the exemplary family. The characteristics of the exemplary family need to be applied since they play a huge role in the development of the exemplary family as required by Islam. Exemplary families are important in producing a harmonious generation, society and nation. The strength of the family institution symbolizes that the development of the children is also good, so that it is able to develop the society and the nation. Therefore, in each marriage, there needs to be deep understanding between the husband and wife about developing a family that is in line with the Islamic requirements. The couple would need to cooperate with other family members in creating the exemplary

family, and would subsequently be emulated by other family members. Overall, the results of this research show the respondents' understanding about the development of the exemplary family in Malaysia. Once the characteristics of the exemplary family from the perspective of Islam have been identified, they can then be used as a guide for both the individuals and the society in the effort of creating families that are happy and to be emulated by the society.

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The Phenomenon of Pseudo-Social Services Provided to Seniors in the Czech Republic as Seen by Their Providers

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ABSTRACT

This qualitative study focuses on providers of the so-called pseudo-social services to seniors in the Czech Republic who provide services without proper registration to elderly people dependent on the care of others. The aim of the research conducted through semi-structured interviews was to find out reasons leading the providers of these services to not being registered and to find out their opinions on that practice with an emphasis on the quality of the provided services. The data showed that the providers of pseudo-social services see their activity to be necessary and beneficial, especially to the seniors themselves and their family members. They often believe that they are able to meet the seniors' requirements better than the registered social services thus providing better quality. It is apparent from the research results that the providers of pseudo-social services offer their services to meet the public demand without which their "business" would disappear.

INTRODUCTION

The socio-economic transformations of the Czech society after 1989 and the associated processes of individualization, economization and marketization affected not only the market sector, but also penetrated the sphere of services, including social services. Consequently, the client is taken as a customer, the service provider as a seller, and services as a product of the market, which results in economization and marketization not only of these services but also of relationships and bonds. The requirements for services efficiency and quality have been increasing, the customer's satisfaction becoming a priority according to their individual needs. *Individualization brings more freedom and a sense of authenticity, but also more uncertainty, the risk of loneliness, and the feeling of insecurity* (Keller, 2005, p. 27). The emphasis is then placed on the financing of services, especially by the client, who decides which service to choose (Malík, Holasová, 2014). In the market area, the customer is paying for the services himself/herself whereas in the social sphere the clients receive allowances from the State to pay for them. Since 2007, social services in the Czech Republic can only be provided on the basis of registration under Act No. 108/2006 Sb., on Social Services (hereinafter referred to as the "Act"), which stipulates the maximum cost of reimbursement for specific acts. The client has a guaranteed price and can calculate the cost of the services he/she orders. The setting of the maximum possible price becomes a barrier for the service providers, as it often happens that the client's income does not cover the cost of the service provided, especially when his/her residence is in a remote location, far from the location of the provider's seat. The registered providers may apply for subsidies for the social services provided, but they have no guarantee of when and how much support they receive, and at the same time there is no relevant link between the quality of services and the volume of the subsidies allocated (Malík, Holasová, 2014). Therefore, multi-source funding is important for the providers to sustain their services. Marketization of the market also produces negative impacts, especially the lack of capacity or the absence of some types of social services offered. In connection with the above mentioned Šimíková (2015) also points out the danger of the low-income clients' inability to afford social services.

The situation described above opens up a space for the so-called gray zone, which includes activities to avoid control and is part of a shadow economy that includes illegal activities, i.e. moonlighting (Holman, 2010). In the Czech Republic, the gray economy can mostly be found in the area of household work and non-financial transactions. It also includes legal production and services, the income from which is deliberately not declared, or underestimated. Typical is a large number of small cash, unrecorded transactions whose primary purpose is to avoid paying taxes and insurance, or avoiding regulations (Rais, Klička, Road, 2015). The main problem with unregistered providers of field services for seniors in the gray zone is that they do not have registration to provide social services under the law and thus violate not only the legal rules but also the ethical and moral ones. In the area of provision of services without registration, this essentially includes the transfer of public resources spent through care allowances into the informal economy without the possibility of checking their quality. In this paper, we refer to services provided to seniors without proper registration as pseudo-social services. The term "*pseudo-social service*" is used to mean "false", or services that are not registered as social services in compliance with the valid legislation, and therefore they cannot be called that way. In addition to the above

mentioned designation, we also use the terms "*unregistered services*", "*unlicensed services*" and "*hidden services*" as synonyms, because they are not officially registered in any manner. Their system of operation is based on oral agreements between the providers and the clients, or in the case of elderly persons, their family members. In these services, care is usually given by a worker without professional competence and other qualification preconditions stipulated by law. Professional competence according to Section 116 of the Act means *acquiring the basic or secondary education and taking an accredited qualification course; taking an accredited qualification course is not required for natural persons who have acquired ... the competence to perform the medical profession in the field of nursing, ... the competence to pursue the profession of social worker ... and for natural persons who have acquired the secondary education in the field of education stipulated by the respective implementing legal regulation*. Another aspect is that there is no quality control in "hidden services", they are not bound by the standards of quality of social services, nor social work standards are secured there, as it is with the registered services subject to inspection. If a registered social service fails to meet the criteria, registration for the provision of social services may be withdrawn. The unregistered, or hidden, provider of pseudo-social services has nothing to lose. It should also be emphasized that the elderly users often need qualified health care which is difficult to obtain from unregistered social services providers. The issue of "business" in social services has been widely discussed in the past decade in the Czech Republic (see e.g. Malik Holasová, Gojová, 2013, Laan, 2006, Winkler, 2000, Musil, 1996), but not enough attention has been paid to the related pseudo-social services and their quality (see, for example, Vávrová, Dořičáková, 2016, Janebová, Celá, 2016, Janebová, 2015), as this is a new oncoming phenomenon that will sooner or later will have to be dealt with by the Czech legislation. The negative impacts of the market on social services, and not only for the elderly, are not exclusively a Czech problem as similar questions have been discussed in the scholarly Euro-American literature for at least a quarter of a century (see, for example, Starr, Holzhausen, 2012; Colombo et al., 2011; Brandt, Haberkern, Szydlik, 2009, Hwang, Powell; 2009, Mozos 2009; Sarasa, Billingsley, 2008; Eikenberry, Kluver, 2004; Harris, 2003; Clark, Newman, 1997; Barlett, Le Grand, 1993).

THE STUDY

The research aim of this qualitative study was to identify *the reasons leading the providers of unregistered services to the target group of seniors not to register their services, and to deal with this practice with an emphasis on the quality of the services provided*. In relation to this goal, we have identified the main research question: *What are the reasons of providers of unregistered services for seniors not to register themselves?* and a partial research question: *How does the fact that the services are unregistered influence their quality according to their providers?* A qualitative research strategy has been chosen because an inductively abductive way of research allows us to explore more dimensions of the problem, from the specific to the general ones (Padgett, 2017). The main components of qualitative research include the collected data, and the analytical and interpretative procedures through which we come to some conclusions or theories (Strauss, Corbin, 1997). The data collection was conducted through *semi-structured interviews with the pseudo-social services providers*. The criteria for selecting informants were (1) the fact that they were providing services to the target group of seniors for more than 1 year without registration, while (2) they knew about the statutory duty of the social service registration. We gained the informants by a deliberate selection using the snowball sampling technique (Moorse et al., 2009). We first contacted three providers, on the basis of informal relationships, about whom we knew that they were providing the pseudo-social field services for the elderly. They subsequently referred us to other providers of unlicensed services. In total, we obtained testimonies from 10 people. The description of the socio-demographic characteristics of the informants is shown in Table 1.

Table 1: The socio-demographic characteristics of the informants

The code of the informants	The education of the provider of unregistered services	The sex of the provider of unregistered services	The age of the provider of unregistered services	The type of the service provided	The type of license	The period of provision of the unregistered service
P1	Secondary school	female	64	field	none	1,5
P2	University	female	43	field	Trade certificate	5
P3	Secondary school	female	37	field	Trade certificate	5
P4	Vocational school	female	62	field	none	3
P5	Secondary school	male	31	field	Trade certificate	2
P6	Secondary school	female	40	field	none	3
P7	Secondary school	female	53	field	none	20
P8	Vocational school	female	38	field	Trade certificate	2
P9	Vocational school	male	65	field	none	1
P10	Vocational school	male	40	field	Trade certificate	2

The data source: the authors' own research, 2017

While conducting the research, we followed the ethical principles: anonymity was guaranteed to the informants, their informed consent was confirmed in writing, and each of them had a chance to interrupt or terminate their participation at any time during the research. The data collection in the form of interviews took place in a secure environment determined by the informant. The interviews were recorded as audio recordings and then literally transcribed and analyzed.

THE DATA ANALYSIS AND FINDINGS

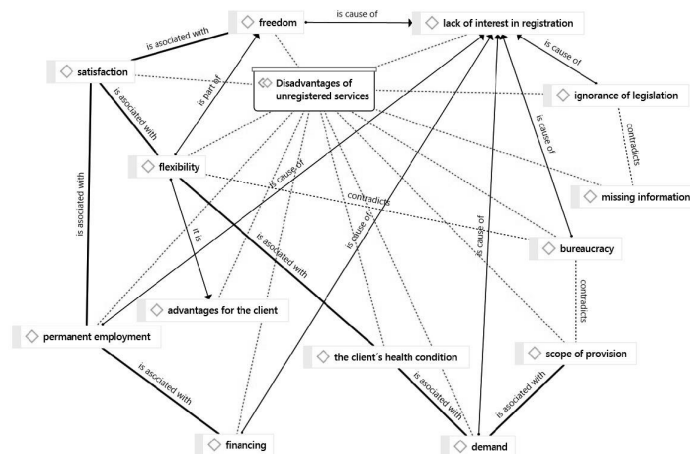
The acquired transcripts were repeatedly read and analyzed using open encoding procedures and notes containing the emerging interpretations and conceptualizations (Howard, Berg, 2016). The transcribed material was thus analyzed in accordance with the approach known as the generic inductive qualitative model (Hood, 2014) or as a general encoding paradigm (Maxwell, 2005). The data was analyzed with the ATLAS.ti8 program which allows to capture and visualize the relationships within the social phenomenon examined. The resulting **64 found codes** were grouped by content relationship into **seven significant groups**:

- 1. Reasons for non-registration**
2. Disadvantages of unregistered services
3. Demand for services
4. Conflict with legislation
5. Benefits of unregistered services
6. Benefits for the client
- 7. Quality of services without registration**

Following the research objectives, we present an analysis and results (1) showing the reasons of the providers of pseudo-social services not to register and (2) their opinions concerning the quality of pseudo-social services provided.

(1) The main reasons leading to non-registration of pseudo-social services given by their providers include in particular the high level of **bureaucratic** work associated with registration as well as their need for a certain level of **freedom** which the provider enjoys due to not being registered: ... *the need to comply with all the rules that registered services must comply with. Yeah, I feel some professional and personal pressure here (P3). I do not have to fill in statistical data like other registered providers ... that is terrible bureaucracy (P6). So, the bureaucracy - definitely in the first place, we do not have to go to various authorities and fill in really crazy applications, permissions, and so on (P7). Registered social services are connected with a number of absurd obligations that prevent employees from providing quality services (P9).*

Figure 1: Reasons for non-registration of field services provided to seniors



The data source: the authors' own research, 2017

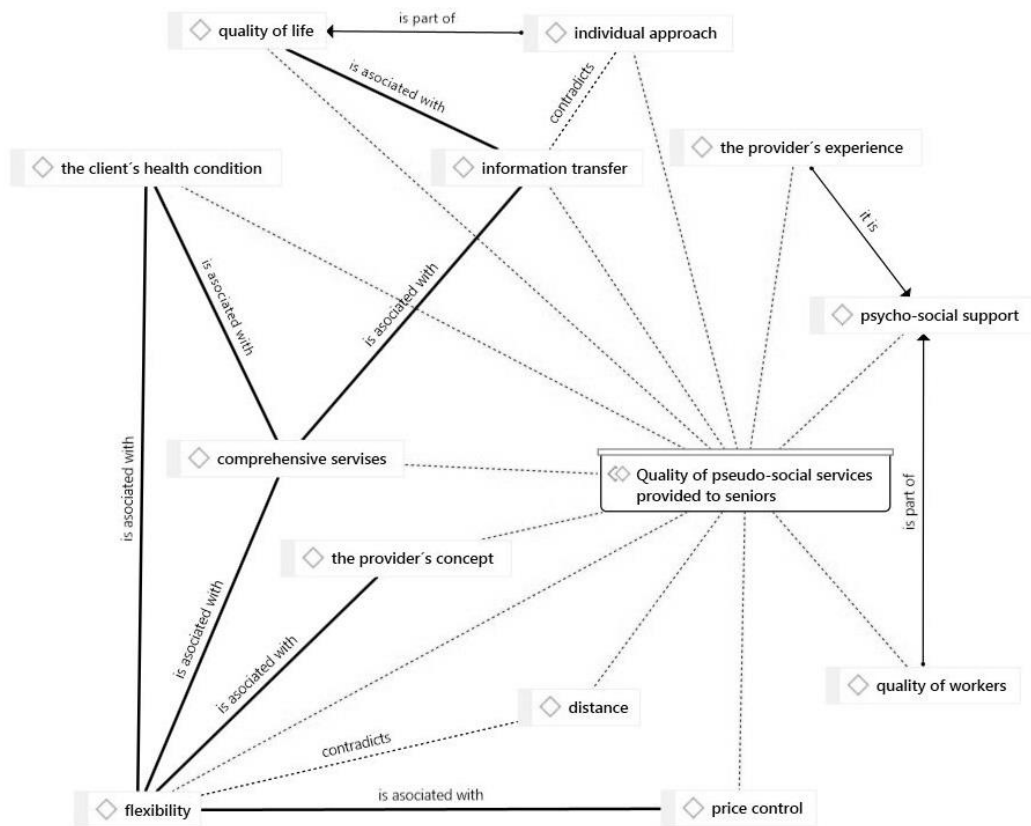
The interviews also revealed that some of the pseudo-social service providers are not registered because they do **not have** the necessary **information** or **knowledge of legislation**. They perform their services on the basis of a trade license, which is contrary to the law: ... *it was enough for me to come to the Trade Licensing Office and it was easy, I mean to get the license ... the trade license gives me what I have, we have clients that is why I did not need that. ... but I have more options due to my trade license, and I see that this is just an addition to it and it is not the key thing that makes my livelihood, I would not go into it (P3). ... so I started doing business with a trade license (P10).* Others are **not interested in registering** because they do not see any advantage in that: ... *maybe, when I have more clients I will find some advantages, or, I do not know, I have not needed registration so far, not at all (P2).*

Another reason is **flexibility** that allows for a **higher range** of services based on **demand** that is often dependent on the **health of the client**: ... *we are flexible and meet the client's needs (P3)*, which, according to unregistered providers, brings **advantages** especially for the **client**: ... *one has time, he/she can talk to their clients, have a chat, they are bound by time, there is no distinction.* According to providers of pseudo-social services, this approach brings **satisfaction** not only to clients and their family members, but also to workers themselves who are guaranteed **permanent employment**: ... *they need a long-term job (P2)* with an **adequate pay**: ... *I do not like to be institutionalized, because I like to be the master of my time (P7). I work according to how many clients I have, and I can also work more hours a day and even during holidays. No one regulates me. More hours also mean more earnings, and that's an interesting job then (P8).*

(2) The data obtained also revealed that providers of pseudo-social services perceive their own activities necessary and beneficial, not only for the seniors themselves, but above all, for their family members, as they increase the **quality of their lives**: *Mostly, they are all seniors who still have children in the active age, that is, they are employed, and since there appear seniors with serious medical conditions such as carcinomas and the like, so there is essentially no certainty as to how long that person will or will not live, that is, when I decide, being, I do not know, at the age of fifty, for example, and I know that I'm still missing out on retirement, and now I decide to leave the job, I do not have a guaranteed job, I have no place to go, so if they are not the seniors but the family members, they use the services for these reasons because they are afraid of losing their jobs and looking for new ones. This is basically the most common case (P3). ... people turned to me for help with the problems they had in their family due to the lack of time to take care of the family member (P8).* They also think that they are able to meet their requirements better than registered social services and provide **better care** (see Figure 2) based on an **individual approach**: *So there must be an individual approach (P1), flexibility associated with a comprehensive service offer taking into account the current health state of the client and the distance of*

his/her place of residence: ... *in fact, everything that he asks for a person to live normally ... hygiene, also eating, anything, help, help, anything ... 24 hours a day ... providing health and social care, the provider having a social feeling and being simply available (P2). ... services provided daily, in the morning, at noon, in the evening (P4).* An important part of the quality is also, according to the providers of pseudo-social services, their experience and the quality of his/her staff: ... *I think, and I dare to say from my experience that these unregistered services are closer to the people, they can work with them sort of "better" ... I see the quality there. (P3). ... with the client, I do not have to count every minute, so I can perform better service, we can go out for a walk with the client, we can sit on the bench, read a book (P6). ... I do it, well, in a complex way... so it's mostly people at that terminal stage, you know. And there, what turned out to be good was taking care of the lady who was looking after her dying mother and was totally down, I take more care of her than her mother and they are amazed that it is, of course, no novelty at the market, for God's sake. But in fact we neglect them. As a society, we neglect such people. Or those caretaking institutions neglect them. (P7). The quality is derived from the quality of workers (P9).* The above mentioned principles are typical of the **providers' approach**.

Figure 2: Quality of pseudo-social services provided to seniors



The data source: the authors' own research, 2017

The research results show that providers of pseudo-social service are aware of **the information people share** as they offer their services based on the field-based demand without which their "business" would disappear. ... *some asked me to stay with them (P1). We have clients ... (P2). There was a great demand for our service (P3). They asked me, having no other option to get any service (P4). ... I was approached by someone (P5). My clients began to turn to me saying that there were no such services here and I more or less accepted their offer and started to do it. I always have some work (P6). The demand for my services is several times higher than what I can manage (P9). ... those who were interested in these services, ... also clients are approaching me ... it is common that a client or his/her family member who did not manage to find a registered service provider turned to us (P10). They are often able to **regulate their fees** according to the client's financial situation. I do not have an hourly rate ... it's always an agreement with the clients or their relatives ... in terms of money we try to achieve an agreement where my fee should not be higher than their allowances (P1). ... we can also be cheaper for the family (P7). ... I am able to offer the client a price according to their social and economic situation because I know the profession quite well (P9).*

CONCLUSIONS

The rising quality of life linked with the rising level of health and social care in all developed countries is one of the conditions for increasing life expectancy, which is associated with the aging of the population. In the near future, it is necessary to take into account the fact that the demand for health and social services provided to the target group of seniors will grow¹, and all developed social welfare states will have to allocate funds to ensure them. Following this, it will be necessary to regulate the existing inflexible network of quality social services and, if necessary, to modify the legislative conditions so that bureaucratic obstacles should not discourage service providers from registering, which guarantees a certain degree of quality. In the Czech Republic, in the current situation, a normal citizen can hardly distinguish a registered social service from a non-registered one. If he/she chooses an unlicensed service, because he/she has no other option, he/she is not protected by the State against possible "poor quality".

The results of the research showed that the main reason of Czech providers of pseudo-social services not to register is the high level of bureaucratic burden associated with registration under the law. They also mentioned personal freedom, flexibility and permanent employment with adequate financial income, which, in their opinion, the registration does not bring. One of the serious findings of the research was the fact that some providers of unregistered services do not know the legislation in force or do not have enough information about mandatory registration. Consequently, they act in violation of the law. In conclusion, we may say that the unregistered providers perceive their activities to be necessary and beneficial, even if they perform them "secretly", i.e. outside the main stream of registered social services. Clients and their family members turn to them especially in emergency situations where they need to ensure care and are rejected by registered providers who do not have sufficient staffing capacity or who provide social services only in limited times or in a certain territory. Providers of pseudo-social services often believe that they are able to provide better services to their clients than registered providers as, in their opinion, they meet individual needs of clients and their families better, e.g. they can, among others, regulate the price for the provided social and economic services according to their clients' social and economic situation.

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¹ It is assumed that in 2050 people over 60 will account for 34% of the European population (United Nations, 2015).

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The Place and Role of Sports in Leisure - Activity Habits of University Students

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ABSTRACT

The aim of this study is to identify the importance and place of sports in leisure activities of the 3rd and 4th year P.E (Physical Education) students in the Sports Departments and Schools of Sports Sciences and Technology of Hacettepe, Gazi, Ankara, and Middle East Technical Universities, as well as to define the relationship between leisure activities and demographic characteristics.

A total of 348 students, specified through a stratified sampling method, participated in this study. Data was collected through a questionnaire with multiple-choice questions prepared in the light of the variables defined by the researcher. The questionnaire was applied to the students studying in the departments of Schools of Sports.

In the questionnaire, the students were asked multiple-choice questions related to their leisure- sports activities and their participation in such activities. The evaluation of student demographic characteristics and how they utilized leisure-sports activities were shown in percentages and frequencies and the connection between them was defined by Craner's V test.

A significant connection between gender and the preference of leisure-sports activities has been noted in the study. The reasons for the preferences were; the time allocated for leisure-sports activities, the rate of making use of the facilities, lack of sufficient of equipment, problems faced with the facilities used, and the organization of leisure activities.

Key words: Leisure activities, sports, demographic characteristics

INTRODUCTION

Development in technology and industrialization, today, has brought about several changes, which affect human life-style and cause new behavioral adaptations (Çamlıyer, 1991: 23).

Sports and human life are two inseparable unity. As assumed in all world countries, except in our case, sports activities are one of the most effective ways in raising a healthy and reliable generation, in development and even to take a place as a nation in the developing century.

It is a fact that we have a young generation in which the student population is the most sensitive, dynamic, open to innovations, and initiating part. The students in higher education occupy a very important place and are our source of happiness as well as the potential inspiration trust for the future. Therefore, issues to do with the students and their leisure activities are common concerns of all higher educational institutions. In this respect, as for all countries, leisure activities are closely related with social, cultural, economical, political, and managerial systems of our country (Mutlutürk, 1991: 76).

In recent years, university students participate in recreative activities and spend their leisure time provided for them as partly organized facilities during their university studies. In this respect, universities have a leading role in the students' using their free time productively. While the recreation programs and the infrastructure develops interaction among the young generation, it also satisfy their reasons for participation (Balci, 2003: 163).

The concept of "Leisure" has been defined differently, but similar to each other by several writers.

Tezcan (1992) defines "leisure" as *"it is the time when an individual feels free of all self or others-oriented obligations and does an activity of his/her choice"* According to Abadan (1961), *"leisure is the free period when one doesn't have to sleep, eat, do cleaning, attend classes, study or work somewhere"*. *"Leisure is the free period for someone except from time to work, sleep, and meet other needs"* add Gökmen & Açıkalın (1985: 33).

Participating in outdoors sports activities for university students can not be compulsory. A student wishes to prove himself/herself in a branch of sports he/she prefers to learn more and develop skills. The involved, in this respect, must try to meet students' needs and expectations with the facilities available because if an individual does not have satisfaction in what he/she prefers to do, then he/she may become inclined to be involved in unwanted activities. When young individuals do not have any worth activities during their free time, they usually pick up bad habits (Aydoğan, 1993: 86).

Young people have different preferences and expectations in the use of their free time. Young ages are very important in one's life because it is the phase when one matures regularly and continuously (Özbay & Öztürk 1989: 21).

Kılbaş (1994) underlines the advantages of the use of "leisure" as; *"selffulfilment", "adventure", "selectiveness", "self-expression", "creativity", "variety of interests", and "socialization"*.

The most important reasons for participating in leisure activities are; *"getting pleasure in what one does", "doing something different from ones work", "interacting with friends", "having new experiences", "feeling the happiness of success in some issues", "experiencing the feeling of being creative", "doing something good for the society", and "spending time"*.

The facilities for sports activities for university students in our country are directly proportional with the investments done in this field by the universities. When we consider the issue as sports only, we see that there are many problems faced. The main handicaps are facilities, equipment, infrastructure, teaching staff etc. In order to eradicate or minimize such problems and lead students to sports encouraging and pains-taking organizations are necessary, through which will increase the number of the young generation who will know and enjoy the sports environment more, and use their time in useful activities. As a result, this will constitute the future society with individuals able to form healthy friendships, respectful to rules and regulations, eager to struggle, respectful to others' rights, harmonious, successful, and understanding

METHODOLOGY

Research Method

A quantitative research method was made use of in this study. It is a "Related Research" model which is a descriptive study, a general search model. It was a case study aiming at defining student views about the effect of "the place and role of sports in leisure habits of university students". With the quantitative method it was aimed to find out the factors affecting leisure habits of the students as well as to specify any changes in terms of their demographic characteristics. The scale was a questionnaire composed of multiple-choice questions with statements in which students' demographic structure and the level of leisure habits were specified.

The Participants

In the 2015-2016 academic year, a total of 348 students, 52 from Hacettepe University, 258 from Gazi University, 27 from Ankara University, and 11 from ETU (Middle East Technical University), were picked through random sampling method as participants.

Data Collection Tool

A questionnaire with multiple-choice questions related to their leisure habits was conducted to collect data to specify their leisure activities and their participation in these activities

The questionnaire was in two parts. The first part was of seven questions to define the participants' personal characteristics. The second part was of twenty questions to define their leisure habits and the place of sports in their habits. A total of 27 multiple-choice questions were asked the participants

Data Analysis

The data collected in this study was analysed through SPSS 20.00 program and the students' responses were given in percentage (%) and frequency (f) distribution. Cramer's V test was conducted to specify the relationship. The meaningfulness level was set as $p < 0.05$

FINDINGS

The tables below show the role of age, gender, and the universities they are studying at in terms of leisure activities

Table 1: Distribution of the students in terms of their ages

Age range	f	%
20 – 21	66	19
22 – 23	209	60.1
24 – above	73	20.9
Total	348	100

As it can be noted in Table I, %19 of the students were between the ages of 20 – 21, %60.1 of them were between 22 – 23, and %20.9 were 24 and over

Table 2: Distribution of the students in terms of their gender

Gender	f	%
Female	138	39.7
Male	210	60.3
Total	348	100

As Table 2 shows, %39.7 of the students were female and %60.3 were male

Table 3: Distribution of the students in terms of the universities they were studying

University	f	%
Hacettepe University	52	14.0
Gazi University	258	74.1
Ankara University	27	7.8
METU	11	3.2
Total	349	100

As in Table 3, %14.9 of the participant students are from Hacettepe University, % 74.1 are from Gazi University, %7.8 are from Ankara University, and %3.2 are from METU.

Table 4: Student interest in sports

Interest in sports	f	%
Spectators	41	11.8
Licenced sportsmen	183	52.6
Sports for health	78	22.4
For fun	46	13.2
Total	348	100

As Table 4 reveals that %11.8 of the participant students are interested in sports as spectators, %52.6 are licenced sportsmen, %22.4 do sports for health, and %13.2 are interested in sports just for fun

Table 5: Lenght of leisure the students have

Period	f	%
Have no time	35	10.1
1 – 2 hours	79	22.7
3 – 4 hours	159	45.7
5 hrs. and over	75	21.5
Total	348	100

As it is shown in Table 5, %10.1 of the students do not have time for leisure activities, %22.7 have 1-2 free hours, %45.7 have 3-4 free hours and , %21.5 have five or more free hours

Table 6: The distribution of facilities available for use for leisure

Facilities	f	%
School facilities	187	53.7
Club facilities	47	13.5
GSGM facilities	16	4.6
Private gyms	18	5.2
Official facilities	15	4.3
Free nature	30	8.6
Total	313	89.9

It can be noted in Table 6 that %53.7 of the students make use of school facilities, %13.5 make use of club facilities, %4.6 benefit from GSGM facilities, %5.2 go to private gyms, %4.3 use official facilities, and %8.6 benefit from the nature.

Table 7: How much do students benefit from school facilities for their leisure?

Period	f	%
Every day	59	17
Once a week	146	42
3-5 times a week	108	31
Total	313	89.9

The findings in Table 7 indicate that %17 of the students make use of school facilities every day, %42 of them once a week, and %31 of them 3-5 times a week.

Table 8: The relation between universities and the problems in the use of the facilities for leisure

Shortages on the facilities														
	İllumination		Material		Heating		Equipment		Dressing rooms		W.C/Shower		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
H.U	-	-	19	5.5	1	0.3	1	0.3	28	8	3	0.9	52	14.9
GU	5	14	84	24.1	15	4.3	14	4	74	21.3	66	19	258	74.1
A.U	-	-	16	4.6	1	0.3	1	0.3	3	0.9	6	1.7	27	7.8
METU	-	-	-	-	-	-	-	-	11	3.2	-	-	11	3.2
Total	5	1.4	119	34.2	17	4.9	16	4.6	116	33.3	75	21.6	348	100

Cramer's V= 0.223

H.U: Hacettepe University

G.U: Gazi University

A.U: Ankara University

METU: Middle East Technical University

Table 8 reveals a significant relation among the problems faced in terms of use of the facilities for leisure

Table 9: The reasons for picking sports-branches for leisure

Reasons	f	%
I have the ability and I'm very good at it	101	29
I'm with my friends	41	11.8
For a healthy life	76	21.8
Location suits me	2	6
For fun and excitement	93	26.7
Total	313	89.9

As Table 9 shows, %29 of the participant students stated their preferences as because it was the only branch they were good at. %11.8 preferred it to be with friends, %21.8 considered it to be healthy, %6 preferred it because of the location, and %26.7 did it for fun and excitement.

Table 10: The relation between gender and leisure preferences

REASON	GENDER				TOTAL	
	Female		Male		f	%
	f	%	f	%		
I'm very good at it	58	16.7	53	15.2	111	31.9
To be with friends	8	2.3	41	11.8	49	14.1
For health	28	8	56	16.1	84	24.1
Location suits me	1	0.3	1	0.3	2	0.6
For fun and excitement	43	12.4	59	17	102	29.3
Total	138	39.7	210	60.3	348	100

Cramer's V= 0.241

Table 10 indicates a significant relation between the reasons for sports preferences and gender.

Table 11: The rate of participation among students in leisure activities organized by the school

Rates		
Do you participate?	F	%
Yes/I participate	109	31.3
No/I don't participate	240	68.7
Total	348	100

Table 11 shows that while %31.3 of the students participated in leisure activities organized by the school, % 67.7 of them do not do so.

CONCLUSION AND SUGGESTIONS

The findings from the research and suggestions based on the results are presented in this section.

FINDINGS

%60.3 of the participants were male and %39.7 were female, most of them between the ages of 22-23.

The distribution of the participants in terms of the universities they studied at was as; 52 from Hacettepe University, 258 from Gazi University, 27 from Ankara University, and 11 from METU, selected through a random method. As for their demographic characteristics, the majority of them were between the ages of 22-23, the number of male students was higher than the female and the biggest number of them were from Gazi University.

A big majority of the participants were licenced sportsmen. %24.4 of them did sports for health, %13.2 for fun, and %11.8 were interested in sports as spectators. While many went to matches, some did not do so. Öncü (2014) did a study in P.E (Physical Education) departments of some universities in Ankara related to students' leisure activities and found out that %96.9 of them were spectators in competitions. Another finding showed that the majority of the participants were interested in sports for health.

%10.1 of the students stated that they did not have any leisure time, %22.7 had only 1-2 hours, %45.7 had 3-4 hours, and %21.5 had 5 or more free hours for leisure activities. Today, it is assumed that, parallel to the developments in technology, people spend less time at work or for other activities and so they have more free time. It is also noted that, people spend less time at work and other activities and because they do the same things every day, they feel bored and need to spare time for leisure activities, which is becoming a crucial part of life.

When we examine the distribution of facilities students make use of for leisure and the rate of benefit they get from school facilities, we see that %13.5 of them use club facilities, %8.6 benefit from nature, %5.2 go to private gyms, %4.6 use GSGM facilities, and %4.3 prefer official facilities. %63.5 of the students complain about insufficient equipment as a handicap in their leisure activities. %15.8 are unhappy about the lack of activities they want to do. %12.1 of the participants express worries that, because of their jobs, they can spare little time for leisure activities or they are hindered.

It has been noted in this study that the students can benefit from university courts only one day a week. 167 (%48) of them benefit from the courts once a week, 113 (%32.5) use the courts 3-5 times a week, and only 68 (%19.5) students use the courts every day. This rate seems almost equal at Gazi University, Ankara University, and METU, but at Hacettepe University the students can make use of the facilities for 3-5 days. The differences are due to either insufficient capacity of the facilities or the students' less leisure time. This indicates that there is a significant

relation between leisure time and the benefit students get from school facilities. %42 of the students benefit from school facilities once a week, %31 3-5 times a week, and %17 use the facilities every day. %61.8 of the students spare 2 or more days to do leisure sports, %23.6 spare one day a week, and %4.6 spare one day a month for leisure sports activities. %53.7 of the students make use of school facilities in their leisure.

When students' time spared for leisure sports activities, the rate of benefit they get from school facilities, availability of equipment, and the relation between the school and organization of leisure activities are concerned, it can be noted that in all schools they have 2 or more days. 266 (%64.9) students spare 2 or more days a week, 32 (%9.2) spare a day a month. These findings indicate the existence of a significant connection between the universities and the time the students spare for their leisure activities.

%34.2 of the students relate the insufficiency of school facilities to lack of material and %33.3 to dressing rooms and wardrobes. %21.6 complained about the problems to do with showers and W.C. %4.9 expressed worries about weak heating, %4.6 raised views about limited equipment, and %1.4 found illumination very weak. The participants strongly emphasized that such problems should be eradicated without any delay. The biggest problem at Hacettepe and METU is with dressing-rooms and wardrobes. On the other hand, Gazi and Ankara Universities experience problems with limited material.

A solution to these problems is believed to help a lot the number of participants in leisure activities which will have sound contributions to the benefits of leisure activities. Therefore, the involved should consider more about this issue. A big majority of the students state that they benefit from the school facilities with limited equipment and pointed out that they can use the facilities only one day a week. They relate this to the fact that the courts are fully occupied and the capacity is quite low. They also expressed worries about the problems they face with the dressing-rooms, showers, and lavatories. It has also been noted that a big majority of the students did not participate in the leisure activities organized by the universities, with the fact that the universities lacked the activities the students preferred.

There are several factors in picking a preferred leisure activity. %29 of the students pick activities in which they are good and are suitable for them in terms of their abilities. %26.7 pick activities for fun and excitement, %21.8 for health, and %11.8 for the sake of being with friends. These findings indicate that students prefer the activities they are good at and get more pleasure in doing them.

As for the relation between gender and leisure preferences, 138 (%39.7) of the participants were female and 210 (%60.3) were male students. When we examine the reasons for leisure sports activities, we see that most students prefer branches suitable for them and they can do. Male students prefer the branches for fun and excitement. The findings reveal the relation between gender and the reasons for preferences.

The participant students spend 3-4 hours daily on leisure activities on their own. It is clear that parallel to technological developments, people spend less time at work and other activities and thus they can spare more time for their leisure. The lessening of activity hours as well as the boredom they feel with doing the same things, lead them to leisure activities. The participation in activities organized by the universities is low. %68.7 of the students do not participate in these activities, but only %31.3 do, which is an indication of low participation. The reason for this is, as stated by the students, that they do not get the pleasure in these activities, but they are more interested in different branches. They argue that if branches they like are included in the activities, there will be more participants.

The findings show that a big majority of the students do sports in their leisure. The students come from almost the same sports culture and they have very similar concepts and views. It has been clearly noted that they prefer branches they are good at and do them as much as they can with the limited equipment and facilities provided by the universities they are studying at. In our country, it is obvious that leisure activities and education in organizational fields are supported with the aim for communal change, and help individual personality development (Kılbaş, 2001).

The fact that, a big majority of students start leisure activities at university years, the involved should organize leisure activities and lead the students to participate. Therefore, the type of recreation activities the students participate in, length of participation and type of organizations should be considered and provide the students with the organizations and facilities they prefer to participate in. More participation can be a positive factor in this issue.

At the end of this research, it has been clearly noted that there is a significant relation among the student preferences of leisure activities, gender, the time allocated for leisure, equipment available, the rate of making use of the facilities, and the activities organized at universities. A big majority of university students are almost at the same age. Their priority in the activities is their skills and the pleasure they get. However, insufficient equipment and facilities limit their sports activities. This research was carried out to specify students' demographic characteristics and the what sports they do in their leisure.

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The Predictive Level of Social Media Addiction for Life Satisfaction: A Study on University Students*

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ABSTRACT

Social media addiction is considered as a sort of Internet addiction. Individuals who spend too much time on social media have a desire to be notified of anything immediately, which can cause virtual tolerance, virtual communication and virtual problems. Behaviours that force the person into these actions can be explained as social media addiction. This study aims to determine the relationship between social media addiction and life satisfaction among university students as well as the effect of social media addiction on predicting life satisfaction. The participants are composed of 612 (380 female, 232 male) university students. Social Media Addiction Scale-Adult Form (Şahin and Yağcı, 2017) and Life Satisfaction Scale (Diener, Emmons, Larsen and Griffin, 1985; Köker, 1991) were used in the data collection process. Pearson product-moment correlation coefficient and regression methods were used to analyse the data. The results indicated that there is a negative relationship and moderate correlation between life satisfaction and social media addiction. There is also a significant relationship, according to the regression analysis, between life satisfaction and social media addiction levels.

Keywords: Social media addiction, life satisfaction, university student.

INTRODUCTION

Internet is such technology that makes it possible for people to get all sorts of information in a snap and to communicate with other people at a fast pace. With this feature, internet has been a tool of communication penetrating every sphere of human life. Internet in today's world is a popular tool used by not only adults and teenagers but also children and seen as a free time activity in a multitude of countries across the globe.

According to the Internet World Stats (2017), the number of Internet users worldwide has reached to four billion. The proportion of Internet and social media usage (e.g. Facebook) to population is 27,7 and 11,7 % in Africa; 45,2 and 13,4 % in Asia; 77,4 and 39,9 % in Europe; 59,6 and 55,8 % in Latin America; 56,7 and 30,3 % in the Middle East; 88,1 and 62,1 % in North America; 68,1 and 51,7 % in Australia. In Turkey, according to the same survey, the proportion of Internet users is 59,6 % and that of social media (Facebook) is 53,2 %. The rate of increase over the last 15 years is 93,4 %. According to the Turkish Statistical Institute (TUIK, 2016), the proportion of individuals using the Internet in Turkey is 61.2%. As for the purposes of Internet usage in Turkey, 82.4% of individuals who use the Internet in the first three months of 2016 have shared their social networking profiles/photos, messages and content. This ratio is higher among adolescents and students when compared to the other age groups (TUIK, 2016).

Social media is one of the most important means of communication today. The frequency of social media usage has increased in parallel with the increase in frequency of Internet usage (Tektaş, 2014). Over the last few years, social media use has become an increasingly popular free time activity in a multitude of countries across the world (Kuss & Griffiths, 2011). People visit social media sites to engage in many different types of entertainment and social activity, including games, time-wasting, socialising, posting photos, and communicating (Allen, Ryan, Gray, McInerney, & Waters, 2014). Excessive (Ceyhan, Ceyhan and Gürcan, 2007) or problematic use (Young, 1988; Davis, 2001) of the Internet or being online for 8,5 to 21,5 hours in a week (Yang and Tung, 2007) is defined as addiction.

Addiction is generally evaluated in terms of using substances like alcohol, drug, and tobacco. Recently, it is argued that such behaviours as gambling, eating, and sleeping cause addiction, too. As Fidan (2016) points out, addiction comprises technological devices and applications like computer, Internet, online games, mobile phone, etc. Internet addiction is accepted among the most common types of technological addiction today (Young, 1988; Şahin, 2011). Internet addiction (Young, 2004), online addiction (Tüzer, 2011), game addiction (Fisher, 1994; Horzum, 2011), social network addiction (Griffiths, 2012), cybersex addiction (Schwartz & Southern, 2000), mobile phone addiction (Bianchi & Phillips, 2005; Fidan, 2016), Facebook addiction (Andreassen, Torsheim, Brunborg & Pallesen, 2012), Twitter addiction (Said, Al-Rashid & Abdullah, 2014), and social media addiction

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(Andreassen, Torsheim, Brunborg and Pallesen, 2012; Şahin ve Yağcı, 2017) have been investigated in the context of behavioural addiction and are gaining importance in tandem with the developing technology.

Social media addiction is regarded as a kind of Internet addiction (Kuss and Griffiths, 2012). Being hooked on social media, wanting to be always online on social media, being directed with uncontrolled motivations and being affected negatively in other spheres of life due to this situation are regarded as the symptoms of social media addiction (Andreassen and Pallesen, 2014).

There are an increasing number of researches in the literature on the relationship between social media usage and human psychology (Pempek Yermolayeva and Calvert, 2009; Correa, Hinsley and de Zúñiga, 2010; Salehan and Negahban, 2013; Lepp, Barkley and Karpinski, 2014). Some indicate that social media use make people happy (Eren, Çelik and Aktürk, 2014). Others usually consider life satisfaction as personal contentment (Diener, Emmons, Larsen, & Griffin, 1985). Ellison et al. (2007) argue that mostly individuals with low levels of life satisfaction seek to join in social media in order to improve their psychological well-being.

The main argument about how life satisfaction leads to problematic Internet or social media use is that people prefer to spend more time on the Internet so as to avoid the feeling of dissatisfaction and to seek psychological satisfaction (Demir, Peker Özköklü and Aygün Tuğrul, 2015). Spending more time on the Internet to keep away from life dissatisfaction is seen as a significant factor increasing the possibility of problematic Internet use. Accordingly, Internet turns into a pretext to evade the sources of dissatisfaction and leads to problematic use (Çelik and Odacı, 2013; Esen, 2010).

Based on the reasons above, this study aims to determine the levels of life satisfaction and social media use among university students and put forth the relationship between their levels of life satisfaction and behaviours of social media use.

Objective of the Study

This study aims in general to analyse the relationship between social media addiction and life satisfaction as well as the effects of social media addiction on life satisfaction. The answers are sought for the following questions:

1. Is there a significant relationship between university students' social media addiction (virtual tolerance and virtual communication) and their life satisfaction?
2. Does university students' social media addiction significantly predict their life satisfaction?

METHOD

Study Model

This is a descriptive study based on a survey model. As it is known, survey models aim to reflect an existing situation as they are (Karasar, 2016). This study aims to examine the relationship between social media addiction and life satisfaction among the students of Faculty of Education.

Study Group

The participants included 612 students (380 female, 232 male) from different grade levels in the Ahi Evran University Faculty of Education. Distribution of the participants per grade level is as follows: 31,9 % of the participants (195 students) are first graders, 19,4% (119 students) second graders, 30,9 % (189 students) third graders and 17,8 % (109 students) fourth graders. The average age of the respondents is 20,34±1,10.

Data Collecting Instruments

The data were collected via "Demographical Information Form", "Social Media Addiction Scale: Adult Form" and "Life Satisfaction Scale". Psychometric properties of those measuring tools are specified below.

Demographical Information Form: Needed information about the participants' demographical characteristics such as grade level, gender, and department was obtained through a personal information form.

Social Media Addiction Scale - Adult Form: The SMAS-AF developed by Şahin and Yağcı (2017) is a five-point Likert type scale including 20 items that can be gathered under two factors (virtual tolerance and virtual communication). Confirmatory factor analysis showed that the two-factor model fitted the data ($\chi^2=7051,32$; $sd=190$, $p=0,00$; $RMSA=,059$; $SRMR=,060$; $NFI=,59$; $CFI=,96$; $GFI=,90$; $AGFI=,88$). Internal consistency coefficients of the subdimensions were ,92 for virtual tolerance and ,91 for virtual communication. Coefficient of total internal consistency was ,94. Test-retest reliability coefficients were found as ,93 for the scale in total; ,91 for virtual tolerance and ,90 for virtual communication. The analysis proved that SMAS-AF is a valid and reliable scale that can be used to determine social media addiction among adults.

Life Satisfaction Scale: Life satisfaction was measured using the Turkish version of the Life Satisfaction Scale (Diener Emmons, Larsen and Griffin, 1985; Köker, 1991). This is a five-item, self-reported, seven-point Likert-type measurement scale (1=strongly disagree to 7=strongly agree). Higher scores indicated higher levels of psychological well-being. The scale measures overall life satisfaction and is suitable for use with individuals of all ages from adolescent to adult. The scale was translated to Turkish using the Face Validity technique developed by Köker (1991). The correlation between the scores of each item and the total scores of the scale were satisfactory. The test-retest reliability value of the scale was .86, the internal consistency coefficient was .80, and the test-retest reliability coefficient was .85.

Data Analysis

The students were divided into groups, and the scales were implemented in the classroom. The participants were fully informed of the purposes of the study before the scales were administered. Pearson product-moment correlation coefficient and regression methods were used to analyse the data. SPSS 22 was used while analysing the data.

RESULTS

This section includes the results of the analysis carried out to determine whether social media addiction and life satisfaction levels of students participating the research vary or not in accordance with the independent variables.

Findings related to students' social media addiction and life satisfaction levels are specified in Table 1.

Table 1: Students' social media addiction and life satisfaction levels

Variable	N	M	SD	Level
Virtual tolerance	612	24,72	9,26	Low
Virtual communication	612	17,20	7,01	Low
Social media addiction (Total)	612	41,92	15,03	Low
Life satisfaction	612	23,47	6,95	moderate

Table 1 shows that students' life satisfaction level is moderate, while their level of social media addiction and the relevant subdimensions is low. The relationship between students' life satisfaction and social media addiction and subdimensions was calculated via Pearson correlation technique and the results are presented in Table 2.

Table 2: Correlation between students' life satisfaction and social media addiction levels

Variable	VT	VC	SMA	LS
Virtual tolerance (VT)	1,00			
Virtual communication (VC)	,70*	1,00		
Social media addiction (SMA)	,94*	,90*		
Life satisfaction (LS)	-,27*	-,32*	-,31*	1,00

N=612, *p<0.01

As seen in Table 2, there is a significant negative correlation between students' life satisfaction and social media addiction ($r=-,31$; $p<.01$) as well as their average scores of virtual tolerance ($r=-,27$; $p<.01$) and virtual communication ($r=-,32$; $p<.01$). This significant negative correlation between the scores means that the score the students get on a dimension decreases when their score on another dimension increases. We also studied whether the subdimensions of social media addiction predict life satisfaction.

Table 3: Multiple regression analysis of social media addiction in terms of life satisfaction

Variable	B	Std. Error	β	t	p	Partial R	Part r
Constant	29,469	,790		37,296	,000		
Virtual tolerance	-,067	,040	-,089	-1,657	,098	-,067	-,064
Virtual communication	-,252	,053	-,255	-4,743	,000	-,189	-,182
R=,323 R ² =,105 F _(2,609) =35,540 p=.000							

The results of multiple regression analysis on how social media addiction and its subdimensions predict life satisfaction are seen in Table 3. Accordingly, there is a low-level, negative and significant relationship between social media addiction and life satisfaction ($R=.323$, $R^2=.105$, $p<.01$). Two subdimensions of social media addiction account for only 10 % of the total variance. T-test results regarding the significance of regression

coefficients indicate that only virtual communication is a significant predictor of life satisfaction, whereas virtual tolerance, the other variable, is not effective to a considerable extent.

DISCUSSION AND CONCLUSION

Internet as a mass communication tool is increasingly impacting and penetrating every sphere of human life, which gave rise to the emergence of sites of social networks called social media. This study examined the relationship between social media addiction and life satisfaction among university students.

The results indicated that the students' level of social media addiction is low while their level of life satisfaction is moderate. A significant negative correlation was observed between the students' life satisfaction and social media addiction and their average scores on virtual tolerance and virtual communication defined here as the subdimensions social media addiction. Social media addiction and its subdimensions show a high-level positive intercorrelation. The mentioned subdimensions are significantly coherent with each other. The more the participants are addicted to social media, the less they are satisfied with life.

As the regression analysis showed, social media addiction is an important predictor of life satisfaction, albeit affecting it negatively. According to the t-test results regarding the significance of standardized regression coefficients, virtual communication as a subdimension of social media addiction is an important predictor of life satisfaction ($p < .01$). However, virtual tolerance does not appear to be a significant predictor of life satisfaction ($p > .01$).

There are several studies supporting this result in the relevant literature. Balcı and Koçak (2017), Satıcı and Uysal (2015), and Spraggins (2009), for example, assert a positive relationship between social media use and life satisfaction. However, there are some studies not supporting the results of this study. Doğan (2016), Oh, Ozkaya and LaRose (2014), Mahan Iii, Seo, Jordan and Funk (2014), Ong and Lin (2015) argue that social media usage positively predicts life satisfaction.

In today's world, technology is progressing at an unbelievable speed and continually connects people of every age and type. This is the case for teenagers in particular. Considering the countries that are going through a process of change and development, e.g. Turkey, it is observed that technological processes and SNS are on the increase and becoming more of an issue (Doğan, 2016). From this point of view, social media use has a considerable place in students' life and negatively affects their life satisfaction.

In conclusion, there is a low-level, negative and noticeable relationship between social media addiction and life satisfaction. Social media addiction is an important variable in predicting life satisfaction. Social media addiction affects life satisfaction of university students in a negative way to a significant extent.

The number of studies examining the effects of social media on people in both Turkey and abroad is limited. We think it is worthwhile to carry out similar studies using different samples and variables.

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The Process of Students' Higher Order Thinking Around Coffee Plantation Area in Solving Open-Ended Problems Related to Coffee Theme

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ABSTRACT

This research aims to describe the high-order-thinking process of students around coffee plantation in solving open-ended problems on topics germane to coffee. The present study was a descriptive research with qualitative approach. The research participants were 80 students chosen from elementary and primary high schools around a coffee plantation. High order thinking skill denotes the ability to think critically and deploy metacognition capacity encompassing the following indicators: (1) the ability to solve the problems, (2) the ability to give reason and evidence, (3) the ability to communicate, and (4) the ability to reflect and evaluate. The research results indicated that elementary school students tended to have problem-solving ability related to themes regarding coffee with different possible answers, but they were unable to provide logical reasons and evidences, and they were unable to reflect and evaluate the answers given. Furthermore, students' high order thinking skill in junior high school around the coffee plantation was also not maximal in that students were only able to provide various answers correctly along with the logical reasons and evidences. However, those junior high school students were unable to reflect and evaluate on the process of solving open-ended problems. In general, the tendency of the students around coffee plantation indicated that the students did not have a maximum high order thinking skill in solving the open-ended problems related to themes pertinent to coffee. It was because the students still had yet to master satisfactory metacognition ability, particularly germane to the ability to reflect and evaluate and the ability to give logical reasons and evidences.

Keywords: Thinking process, critical thinking skill, metacognition, coffee plantation

INTRODUCTION

Indonesia is the third largest coffee-producing country in the world after Brazil and Vietnam. Furthermore, East Java is the second largest coffee producer in Indonesia and Jember is the second largest city producing coffee after Malang in East Java (Suratno & Kurniati, 2017). This evinces that most of the regions in Indonesia, especially Jember district, are coffee plantation areas. This is also in line with the existence of several schools devoted to providing education around the coffee plantation.

The ability of students around the coffee plantation of Sidomulyo Jember in solving the problem on themes pertaining to coffee within the realm of Mathematics and Science is very low, in that the students are only able to do problem solving operation procedurally as taught by the teacher by writing simple mathematical formulae. However, the students have difficulty deploying the knowledge related to coffee and their experience in coffee farming when they deal with solving problems at school (Suratno & Kurniati, 2017). In addition, the cognitive thinking ability of students in Jember district in solving high-order thinking problems, especially those complying with PISA standard (The Program for International Student Assessment), is reported to be low inasmuch as it only reaches the exploration and comprehension stage, while at the stage of representing and formulating daily-life problems, the students have not been able to develop these competencies (Kurniati & Annizar, 2017).

Based on the data aforementioned, making changes in classroom learning especially for Mathematics and Science lessons is inevitable. In this study, Mathematics and Science teachers around coffee plantations are accustomed to applying conventional instruction with expository methods. The task given by the teacher is routine task in that the completion stage is similar to what the teacher has taught. Therefore, critical thinking skills and metacognition of these elementary and primary school students around coffee plantations do not develop optimally. The determination of learning models which match the characteristics of the students around the coffee plantation and focus on the ability of high-level thinking is based on the students' initial ability and condition, one of which is their thinking process. So and so, the results of the present study are expected to help

teachers to determine the instructional model or method or approach suitable to develop high-order thinking ability of the students, especially critical thinking and metacognition skills.

High-order thinking skills, based on Bloom's Taxonomy, consist of analytical skills (C4), evaluation (C4), and creation (C5) (Anderson & Krathwohl, 2013). At the level of C4, C5, and C6, students are said to have high-order thinking ability because students are able to perform investigations, analysis, conclusion formulation, and the invention of new ideas from a problem given by teacher. The other abilities of high-order thinking are critical thinking, logical thinking, reflective thinking, metacognitive thinking, and creative thinking (Collins, 2014). Furthermore, Brookhart identifies high-order thinking skills in three categories, namely knowledge transfer, critical thinking, and problem solving (Brookhart, 2010). Referring to the notion of high-order thinking skills above, the indicator of high-order thinking in this study only focuses on the ability of critical thinking and metacognition. The selection of these two indicators is because the abilities feasible for maximum development to the students in coffee plantation area only pertain to the ability of critical thinking and metacognition. As such, future study can focus on the other facets of high-order thinking abilities.

Critical thinking categories consist of providing logical, reflective reasonings that focus on "believe or do" thought (Norris & Ennis, 1989), and "artful thinking" consisting of reasoning, questioning and investigating, observing and describing, comparing and connecting, finding complexity, and exploring viewpoints (Barahal, 2008). Furthermore, critical thinking and problem-solving skills according to P21 encompass the ability to reason effectively, use system thinking, make judgments and decisions, and solve problems (P21, 2017). In critical thinking skills, the term *thinking* means that students can apply decisions and procedures with critical reasons.

Metacognition is the knowledge that focuses on the cognitive processes in the thinking process of each student and produces all thoughts and activities required in thinking (Desoete, Roeyers, & Buysee, 2001). Metacognitive skill denotes a component of the executive control of individual's cognition. Metacognitive skills refer to three skills which comprise of self-monitoring skills, self-assessment skills, and self-regulation skills (Kayashima & Inaba, 2004).

Based on the theoretical studies concerning critical thinking and metacognition abovementioned, the high-order thinking indicators in this research pertain to the indicators of critical thinking and metacognition, *inter alia*: (1) problem solving ability, (2) the ability to give reason and evidence, (3) the ability to communicate, and (4) the ability to reflect and evaluate. First, the problem-solving skill referred to in this study is students' ability to understand problem, design the problem-solving strategy, implement the strategy that has been designed, and re-check the problem solving process. In addition the problem-solving abilities under investigation are also based on students' collaboration, which complies with the ability stipulated in P21. Collaboration-based problem-solving ability is an important component that can be useful in the daily life of students as the question given is an open-ended daily-life questions (Ras, Krkovik, Greiff, Tobais, & Maquil, 2014). Second, the ability to provide reasons and evidence related to the problem-solving process is the ability to state the reasons for each step of problem solving along with relevant definitions and theorems. Third, the ability to communicate in question constitutes oral and written communication. Written communication is related to the ability to write symbols related to Mathematics and Science, the ability to provide detailed answer, and the ability to connect materials that have been studied with the learning experience surrounding themes regarding coffee. Furthermore, oral communication is related to the students' ability to present the results of problem solving. Fourth, the ability to reflect and evaluate under investigation is pertinent to the ability to re-check answering process and to determine other methods or solutions of the solutions already given. If the students' answers are found erroneous, then they will be able to locate the error and able to rectify it. Problems given to the students are problems that are related to themes concerned with coffee and problems of non-routine matters. Non-routine problems in this regard are open-ended in nature, which are open to various answers and solutions for a single problem.

RESEARCH METHOD

The present study was qualitative descriptive in nature, which was devoted to gaining the description of high-order thinking skills particularly pertinent to critical thinking skills and metacognition of students at elementary and primary schools situated around Garahan coffee plantation in Jember. The high-order thinking skills under investigation were scrutinized when the students dealt with open-ended questions related to themes on coffee covered in Mathematics and Science subject. Research subjects in the study were 80 students chosen from 2 elementary schools and 1 primary school in the aforementioned area. The determination of high-order thinking process was backgrounded by the accomplishment of students' thinking process, which met 4 indicators. The indicators of critical thinking and metacognition of the students in the research comprised of (1) problem-solving ability, (2) the ability to provide reason and evidence, (3) the ability to communicate, and (4) the ability to reflect and evaluate.

The phases in the present study encompassed (1) providing open-ended questions germane to themes concerned with coffee to the research subject, (2) analyzing the students' answer so as to probe their critical thinking and

metacognition process, (3) carrying out data triangulation through interview to gather more data, which had yet to be obtained during test item accomplishment, and to confirm students' answer, and (4) drawing conclusion pertinent to the students' critical thinking and metacognition process by referring to the analysis on test performance and interview. The determination of research subjects was done by snowball throwing, coupled with guided open-ended interview.

In addition to analyzing the results of test and interview, observation on students' performance during taking the test through think aloud method was made operative. Students were requested to speak softly upon accomplishing the open-ended questions given. The clues of students' tendency in high-order thinking process when doing open-ended question were amassed by transcribing all results obtained from the test, interview, and think aloud process into tables, so the tendency of thinking process could be made visible.

RESULT AND DISCUSSION

The subjects in this research were 50 students of grade V and VI at Sidomulyo 3 Public Elementary school of Garahan village, Silo, Jember, and 30 students of class VII at Satu Atap Primary school of Garahan village, Silo, Jember. All research subjects worked on open-ended questions for Mathematics and Science materials with the theme concerning vegetative cultivation of coffee. The questions given were 4 essay questions which had to be done in 90 minutes. Before students worked on the open-ended questions, they had been asked to write a short story of their experiences related to farming coffee and a short description on whether their parents owned coffee plantation or worked as labourers at coffee plantation. There were 60 students whose parents worked as laborers at coffee plantations and 20 students whose parents had their own coffee plantation. All students knew and even once experienced the process of farming coffee through grafting and the process of determining the spacing between coffee trees in order for proper growth.

The students' tendency in working on open-ended questions was limited to accomplishing 1 out of 4 questions given, with the ability to provide logical reason and the reflection ability found low. The data obtained from the open-ended question found out that 5 students could answer 2 questions correctly, 50 students could work on 1 question, and 25 students could not answer the questions correctly. Each cluster of data was analyzed in terms of the tendency in critical thinking and metacognition.

The students who could answer 2 out of 4 questions had medium high-order thinking ability as they only mastered satisfactory problem-solving ability and communication ability, be it oral or written. On the other hand, in terms of the ability to provide logical reason and evidence as well as the reflection and evaluation ability, the students had yet to be competent. The students tended to think procedurally when solving problems as taught by their teacher. As such, their answers in doing open-ended questions were correct, yet their ability was not maximal. Upon accomplishing the first question, the students tended to apply the knowledge taught by their teacher, but they had not provided logical reason and evidence related to their experience concerned with farming coffee. When working on question 2, the students could in fact do it correctly and write symbols of the angle and width of two-dimensional figures to determine the spacing between coffee trees. The students' reflection ability on question 2 developed quite well, because they could do re-checking when they accomplished open-ended question and they could find out other ideas or answers, which were different from the initial answers. These additional answers or ideas were based on their experience in farming coffee aged at 0-6 months old. In addition, they also were able to find out the cutting angle of coffee stalk for grafting, which was tapered angle ranging from 35 to 65 degrees.

The students who could answer 1 out of 4 questions had low high-order thinking ability with satisfactory problem-solving and communication ability, be it oral or written. However, their ability to write symbols was proven erroneous in that they used hectare for meter scale. The symbols of width, circumference, and length for the spacing between coffee trees were written correctly. The ability to provide logical reason and evidence as well as the reflection and evaluation ability were not evident in the students with low high-order thinking ability. The students tended to think inductively as they worked on open-ended questions in that they referred to several examples of coffee planting they experienced when helping their parents. Mathematics knowledge they mastered was proven very low, inasmuch as they had yet to apply the formula of circumference, width, and angle determination based on mathematical theorems and definitions. The students were not able to determine the ideal angle for grafting, yet they were only able to determine tapered angle without any precise figure. The students could not determine the ideal age of coffee stalk for grafting, but they could determine the stalk diameter for the very purpose, which was 15 cm. The students could not determine the solution or find out new idea for question number 1 as they were only able to provide 1 correct solution.

The students who were not able to do the questions correctly were classified as having no high-order thinking ability. This was because they had not been able to master (1) problem solving ability, (2) the ability to give reason and evidence, (3) the ability to communicate, and (4) the ability to reflect and evaluate. The students were unable to solve the open-ended questions due to the following reasons. (1) They never knew the vegetative cultivation process. (2) Their parents did not work in coffee plantation. (3) The mathematical ability germane to

determining the circumference and width of two-dimensional figure, angle of a figure, and length was not maximal. (4) The students' knowledge related to grafting and vegetative cultivation was not maximal. The research findings evinced that the elementary school students tended to master problem-solving ability related to themes concerning coffee with variant answering process, but they were not able to provide logical reason and evidence, nor were they able to do reflection and evaluation on the answers given. Furthermore, the high-order thinking ability of the primary school students around the coffee plantation had yet to reach its uttermost inasmuch as they were only able to provide various correct answers supported with logical reason and evidence. Nevertheless, these primary school students were not able to do reflection and evaluation on problem-solving process on open-ended questions. In general, the students' thinking tendency had yet to attain maximal high-order thinking when working on open-ended questions related to themes concerning coffee. This was because the students had not mastered satisfactory metacognitive abilities required, particularly pertinent to reflection and evaluation ability as well as the ability to provide logical reason and evidence.

CONCLUSIONS

Based on the data analysis scrutinizing the students' tendency of thinking process, the study concludes that in general they have yet to master maximum high-order thinking skills in dealing with solving open-ended questions concerned with themes on coffee. This is because they have yet to master satisfactory metacognition ability, particularly the ability to reflect and evaluate as well as the ability to provide logical reasons and evidences.

SUGGESTIONS

One suggestion resulting from the study recommends teachers of Mathematics and Science teaching around the plantation area to determine apt instructional model or method or approach for developing their students' critical thinking and metacognition skill. Critical thinking and metacognition process of the students revealed in this study can serve as the cornerstone to extrapolate elementary and primary school students' initial ability in solving problems related to themes concerning coffee.

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The Process of Supporting Career Awareness Studies of Hearing-Impaired Students With Language Arts Courses

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ABSTRACT

Due to the language limitations of hearing-impaired students, it is important to organize field courses and language courses with an interdisciplinary way in vocational education programs. The aim of the study is to examine the cooperation process between Professional Language courses and Language Arts courses to support career awareness activities of hearing-impaired students, as part of familiarizing their profession and preparing after graduation process. The research was conducted with senior students of The School for the Handicapped, Anadolu University, in fall and spring semesters of 2015-2016. The research was an action research project. The courses involving career awareness and career planning activities were supported interdisciplinary by language courses. At the end of the research, it was determined that students were able to use the terms and concepts of career planning, perform activities, and that the studies were enable students necessary repetitions and contribute language skills of students.

Key words: Hearing-impaired students, employment, career awareness, interdisciplinary, language development

INTRODUCTION

Effective use of language skills, composed of reading, writing, listening, and speaking, has strong influence on personal and academic life of a person. Field courses in vocational education programs require effective use of reading and writing skills. Due to the language limitations of hearing-impaired students, it is important to provide language support and to perform field courses with interdisciplinary studies.

Interdisciplinary approach is a cooperation based approach that combines two or more disciplinary fields together and provides contribution to learning process from all parties (Jacobs, 1989). Today's educational programs should support the development of the students, who can easily understand critical thinking, can learn general or specialized issues by themselves, can act independently. Researches underline the integration of knowledge from different fields and the interdisciplinary unification through the cooperation between the courses from different fields (Jacobs, 1989; Schirmer, 2000).

Progressively, general and special education programs are organized according to the methods of interdisciplinary education (Glynn, Aultman ve Owens, 2005). Silliman and Wilkinson (2004) listed the benefits of interdisciplinary education programs, in which same topic is studied with different time periods by two or more experts from different disciplines through different teaching methods, and materials, and activities as: a)

Concepts and terms are used various ways in different disciplines. These repetitions provide permanence in learning. b) Interdisciplinary education may help students to establish relationships between the parts of education program, to learn the information they missed during the lessons, and to transfer the information to other domains. c) Interdisciplinary education may also help to create opportunities for students to establish relationships between their learning and their daily life experiences.

It is important for hearing-impaired students, who have limited vocabulary and language skills, to have a professional terminology in order for their success in academic and professional life. On this base, it can be said that supporting vocational education of hearing-impaired students with language courses and conducting field and language courses together are important. Vocational programs, planned as interdisciplinary and courses, performed to help students for learning professional knowledge and terminology, affect the development of students in a positive way (Jacops, 1989; Schirmer, 2000). With intensive and systematic education programs that suits the needs of hearing-impaired students, they are able to gain literacy skills and required skills for their profession as their normal hearing peers (Kertschmer & Kretschmer, 1978; Paul, 1998; Richek, Caldwell, Jennings & Lerner, 2002; Walker, Munro & Rickards, 1998).

Examining studies on disability and hearing-impaired individuals in Turkey indicate that majority of the research is related with the following issues; distribution of disability by types, demographic features of disability, law and regulation issues, descriptive studies of educational methods, and reports, prepared by various institutions about disability (Akardere, 2005; Genc & Cat, 2013; Karasu, Girgin, Uzuner, Kaya, 2016; Mamatoglu, 2015; Ozgokceceler & Alper, 2010; Ozturk, 2011; Turkiye Ozurluler Arastirmasi Raporu; 2002; Uzuner et al. 2011).

For the employment of hearing-impaired individuals, Erdiken's two descriptive researches (2003-2007) on employment of hearing-impaired collage graduates and an action research of Uzener and Derican (2013) on preparing effective portfolio were found. Referring to this field that have considerably small number of research appeared, it is determined that there is a need for research on career awareness and development of career planning of hearing-impaired students and on employment of hearing-impaired students in Turkey. Due to the limitations in language skills of hearing-impaired students, this type of studies, conducted with hearing-impaired students, necessitates language support, in other words, need for an interdisciplinary approach.

The research was conducted with the senior students of Anadolu University, The School for the Handicapped (SfH), in 2015-2016 school year. It was part of a larger research, which was examined the activities and processes of career awareness and career planning of hearing-impaired senior students. In this research, cooperation process of language and field courses and how this cooperation was established will be explained.

THE STUDY

With the aim of improving educational activities in educational settings and examining educational process, the research was carried out with action research method. Action researches, which are originated from the needs of their participants, involve how teachers may improve their practice, with one or more teachers, consultants, and managers, examining the improvements and taking required actions (Fraenkel & Wallen, 2003). Action researches show a cyclical character, which is continuous and interrelated. (Figure 1)

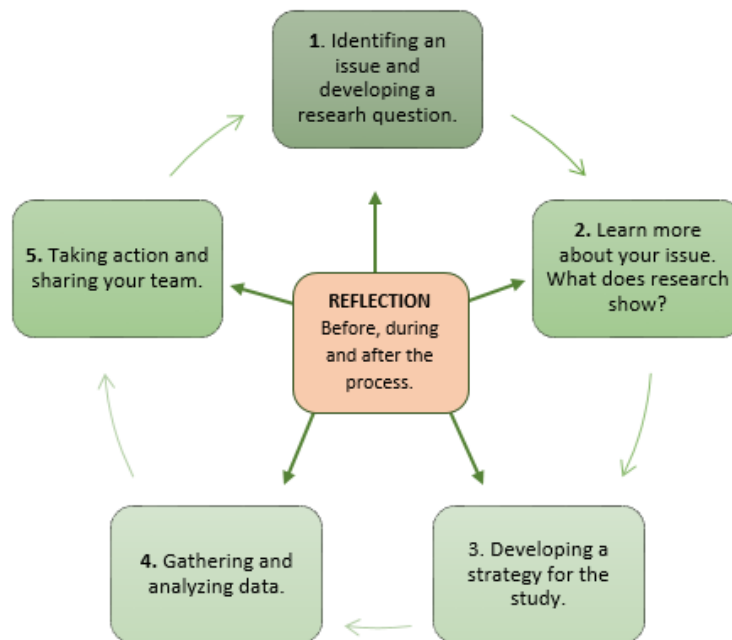


Figure 1: The Action Research Cycle (KNILT-2011)

Setting

The research was carried out at the School for the Handicapped, which was established in 1993-1994 and is one and the only institution that provide vocational education for hearing-impaired university students in Turkey. The school provides education in four programs; Graphic Arts Bachelor's Degree Program, Ceramic Arts Bachelor's Degree Program, Computer Operator Training Associate Degree Program, Architectural Drafting Associate Degree Program.

The data of the research was collected in four classrooms; two language classrooms, one classroom of Architectural Drafting Program, and one computer laboratory of Computer Operator Training Program. Physical conditions of all the classrooms are organized considering the needs of hearing-impaired students (Girgin, 2003). The windows of all classrooms had curtains and blinds and walls of the classes were covered with echo preventing sound insulation material. Also, language classrooms had carpets.

Participants

The participants of the research were senior students of SfH, researchers, and the members of trustworthiness committee. The participant students were 26 senior students, who attended Graphic Arts Bachelor's Degree Program, Computer Operator Training Associate Degree Program, Architectural Drafting Associate Degree Program. The average age was 23. One of the students used cochlear implant and all the others had ear level hearing aids. The 16 of the students had severe level hearing impairment, seven of them had profound level of hearing-impairment, and three of them had moderate level of hearing impairment. Communication was based on 'Whole Language' method in classrooms. Before the research process, students were informed about the purpose and the process of the research and written permission letter was taken from them. Since Ceramic Arts Program had no senior student, during the research process, students of this program did not involve in the research.

The research data was collected by the first author, who was carried out the courses "Writing and Speaking Skills" and "Turkish Language Skills," and the second and third authors, who were carried out the courses "Professional Language" and also responsible for the field courses of vocational programs. Trustworthiness committee also involved internship coordinator and advisor. Researchers were faculty members, who had around 20 years of experience both in their professions and in the education of hearing impaired. In addition, they had experience in action research and participated to action research projects, doctorate studies and book translation projects in the field. The researches of them were presented international congresses and published in academic journals. Internship coordinator, who participated to the study, had 18 years of experience with

hearing-impaired students and had a certificate of sign-language. She also participated to all focused courses of the research in order to enrich the coordination between the researchers, who conducted the courses. Field expert, who was the advisor of the research, had a 31 years of experience in the field of hearing-impaired and participated to action research projects as researcher and coordinator.

Data Collection Techniques and Analysis

Research data was collected through; classroom observations and video recordings, reports and voice recordings of research meetings, course plans and reflections, products of students, documents, interviews, e-mail and Facebook messages and sharings, diaries, and Whatsapp messages. For validity and reliability study of the data collection tools and techniques, expert opinion had been taken. Data collection and data analysis were conducted concurrently. In relation to the goals of the research and based on the decisions taken in research meetings, the data was systematically, cyclical and reflectively analysed.

Research Process

Hearing-impaired university students, who attended different programs of SfH faced with various problems in their daily and private lives and in their academic developments, due to their language limitations. Students required language support for their daily language use and for the field courses. For that reason, in addition to vocational courses in SfH, there were intensified compulsory and elective language courses in each program. Researchers needed to make regulations for the improvement of career awareness of students, because of the problems, which involved insufficient internship process of students, unpreparedness of students for post-graduation issues and their weaknesses to cope with these situations, and communication problems, due to language limitations. For providing solutions to these problems, an action research was designed by the researchers. Application data of pilot study was started to collect in 2014-2015 school year. With the action plans, which planned and developed in the process, defined activities were performed and placed into the programs of the school.

Application data of the research was collected, enriching with new activities, concurrently in “Professional Language” and “Language Arts” courses of the programs that have senior level students, in 2015-2016 school year. For the purpose of the development of career awareness, defined activities were performed (Table 1). In “Writing and Speaking Skills” and “Turkish Language Skills,” courses, the contents of Professional Language courses were supported by enriching the terms and concepts of aforementioned activities, examining various types of document and form examples, ad making “text correction exercises” for the texts of the students.

Table 1: Performed Activities, Type of Language Support and Dates

Activities	Type of Language Support	Dates
Internship Story	5W1H writing exercises	19 and 26 October 2015
	Text correction exercise	9 and 16 November 2015
	Language correction for presentations	9 ve 16 November 2015
Interview with Graduates 2016	Interview and observation	14-16 October 2015
	Text correction for posters	2 December 2015 -13 January
Job Application Portfolio	Examination of necessary documents for job application	29 February/7-14 March 2016
	Exercise for resume writing	29 Şubat/7-14 March 2016
	Exercise for completing job application form	7-21 April 2016
	Exercise for writing job application letter	
	Exercise for writing reference letter	
Workplace Visits	Question preparation and Poster presentation	11-21 April 2016

FINDINGS AND CONCLUSIONS

In the research, which was carried out with action research, the findings, of which the cooperation process between language and professional language courses and how this cooperation was performed, were explained through weekly cycle of the research and conducting process of each activity.

The Weekly Cycle of the Research

In the research that examined the cooperation between language and field courses, the weekly cycle of the research is presented in Figure 2. All of the courses and monitoring meetings were conducted systematically and in a cyclical way. In the research, overall evaluation of the research process was provided continuously, through the decisions that were taken during the meetings and reflective evaluations made after the courses.

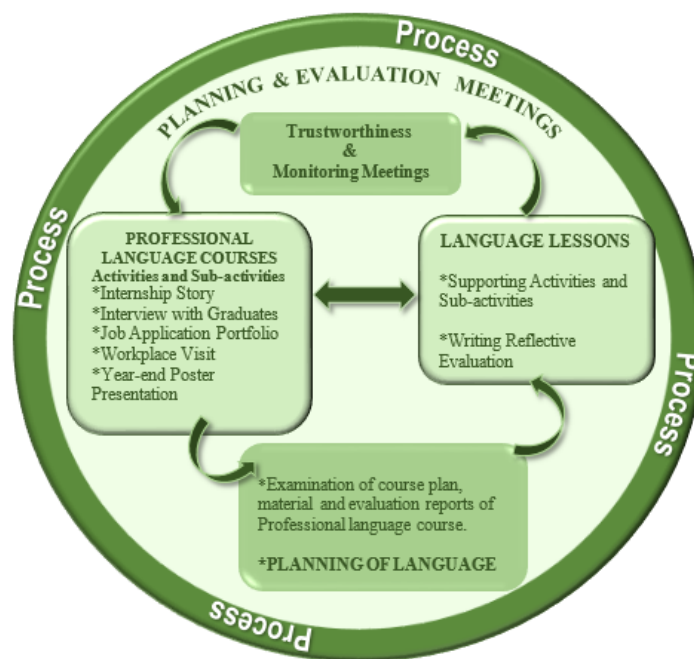


Figure 2: The Weekly Cycle

The trustworthiness and monitoring meetings were held on Tuesdays. Discussions on application of the decisions taken in previous meeting, action plans that were developed for the problems, planning of course plans and materials of the next week, and literature reviews were took part in these meetings. There were 31 meetings between the dates 30/09/2015-10/05/2016. In addition to monitoring meetings, researchers continued to exchange information on the internet or at informal meetings during the week.

In the research, course plans and materials were shared via e-mail. The instructor, who was responsible for the language courses, planned her courses in the light of the decisions taken in meetings, course plans, reflective evaluations, and used materials of the instructors, who were responsible for the professional language courses. In case of need, instructor of language courses communicated with instructors of professional language courses via face to face communication, e-mail, or Whatsapp and took information that would guide her course planning. Language courses were carried out with the students of Computer Operator Training Program on Tuesdays ((3x45'), and with the students of Graphic Arts Program (2x45') and Architectural Drafting Program (3x45') on Thursdays in the school year, which took two semesters/14 weeks.

As a result of the evaluations and plans, defined activities performed by the instructors, who were responsible for the field courses, and language support was provided by the instructor, who was responsible for the language courses. For production of written and verbal material, instructors of Professional Language and Language

courses were supported writing phases of the students, according to their needs and levels (Pressley, Roehrig & Bogner, 2002; Tompkins, 2007).

As seen in the weekly cycle of the research, the study was conducted through the cooperation between field course instructors and language course instructor. Teaching information and terminology through interdisciplinary studies made positive contribution to the development of hearing-impaired students (Jacops, 1989; Karasu, Girgin, Uzuner & Kaya, 2012; Kaya, 2012; Schirmer, 2000; Uzuner & Derican, 2013).

The Performing Process of Activities

In this part, it will explain how these activities and year-end poster presentation, which were supported by language courses, were performed. In the beginning of the school year, before the course support was not given, the concepts; “process,” “career,” “career planning,” “awareness,” were studied in the courses and examined concepts were enriched by examples. After each activity, students were evaluated by exam, homework, and/or final exam grades.

Language Support for the Internship Story Activity. In order to familiarize students with workplaces, Internship Story Activity was performed, involving that the internship process of students, as the first workplace experience of them, was examined, transformed into the story format, and shared with other students of the school in Professional language courses, in Fall semester. Before the texts were written, language courses started with the repetition of the issues, which were the characteristics of “introduction, development, and conclusion” sections that a story should have in text structure, and the elements that should be in a story form. After the preparation of writing phase, draft texts were written and reviewed and corrected texts were transferred to Power Point presentations by the students. The language correction studies of Power Point presentations were made in both Language and Professional Language courses. The finished presentations were presented to all students of the school on the date 20 Kasım 2015. The presentations were particularly for the students, who would perform their internships on that year. (Figure 3)



Figure 3: The Review/Correction Study of Written Material and School Presentation of Internship Story

Language Support for the Interview with Graduates Activity. In Fall semester, interviews were planned with the graduates of SfH, who worked in their fields, in to familiarize students with workplaces, with works performed and with possible problems faced in workplaces. The questions, which would be asked to the graduates, were decided by discussing with students in Professional Language and Language courses. After the interviews, students were asked to prepare poster presentations, which involved questions and answers. Language correction study of prepared posters were made in Professional Language and Language courses. Prepared posters presented with the participation of the whole students of the school, on the date 25 Şubat 2016. (Figure 4)

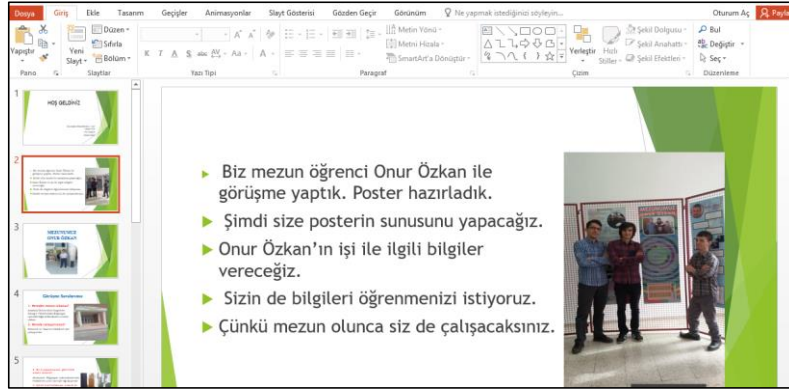


Figure 4. An Example for Poster Presentation of Interview with Graduates

Language Support for the Preparation Job Application Portfolio Activity. In the process of the research, aiming for familiarizing students with the steps that needed to be done in job application procedures and preparation of them to these processes, cooperation with TEA (Turkish Employment Agency) was established. In this cooperation, with the support of TEA and career counselors of TEA, “Job Application Techniques” presentation, which was used by TEA, was shared with the students. The language level of the presentation was adapted to the levels of hearing-impaired students by the researchers, who were responsible for the Professional Language and Language courses and the presentation was studied with the students in related courses. Preparation of the contents of the job application portfolio took six weeks. Preparation of Job Application Portfolio activity was started in Professional Language courses by focusing on what were the documents, which were used in job searching and application and on how they were presented. The writing of the documents in the job application portfolio and review and correction of them were made in Language courses. Preparation of each activity was named as “sub-activity” in the research. In the study, conducting process of the documents; resume/CV writing, job application form/document, job application letter, and reference letter, was presented in the following part. (Figure 5)

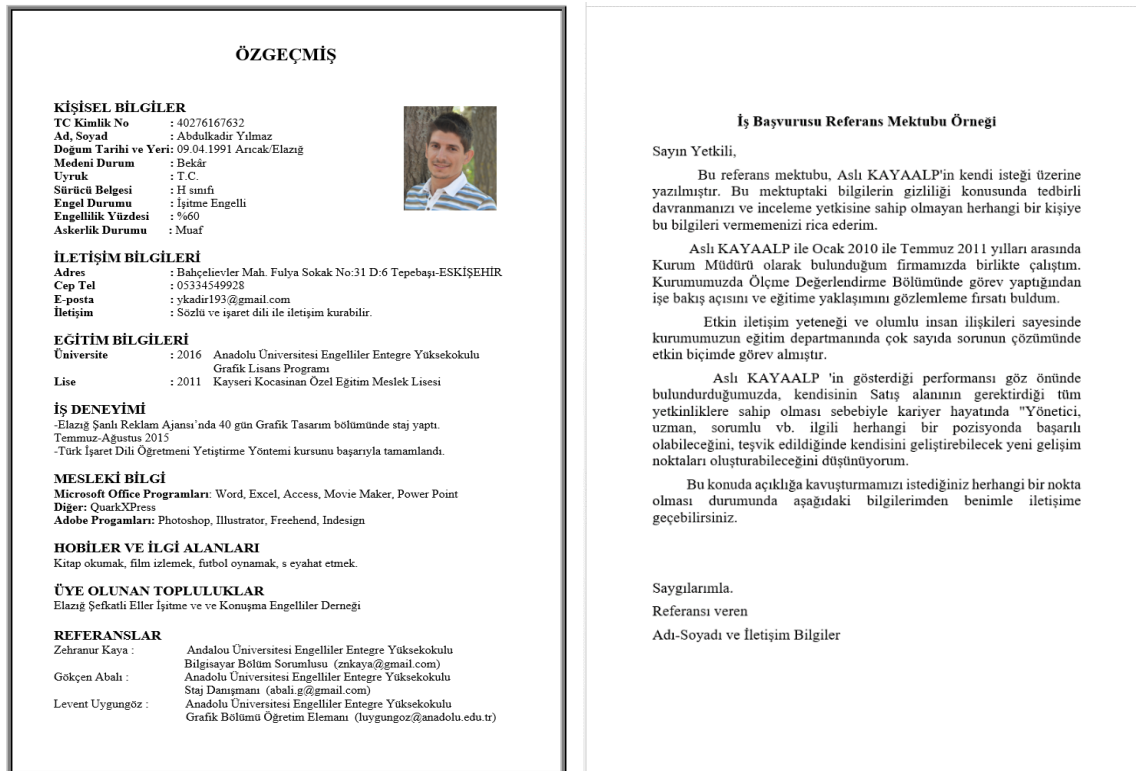


Figure 5: Examples for Job Application Portfolio Studies (Resume, Letter of Reference)

The sub-activity of a resume/CV writing: Different examples of resumes were examined in the classes and frequently used words and terms in the texts such as; exempt, registered, career goal, marital status, experience, certificate, hobby, reference, were explained and exemplified. The issues, like communication method, percentage of disability, condition of disability were added to the document, in order to be explanatory about the disability characteristics of hearing-impaired students, during the job application process. The students were given lessons about how they expressed these information, during the job application. At the end of the process, each student was prepared her/his resume/CV and applied to the job application portfolio.

The sub-activity of filling a job application form: Exemplary application forms were downloaded from the internet and different types of forms were completed. The frequently used terms in the forms, such as exempt, registered, contact, experience, income, demand, being liable, were explained and exemplified with the students.

The sub-activity of writing a job application letter: With the students of each program, field related job advertisements were examined and exemplary job application letters for these advertisements were written. In addition to these, for the companies and institutions (Arcelik, Anadolu University, ...), which the students wanted to apply, job application letter writing studies were done. These prepared job application letters, which were written with different reasons and for different companies, applied to students' job application portfolios as examples.

The sub-activity of writing a reference letter: A text, which involved the meaning of the word "reference," the goal of the reference letter, and the types of reference letters, and two different types of reference letter examples were examined. The instructor, who was responsible for the language courses, behaved as a model for students, by writing different types of exemplary reference letters. At the same time, students were asked reference letters from their field course instructors and received reference letters were placed in portfolios of the students.

Writing job application letter and reference letter sub-activities were carried out using "Shared Writing" method. In shared writing, while the texts are created by the students and instructor, the pencil is continuously in the hand of the instructor. The instructor steers students with asking questions, accepts the language coming from the students, makes written and verbal corrections, if necessary, during the writing of the text. The sentence that will be written is decided together and one common text is written (Asselin, 1999; Pressley et al. 2002; Tompkins, 2007). It was determined that preparing the texts in this way had positive contribution to the development of students' skills, which were aimed to improve in the research.

In the writing resume/CV sub-activity, while the rules of effective resume writing were studied in Professional Language courses, resume writing study was done in Language courses. All of the writing tasks of job application letter and reference letter sub-activities were carried out in Language courses. Preparation of other documents, which would take place in the portfolio was done with the cooperation between Professional Language and Language courses. Medical report, audiogram, course attendance documents, certificates, and transcripts were the examples for other documents that were necessary for the job application portfolio.

Language Support for Workplace Visits Activity. Before the workplace visits activity, different question lists were made with the students in Professional Language courses, in order to find out what kind of information that the students wanted to learn from the staff of the workplaces. The questions received from the students were written on the board and the corrections were made, if necessary. After that, the lists were enriched with additional questions, which were missed by the students, but believed as necessary for the development of the students' awareness by the instructor. After the workplace visits, the review and correction studies for the answers received in interviews were made in Professional Language and Language courses.

At the end of the year, students were asked to present all of their works in poster format. The texts, written in order for the posters, were prepared in Professional Language and Language courses. The poster presentations were shared with other students and instructors of the school in year-end exhibition. (Figure 6)



Figure 6: Year-end Exhibition and Poster Presentations of Career Planning Process

In the writing process of the written materials, the strategies of “Question Asking” and “Modeling” were used intensely in Professional Language and Language courses. Being a model is a strategy, which is often used in the studies for development of language skills and especially for the development of writing process (Mayer, 2017). It is believed that given language support and applying the strategy of modeling are effective for the development of students (Tompkins; 2002).

According to the type of the activity, which was performed in the research, the development periods of the products were varied. Some of the activities were completed in 2-3 weeks, for example, the preparation of job application portfolio study had been carried out for a longer time. It was thought that different language levels and personality of students had effects on these different time periods (Marschark, Lang & Albertini; 2002; Schirmer, 2000).

According to the characteristics of the activities and of the students, some of the activities were performed consecutively, some of them were performed concurrently. For example, the activities of Job Application Techniques Presentation, Preparation of Job Application Portfolio, and Workplace Visits were carried out concurrently. One of the reasons for this was that Job Application Techniques Presentation and Preparation of Job Application Portfolio activities were related with each other. The other reason was that Preparation of Job Application Portfolio activity consisted of four sub-activities and needed to include several examples and repetitions in relation to each sub-activity (Paul, 1996; Schirmer, 2000). In addition, in the activities, which were performed intensive classes, one another reason for being concurrent was the use of time effectively and preparation for the next activity. While the Internship Story activity was continuing, homeworks and research study, required for Interview with Graduates activity, began at the same time.

Enrichment and making repetitions for prepared documents were required in terms of the goals, terms and concepts in the semester. (Researcher diary and reflective evaluations of course plan, dated 30 March 2016 and 5 April 2016) This situation was due to the language limitations of hearing-impaired students. In language studies are done with hearing-impaired, students require intensive repetition (Paul, 1996; Schirmer, 2002; Karasu et al. 2016).

During the classes and at the end of the semester, in the study, in which opinions of the students were taken, it was defined by the students that they were pleased with the performing of the Professional Language and Language courses by supporting each other and wanted to all courses to be done this way. (Researcher diary and reflective evaluations of course plan, dated 24 March 2016 and video recordings)

RESULTS

In the research, it was observed that students were benefited from the courses that carried out through interdisciplinary studies with the cooperation of language courses, which the terms and concepts of Professional Language courses, the contents of the documents used in career planning, and the activities were supported. In the study, it was determined that regularly meetings of the members of trustworthiness committee, sharing course contents and materials systematically by the researchers, and openness to cooperation of the instructors contributed to the development of the students.

It is the fact that due to the language limitations of hearing-impaired students, they required intensive language support. With this respect, it is obvious that planning of the courses according to the language levels and professional needs is important. In Turkey, The School for the Handicapped, which provides university level education for hearing-impaired students, was established to provide hearing-impaired young people vocational education by collecting them as productive and independent individuals to society. Education in the school is provided by the programs and class settings, which are designed as suitable for the disability of hearing-impaired students and the instructors, who have experience in their professional fields and in the education of hearing-impaired. The cooperation of the instructors, who were the experts in their professional fields, with special education instructors, and supporting their courses with the strategies and techniques of special education were most important for the education of hearing-impaired students of the school. It was determined that hearing-impaired students of SfH were benefited from the research process that was carried out through intense cooperation between the instructors, who were responsible for Professional Language courses and the instructor, who was responsible for the Language courses.

It is expected that the research can be used as a model for different educational settings, in which hearing-impaired students will be educated, also it can be a model for educational programs of hearing-impaired in terms of cooperation, and it can provide a view point and guiding for the teachers of hearing-impaired and the instructors, who will educate the teachers of hearing-impaired.

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The Profession of the Future in the Field of Accounting: Accounting Engineering

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ABSTRACT

One of the most important features of the 21st century is technological developments. Technological renewal every day has led to, the emergence of different occupational groups and/or the use of different programs. These developments also affected the accounting profession. Recording systems are also changing because of the inadequacy of providing information from the duties of professional accountants. Records now take place in electronic environment such as e-book, e-invoice. In addition, transactional diversity in business life has made e-transformation mandatory in financial data. For this reason, many different software programs are needed more and more. However, those who prepare these software programs are software engineers. These individuals do not have sufficient knowledge in accounting. Those with sufficient knowledge of accounting are not enough to prepare software programs. For this reason, those who have sufficient knowledge in both areas, produce complete, uninterrupted information and can develop software compatible with international accounting standards will be accounting engineers. How a business engineering, mathematical engineering has provided significant contributions to business life, we can say that accounting engineering will provide important contributions in the same way. Because accounting profession has left the traditional approach very much behind and now it has become a technology oriented model. To be able to catch up with the pace of knowledge in the globalizing world and not be back from this race, we can say that universities need to create an independent department of accounting engineering.

Keywords: Accounting, Accounting Engineering, Accounting Software

INTRODUCTION

People have to continue production in order to maintain their lifestyles. Therefore, many progresses have been made in the field of production from the first industrial revolution to the fourth industrial revolution. Production has increased along with the ever-increasing population, and enterprises have developed new and various production methods. Automation systems, internet usage, robots and cloud computing systems gained importance during the fourth industrial period that can still be seen at the present time, which has led to fundamental changes. The proper operation of the production line, and the ability of a business to make profit depend on making business decisions correctly. Businesses shape their decision based on the data, related to their expenditures. The importance of the accounting department shows itself at this point. The information given by the accounting department also affects business decisions.

The first function of accounting professional members that was recording gave place to reporting, analyzing, and auditing. However, all these functions fail to satisfy today's needs. Therefore, the accounting profession need to be renewed, and institutions that provide accounting education must update their programs. Developing software suitable for the fourth industrial revolution and the technical structure of accounting will create a new profession group in accounting. This occupational group can be called accounting engineering. Accounting engineering programs must be added to undergraduate programs in order to train the people who will apply the developed software.

Many accounting programs that have been developed by people who do not have enough knowledge on accounting have been used by businesses. But, these programs are not so easy to apply. However, an accounting engineer working in a business should have all knowledge about the business, and be equipped with accounting information.

THE ACCOUNTING PROCESS IN THE FIELD OF INFORMATION TECHNOLOGIES

When accounting history is examined, any exact information on where and how it first appeared cannot be found. Unless, it is thought to be as old as human history. It is assumed that accounting was also used in the 3400s B.C. with the initial use of numbers and writing in Ancient Egypt and Mesopotamia. It is seen that inventory records were created and but get was planned for the tracking of goods in ancient Egypt. More detailed accounting records were reached by means of clay tablets in old Babylon. These tablets include information about the type and number of goods, names of the buyer and seller, and delivery date. The first written laws concerning accounting are seen in the Hammurabi Laws. Later on, it continued to develop in Iranian, Greek and Roman civilizations, and mobile accountants emerged in the middle age. A book similar to today's cashbook was used in Western Europe in the thirteenth century. Notary approval was needed for any change to be made on this book (Avder, www.muhasabetr.com).

Accounting development has gained a different dimension along with the double-sided recording technique developed by Luca Pacioli in the late 15th century. Academic disciplines have sought for a solution together since the creation of the double-sided recording system, a simple but important recording technique, to the present time. The accounting discipline also gains different perspectives by making use of different disciplines. Especially with the new Turkish Commercial Code adopted in 2011, the accounting registration system has entered into the process of globalization instead of the westernization process (Güvemli, 2015:5, Ertuna, 2015:7).

International Accounting Education Standards suggest that information technologies should be supported with accounting, finance and management courses. It is stated in the 7th AACSB standard that more importance should be attached to technology and business analytics in order to train professional accountants in the future because, the members of an accounting profession are no longer the people who use information systems. Furthermore, they have also come to the forefront in the software, evaluation, design and management of information technology systems. As a result of a study conducted on people who received business education at the undergraduate level, it was found that their educational level on the subjects such as bigdata, data analysis were insufficient (Kaya et. Al., 2017:170-176,180). Courses such as programming, software development, and database management, that should come into the forefront in our day shouldn't be kept at an insufficient level, the number of courses should be increased for these subjects.

ACCOUNTING ENGINEERING

Accounting is the collection of information about financial and monetary transactions, checking for accuracy, and recording, classification, and presentation in reports, analyses and interpretation. There are three basic points here. Firstly, it includes the transactions expressed in money. Secondly is the recording and classification of these transactions. Finally is the analysis and interpretation of the reported accounting information (Bayazıtlı et. al. 2015: 25). Any failure in any of these stages will cause the entire chain to break. Therefore, the accounting system should be regarded as a whole. The true and correct data in the system will enable decision makers to make correct decisions.

To be able to produce accurate, timely and real information; today's technology is has to be utilized. The complete and uninterrupted information flow can be provided by developing appropriate software, appropriate for the structure of the enterprises. Accounting engineering is needed to develop this software. Teraman defines accounting engineering as follows; 'accounting is a profession that enables the data ,forming the information system, to be recorded, classified, summarized and reported, and that produces and designs solutions that are suitable for the structure of every business' (<http://www.yorumymm.com>). Popescu and Nişulescu (2014) stated that the purpose of accounting is being able to make use of accounting information of businesses much more, to reveal their financial situations more clearly ,and the efforts towards to improve the results included in the financial tables, in parallel with increasing their performance positively.

The software engineering programs and the course contents of accounting and finance programs of universities were reviewed in our study, and the lessons taught are arranged as in the following table.

Table 1: Lessons Taught in the Departments of Accounting and Software Engineering

Accounting and Finance	Software Engineering
General Accounting	Software Engineering Foundation
Cost Accounting	Engineering Mathematics
Management Accounting	Logic Circuits
Audit	Programming Languages
Financial Statement Analysis	Data Structures
Project Evaluation and Management Techniques	Microprocessors and Programming
End-of-term Accounting Applications	Object Oriented Programming
Inventory and Balance Sheet	Digital Image Processing Management
Accounting Standards	Numerical Analysis
Mathematics of Finance	Linear Algebra
Accounting Information System	Information Systems and Security
Corporate Accounting	Web Design and Programming
Construction Accounting	Operating Systems
Forensic Accounting	Database Management Systems
Environmental Accounting	Statistics and Probability
International Financial Reporting	Network Systems
Accounting and Auditing Standards	Software Design and Architecture
Cost Systems	Formal Languages and Automats
Internal Audit-Internal Control	Algorithm Analysis
Accounting Valuation Transactions	Computer Graphics and Animation
Valuation and Financial Tables	Data Mining
New Financial Instruments and Accounting	Multimedia Software Development
Company Consolidation and Takeover	Bioinformatics
Cost Management	Database Design and Management
Accounting Information and Control Systems	Java Programming
Advanced Audit	Network Programming
Accounting Practices Based On The Integrated Systems	Artificial Intelligence and Expert Systems
Research Methods in Accounting	Software Quality Assurance and Testing
	Animated Software Development

When the departments of accounting and software engineering are reviewed, it is seen that the courses that can complement each other are taught. But, it is very difficult for accounting engineers to develop software programs and for software engineers to develop accounting software, suited to the needs of businesses. Therefore, creating an accounting engineering profession, with an undergraduate program covering both fields, will be very useful for businesses. We recommend the courses listed in Table-2 be taught in the department of accounting engineering.

Table 2: Courses Recommended to be Taught in the Department of Accounting Engineering

General Accounting	Software Engineering Foundation
Cost Accounting	Engineering Mathematics
Management Accounting	Programming Languages
Audit	Object Oriented Programming
Accounting Information System	Logic Circuits
Accounting Information and Control Systems	Data Structures
Advanced Audit	Microprocessors and Programming

Accounting Practices Based On The Integrated Systems	Information Systems and Security
Research Methods in Accounting	Operating Systems
Financial Statement Analysis	Database Management Systems
Project Evaluation and Management Techniques	Software Design
International Financial Reporting	Software Quality Assurance and Testing
Internal Audit-Internal Control	Software Architecture
Accounting Valuation Transactions	

When the courses suggested to be taught in the department of accounting engineering are reviewed, it is seen that these are numerical processing-oriented courses. Therefore, the students who will receive education in this department should have analytical thinking power, and be successful in terms of numerical operations. Today, accounting finance department students are admitted according to the point type of Turkish-Mathematics, and engineering programs according to the point type of Mathematics-Science. In consideration of the courses suggested for the Accounting Engineering program in Table-2, the student admission according to the point type of Mathematics-Science will be appropriate for the purpose of education.

It is expected that those who will successfully complete the accounting engineering program will have many acquisitions on behalf of accounting and engineering knowledge. We can list some of acquisitions as follows:

- To learn to program,
- To have basic knowledge about microeconomics,
- To gain economic problem solving knowledge,
- To have information about market structures,
- To learn the politics used in accounting,
- Ability to model and solve engineering problems,
- To identify, describe and formulate complex engineering problems.
- To acquire the skill of designing a system, process, realistic constraints and conditions and meet the required requirements,
- The ability to work effectively in disciplinary and multidisciplinary teams;
- To gain individual work skills,
- To have professional ethics awareness,
- To have knowledge about applications such as project management and risk management,
- Create awareness about entrepreneurship, innovation and sustainable development,
- Having knowledge about the effects of engineering applications on health, the environment, and safety in the universal and social dimensions and the problems of the age,
- To gain effective and efficient management skills,
- Having knowledge about statistical packages and applications of random sampling, data analysis, sample distribution theory, forecasting, confidence intervals, hypothesis tests, regression and correlation analysis, which are the basis of engineering statistics,
- Explain the strategic role of production planning and control,
- Ensuring execution of production planning and control with ERP,
- Selection and use of appropriate quantitative and / or qualitative techniques to assist in production planning,
- Having knowledge about the basic terms and basic financial tables related to general accounting and using these tables,
- To prepare the financial statements required by external users,
- Having knowledge about current and fixed asset management, short and long term debts and capital,
- To solve analytical finance problems,
- Having information about the financial institutions, tax authorities, shareholders, sellers, customers, and other circles of financial institutions,
- Having knowledge about how businesses operate, finance and current finance operations,
- Defining functional and non-functional features of software projects, processes and products for real life problems,

- Designing software architecture, components, interfaces, and other sub-components of the system,
- To develop software to include coding, validation, testing and debugging,
- Verify the software by testing the behavior of the program against the expected results,
- To be able to carry out maintenance activities due to changes in the working environment, new user requests and software faults during the operation of the software,
- To be able to monitor and control the changes made in the software, to ensure the integration of the software with other software systems, to systematically plan the new versions of the software,
- To be able to use various tools and methods in gathering software requirements, designing, developing, testing, and maintaining software,
- To apply software life cycle processes, to measure software quality, to define quality model characteristics and to analyze, design, promote, verify and test them.
- To learn operating system problems,
- Identify the best types of communication to support the coordination needs of a project,
- Testing and describing software measurement tools, and
- Determine the structural complexity of software.

In consideration of the qualifications mentioned above, it is seen that accounting engineering department graduates may have knowledge in many fields such as business, accounting, finance, basic engineering, and software development.

CONCLUSION

When we review the historical process of accounting, it is seen that we have rather proceeded. We have reached a point where we can access the financial data of a business on the other side of the world through internet, in contrast to the accounting records that were once made on clay tablets in the beginning. Robots will make production in a completely dark environment, and huge factories that can be managed by one person will be established with industry 4.0 in the future. This rapid and continuous change of technology obliges people to use current methods instead of conventional methods.

Using fast and active internet, developing current software, being able to use different programs, following the developments in the world, keeping pace with these developments, making quick, appropriate and accurate decisions, being a part of the business, not ignoring the ethics of profession, being able to provide contributions and efficiency in personal and group work settings, and speaking one or several foreign languages are several of the many obstacles that we will encounter in the employment process. When we also consider the competition that increases with the growing population every day, how important the selection of the profession will be in the future is very clear.

When these developments are reviewed in terms of accounting, it is inevitable that the profession of accounting engineering will emerge in the future. Accounting engineering in faculties can be regarded as a department that will emerge through the gathering of both accounting and software engineering departments. The purpose of this department is to satisfy the software development needs of the members of the accounting profession where they are not so competent in this area, and ensure that software engineers have accounting knowledge, thereby allowing them to see the missing points of the programs they have developed.

It may be more appropriate to admit students according to Mathematics-Science point type for this department, because accounting and engineering departments require more numerical processing and an analytical power of thinking. Along with the new education plans to be made at universities, the courses which are considered appropriate for the department can be determined. Based on the courses taught in the departments of accounting and software engineering (Table-1), the courses that may be included in the accounting engineering department were suggested in this study. The suggested lessons are included in Table-2.

Through having the accumulation of knowledge in different subjects, a person who graduated as an accounting engineer is expected both to produce correct ideas and make, and software programs, more functional. Using right programs ensures proper decisions will be taken, increasing business profitability and sustainability in the future.

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The Proportion of the Variation in the Academic Performance form the Courses Achievement of Food Science and Technology Students

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ABSTRACT

The purpose of this paper is to construct a regression model for measuring the proportion of variation in the academic performance form the courses achievement of Food Science and Technology students. Data were collected from a sample of 215 online reports of science students graduating from Food Science and Technology Program, Suan Sunandha Rajabhat University from the academic year of 2011-2016. Variables used to construct a regression model were average grades of the subjects accordings to the curriculum which were categorized into seven groups: general education courses ,core courses, required major courses, elective major courses, professional English courses, management science courses, project and internship courses. The findings revealed that there is a positive significant the strength of the linear relationship between the courses achievement and academic success. Required major course and elective major course are quite strong relationship with academic success. The highest of the proportion of variation in the academic performance is form required major course.

INTRODUCTION

Higher education provides the skilled manpower needed for socio-economic and technological development of the country. Each curriculum is designed to produce specific skilled graduate in specified area. Success in higher education is measured by academic performance or how well a student meets standards set by ministry of education and the university. Academic performance is how a student performs or achieves in a certain exam measured by a grade point average or grades (Travis, Charles & Susan, 2015). Academic performance may depend on student, teacher or education materials (Irfan Mushtaq & Shabana Nawa Z Khan, 2012 and Bussaban K. & Prapasuwannakul N., 2016). Production of qualified graduates is the primary goal of higher education. Thailand has a framework for higher education that requires graduates of all levels to meet at least five learning outcomes which are moral skill, knowledge skill, intellectual skill, interpersonal relationship and responsibilities skill, and numerical analysis, communication and information technology skill. To achieve these learning outcomes, it is necessary to design courses in a curriculum for teaching and learning management. A curriculum design is an important mechanism that will lead to the production of qualified graduates according to the aspiration of each course. Food Science and Technology is a multidisciplinary branch of science developed with vision to prepare graduates with expertise in various areas related to Food Science and Technology. Therefore, Food Science and Technology program of Suan Sunandha Rajabhat University has designed its curriculum structure consisting of 8 different courses which are general education courses, core courses, required major courses, elective major courses, professional English courses, management science courses, project and internship courses, and free elective courses. However, there is no study reporting of how much each courses in the curriculum results in a successful completion of the course. Therefore, the objective of this study is to measure the proportion of variation in the academic performance form the courses achievement of Food Science and Technology students in Suan Sunandha Rajabhat University, Thailand. The results might be beneficial as a guideline for improving and developing curriculum leading to the production of qualified graduates with a high course achievement.

THE STUDY

(2)

The objective of this study is to measure the proportion of variation in the academic performance from the courses achievement of Food Science and Technology students. The online study reports of 215 graduates from Bachelor of Science in Food Science and Technology, Suan Sunandha Rajabhat University during an academic year of 2011-2016 were collected. The average score level in each courses (general education courses , core courses, required major courses, elective major courses, professional English courses, management science courses, project and internship courses) were calculated and were used as dependent variables while a Grade Point Average (GPA) was being assigned as an independent variable in regression analysis. Simple and multiple linear regression are used to construct models. Simple linear regression is a statistical method that allows us to summarize and study relationships between two continuous (quantitative) variables. In this study, the coefficient of determination or r -squared was used to determine the proportion of variation in GPA resulting from the learning outcomes in each subject group. The coefficient of determination (denoted by R^2) is a statistical method that explains how much of the variability of a factor can be caused or explained by its relationship to another factor. Pearson correlation and Partial correlation was also used to measure the relationship between the success rate of each group and the degree of success.

FINDINGS

Around 42.1 % of graduates with a bachelor's degree in Food Science and Technology had their grade point average (GPA) in the range of 2.00 - 2.50. The results of the correlation analysis between courses and GPA was presented in Table 1. It indicated that there was a positive significant and strong linear relationship between courses achievement and academic success. The subjects with the highest levels of academic achievement in the first three were required major courses, elective major courses and the general education course, respectively. Moreover, the relationship between required major course and academic success was quite strong. If we consider strength and direction of a linear relationship between courses achievement and academic success whilst controlling the effect of other courses, the relationship between required major course and the academic success was greatest among any relationship between other courses and academic success.

Table1 The relationship between courses and GPA

course	Pearson correlation coefficient	Partial correlation coefficient
general education	0.774	0.697
core	0.768	0.748
required major	0.959	0.872
elective major	0.808	0.691
professional English	0.554	0.466
management science	0.725	0.146
project &internship	0.201	0.022

The results of the simple linear regression analysis indicate that two courses including general education and management science can be used to construct models. The models are given by equation (1) and (2). Equation (1) is significant with $r_{adj}^2 = 0.991$, Durbin= 1.509 and P-value for normality of the error distribution = 0.200 and equation (2) is significant with $r_{adj}^2 = 0.522$, Durbin= 1.583 and P-value for normality of the error distribution = 0.200.

$$GPA = 0.935 * (\text{general education course}) \quad (1)$$

$$GPA = 1.029 + 0.595 * (\text{management science}) \quad (2)$$

The multiple regression model is given by equation (3). It is significant with $r_{adj}^2 = 0.955$ Durbin= 1.742, VIF (professional English) = 1.368, VIF (CT) = 1.368, Condition Index = 18.441, Eigenvalue = 0.009, Standard Residual=2.607 and P-value for normality of the error distribution = 0.200. The proportion of the variation of CT which controls the effect of other courses is 0.967. The proportion of the variation of professional English course which controls the effect of other courses is 0.255.

$$GPA = 0.131 + 0.970 * (CT) + 0.04(\text{professional English}) \quad (3)$$

Where CT represents the average of score in core, general education, required major, elective major and management science courses.

CONCLUSIONS

The findings of this study indicate that there are positive significant relationship between all courses and a grade point average. Required major, general education and elective major courses have a great influence on the academic performance than any other courses. Project and internship does not show any significant effect on the academic success. Both general education courses and professional English courses can predict a GPA. Core, general education, required majors, elective major and management science courses are highly correlated, and these courses account for 96.7% of the variation in achievement. Activity-based courses such as professional experiences and project courses do not show significant effect on academic success of graduates in Food Science and Technology. There may be other latent factors affecting the score of these course, which is interesting for further study.

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The Relation Between the School Attachment Levels and Parent Attachment Levels of High School Students

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ABSTRACT

Attachment is a strong emotional connection that an individual develops against an object or person. Attachment to the school is a basic psychological need in terms of feeling belonging to the group, believing that it is valued and respected as a member of the school. This study was carried out in order to examine the attachment status of high school students in terms of various variables. Relational screening model was used in the research. The study is composed of high school students studying in Niğde. The data of the study were obtained using the Personal Information Form and the Arrow Attachment Scale on the Adolescents and the Parent / Peer Attachment Inventory Short Form. The data were processed into the SPSS package program and the normality test was performed to determine the tests to be used in the study. As a result of the analysis made, it was understood that the data did not show normal distribution, so non-parametric tests were used. Within this scope; Mann Whitney U test for two categorical variables, Kruskal Wallis test for the analysis of variables with three or more categories, and Spearman correlation analysis for the analysis of the effects of variables. As a result of the analysis of the data, it was seen that there was a statistically significant difference between the levels of attachment to the school according to the gender variable, but there was a significant difference in favor of boys in terms of teacher attachment. While there was no significant difference in the attachment to friends sub-dimensions depending gender, it was seen that the average order of men was lower than women. The findings of the study showed that the level of attachment to the school significantly differed according to the level of satisfaction with the school. Accordingly, those who are satisfied with the school have less attachment to the school. Another area of attachment that high school satisfaction affects is the attachment to friends. Those who are satisfied with their high school they are studying are found to have a significantly lower level attachment to friends than those who are not. Satisfaction with school also affects the attachment to the teacher. For those who are satisfied with their school, the total scores of the teacher attachment sub dimension are found to be lower than those who are not satisfied. According to the results obtained in the research, the cohabitation status of the parents does not make a meaningful difference in terms of the attachment of the high school students to the school, friends, and teachers. The grade level influences the attachment to the school; there was a significant difference between the students in the first grade and those in the third grade. On the other hand, this situation doesn't affect the attachment level to the teacher. This result shows that there is a significant positive correlation between the total scores of the mother attachment scale and the total score of school attachment scale in the adolescents. There was a significant positive correlation between total scores of the father attachment scale and total scores of school attachment scale to adolescents.

INTRODUCTION

The school is one of the important carriers in social life, a tool that will contribute to the life routine of the individual. Education that aims to give terminal behaviors to individuals offers important opportunities for personal development. There may be differences in terminal behaviors that are different for each society and culture, as well as differences in the social belonging of the individual and the attachment to the education. Because the educational philosophy adopted by society and the aims of education can influence the type and number of terminal behaviors. At the same time, the school, which is seen as a unifying tool for social cohesion and social

peace, has an important role in the development of the nation. Because of this reason, it is an important research topic to determine the students' attachment levels to school and at the same time to their parents.

Individuals live in different social contexts throughout their lives. As one of these social environments, the school is one of the basic environments that the individual has developed over many years and experiences in education and teaching. Turkish Language Institute (2017) defines the term 'school' as 'The educational institution where the kind of knowledge, skills, and habits are taught and gained regularly according to certain purposes; An education community consisted of students, teachers, and administrators; The name given to the trend, form, and opinion that have certain qualities and characteristics in the branch of science, philosophy, and art'.

The school is a realistic field that is intertwined with the society and the social life-related behaviors of the students are rehearsed. School and school experiences have a great place in the life and development of the individual. Yet processes and interactions in the school provide opportunities for individuals to gain different thoughts and behaviors. Yüksel (2002) points out that some students are generally unhappy about going to school and that negative attitudes such as hating some lessons are often placed on the education system. Educators are of the opinion that such negativities are largely due to the educational conditions and school conditions. The attitudes that students develop in this situation directly affect their attachment to school. Attachment to the school is defined as a basic psychological need in terms of feeling belonging to the group, believing that it is valued and respected as a member of the school (Akt. Savi, 2011).

Mouton, Hawkins, McPherson, and Copley (1996) indicate that students with low school attachment level are lonely and isolated in their school life, perceived themselves as outsiders from the school community, and receive low support and encouragement from school staff and peers. In addition, LeCroy and Krysik (2008) stated that academic achievement rises as the level of attachment increases, while students who receive support from their family and teachers have higher school attachment level and higher academic achievement. Zhang and Messner (1996) found that school attachment and school quality were inversely related to the risk of involving crime. These findings in the field indicate the critical importance of school and school attachment for individual development.

There are different theoretical explanations for attachment. According to the accepted attachment theory, the emotional ties between the child and the people who raised them affect the social, emotional and cognitive development of the child. According to Bowlby, these strong emotional ties in the attachment develop inner patterns involving the child's feelings, perceptions and expectations about herself and others. These patterns guide the child's interpersonal relationships throughout his or her life (Savi 2011; Günaydın and Ark., 2005). In a study conducted with pre-school children by DeMulder, Denham, Schmidt, and Mitchell (2000), it was observed that both boys and girls with less secure attachment in their mothers showed much more aggression in the pre-school period. Boys who are more securely attached to their mothers are more closely attached to their preschool teachers and are found to be more popular than their nursery-school peers.

Duchesne et al. (2009), in their study of 629 young adolescents, found that attachment to mother predicted teacher-academic worries of the young adolescent about the transition to middle school.

O'Connor, Collins and Supplee (2012) 1140 A longitudinal study of mothers and children shows that insecure attachment in early childhood is associated with late childhood exclusionary and internalizing behaviors; Having negative relationships with the teacher in childhood is related to outward orientation behavior in the following years; The effects of seclusion and insecurity on externalizing and internalizing behaviors in late childhood have been achieved through childhood teacher-child relationships and early externalization and internalizing behaviors. In a longitudinal study conducted by O'Connor, Collins, and Supplee (2012) with 1140 mothers and children, insecure attachment in early childhood was associated with late childhood exclusionary and internalizing behaviors; Having negative relationships with the teacher in childhood is related to outward orientation behavior in the following years; The effects of seclusion and insecurity on externalizing and internalizing behaviors in late childhood are due to childhood teacher-child relationships and early externalization and internalizing behaviors.

Individuals in high school are experiencing the crisis of sexual, social and ideological identity as well as some developmental problems. In addition, young people can experience confusion in the context of social expectations, generation conflict, search for autonomy and freedom (Akt, Ünal and Şahin, 2013). The relationship of adolescent students to their friends and teachers contributes to their satisfaction with their satisfaction of school and school performances. Likewise, secure attachment provides important support to young people to cope with the problems experienced during school years. For this reason, it is necessary to look into the attachment as both the social adaptations in the school environment and their interaction with their peers for their expectation from school life (Eken, 2010).

Parents are not only influential in childhood but also in other stages of life. The parental attachment has an important place in terms of the individual's social behavior and psychological health. The secure attachment also has vital importance in terms of the school experience. Since school life includes social patterns as much as academic activities. Relations with school, teachers, and friends have the power to influence the individual's academic and social life. From this point of view, success in school life can be considered a sign of successful completion of the individual's developmental tasks. The development of successful and supportive relationships in school life is thought to be a deterrent factor to risky behaviors in the process of depression during adolescence. In the light of the theoretical explanations above, the main purpose of this research is to examine the attachment levels of high school students to the school and their attachment levels to the parents.

THE STUDY

In this study, a relational screening model was used. Relational surveys are studies in which the relationship between two or more variables is investigated without changing the same variables (Karasar, 2000).

Research Population and Sample

Table 1. Demographic Table Regarding Study Group

		Grade Level								
		First grade			Second Grade			Third Grade		
		n	%	%	n	%	%	n	%	%
Gender	Women	50	35,2	35,2	64	45,1	45,1	28	19,7	19,7
	Men	36	30,8	30,8	52	44,4	44,4	29	24,8	24,8

The study population consists of high school students in public schools in Niğde. The study group was selected by appropriate sampling method. A convenience sampling method is selected for the study. The convenience sampling method based on accessibility and suitability is the preferred method for gathering information quickly in some research subjects (Aypay, 2010). There is a total of 259 high school students in the study group determined by this method. Of the students in the study group, approximately 55% female and 45% male students, 86 are in the first grade, 116 are in the second grade and 57 are in the third grade.

Data Collection Tools

In addition to the personal information form developed by the researcher in collecting the data in the study, the Adolescent School Attachment Scale, and Parent and Peer Attachment Inventory Form were used.

The Adolescent School Attachment Scale: School Attachment Scale for Children and Adolescents (High School Form): "School Attachment Scale", developed by Hill (2005) to assess the attachment levels of children and adolescents to the school, consists of 15 items and three factors (attachment to teachers, peers, and school). The scale was adapted to Turkish culture by Savi (2011). According to the obtained fit index values, it can be said that the three-dimensional model gives sufficient harmony. In the reliability analysis, the Cronbach Alpha internal consistency coefficient of the scale was .91, and the reliability of the two half tests was .80 for the first half and .74 for the second half (Savi Çakar and Karataş, 2017).

Parent and Peer Attachment Inventory: "Parental and Peer Attachment Inventory" (PPAI) developed by Arrmsden and Greenberg (1987) was chosen to measure parental attachment. The scale consists of two sub scales that measure parental and peer attachment. Paternal attachment scales were used in this study. The scale consisting of 12 items is scored by five grades. (1- Never, 5- Always). Validity and reliability analysis of the parental inventory form of the scale were conducted on the samples of university (Günaydın, Selçuk, Sümer and Uysal, 2005) and high school (Bayraktar, Sayıl, and Kumru, 2009) and the internal consistency coefficient was found to be $\alpha = .84$ for high school sample.

Data Analysis

The data were processed into the SPSS package program and the normality test was performed to determine the tests to be used in the study. The Shapiro-Wilk normality test is used for groups with a large study group of 50 people. According to the Shapiro-Wilk normality test results, the data weren't the normal distribution. For this reason, nonparametric tests were used in the analysis of data. Mann Whitney U test for two categorical variables, Kruskal Wallis test for analysis of variables with three or more categories, and Spearman correlation analysis for analyzing the effects of variables.

FINDINGS

The findings of this research are given below.

Table 2. *Levels of Parent Attachment by Gender Variable*

	Gender	n	Mean Rank	Z	U	p
Total Mother Attachment Scale Scores	Women	142	130,92	-,217	8177,000	,828
	Men	117	128,89			
Total Father Attachment Scale Scores	Women	142	130,06	-,015	8298,000	,988
	Men	117	129,92			

$p > .05$

When Table 2 is examined, it is seen that there is no statistically significant difference in the levels of attachment to the mother according to gender ($p > .05$). When the mean rank is taken into consideration, it is seen that the total scores of mother attachment scale for women ($\bar{X} = 130, 92$) is higher than that of men's ($\bar{X} = 128, 89$). There was no statistically significant difference in the father attachment levels according to gender variable ($p > .05$). In the mean ranks, it is seen that the total scores of father attachment scale for women ($\bar{X} = 130.06$) is higher than the total scores of father attachment scale for men ($\bar{X} = 129.92$).

Table 3. *Levels of School Attachment by Gender Variable*

	Gender	n	Mean Rank	Z	U	p
Total Score of Attachment Scale in Adolescents	Women	142	135,22	-1,237	7565,500	,216
	Men	117	123,66			
Total Score of School Attachment Sub dimension	Women	142	138,88	-2,106	7046,500	,035
	Men	117	119,23			
Total Score of Peer Attachment Sub dimension	Women	142	128,06	-,462	8032,000	,644
	Men	117	132,35			
Total Score of Teacher Attachment Sub dimension	Women	142	133,70	-,877	7782,000	,380
	Men	117	125,51			

When Table 3 was examined, it was found that there was no statistically significant difference between the school attachment scales for both women and men in terms of gender ($p > .05$). However, it is seen that the total scores of the school attachment scale for men ($\bar{X} = 123, 66$) are lower than the average scores of school attachment scale for the women ($\bar{X} = 135, 22$).

A statistically significant difference was found when the total scores of the school attachment sub dimension according to the gender variable were examined ($p < .05$). It is seen that the total scores of the school attachment for men are lower ($\bar{X} = 119, 23$) than female students' scores ($\bar{X} = 138, 88$).

There was no statistically significant difference when the total scores of peer attachment sub dimension were compared according to gender variable ($p > .05$). It is seen that the mean rank of the total scores of peer attachment scale for men ($\bar{X} = 132, 35$) are higher than female's ($\bar{X} = 128, 06$).

There was no statistically significant difference when the total scores of teacher attachment sub-dimension according to gender variable were examined ($p > .05$). It is seen that men's mean rank of the total score of teacher attachment sub dimension ($\bar{X} = 125, 51$) are higher than women's mean rank of the total score ($\bar{X} = 133, 70$).

Table 4. *Parent Attachment by the High School Satisfaction Variable*

High School Satisfaction		n	Mean Rank	U	Z	p
Total Score of Mother Attachment Scale	Yes	183	134,62	6108,000	-1,543	,123
	No	76	118,87			
Total Score of Father Attachment Scale	Yes	183	133,38	6335,000	-1,129	,259
	No	76	121,86			

$p > .05$

When Table 4 is examined, it is seen that the level of mother attachment did not show any statistically significant difference according to the high school satisfaction variable ($p > .05$). Looking at the mean rank, it is seen that those who are satisfied with their school have the higher total score of mother attachment scale ($\bar{X} = 134, 62$) than

those who are not satisfied ($X^- = 118, 87$). There was no statistically significant difference in the level of father attachment according to school satisfaction variable ($p > .05$). In the mean ranks, it is seen that those who are satisfied with their school have higher scores on the father attachment scale ($X^- = 133, 06$) than those who are not satisfied ($X^- = 129, 92$).

Table 5. Levels of School Attachment by the School Satisfaction Variable

	Satisfaction	n	Mean Rank	Z	U	p
Total Score of Attachment Scale in Adolescents	Yes	183	151,75	-7,256	2973,000	,000
	No	76	77,62			
Total Score of School Attachment Sub dimension	Yes	183	152,67	-7,575	2806,000	,000
	No	76	75,42			
Total Score of Peer Attachment Sub dimension	Yes	183	140,22	-3,429	5084,500	,001
	No	76	105,40			
Total Score of Teacher Attachment Sub dimension	Yes	183	145,35	-5,130	4145,000	,000
	No	76	93,04			

When Table 5 is examined, it is seen that there is a statistically significant difference in the school attachment levels according to the school satisfaction variable ($p < .05$). It is seen that those who are satisfied with their school have the higher mean of the total score ($X^- = 151, 75$) of school attachment level than the students who are not satisfied with the study ($X^- = 77, 62$).

When the total scores of the school attachment sub dimension scores were examined according to the school satisfaction variable, it was seen that there was a statistically significant difference ($p < .05$). It is seen that those who are satisfied with their school have the higher mean scores ($X^- = 152, 67$) of school attachment sub dimensions than those who are dissatisfied ($X^- = 75, 42$).

When the total scores of the peer attachment sub dimension of students are examined according to the satisfaction variable, there is a statistically significant difference ($p < .05$). It is seen that those who are satisfied with their school have the higher the mean of the peer attachment sub dimension scale ($X^- = 140, 22$) than those who are dissatisfied ($X^- = 105, 40$).

When the total scores of the teacher attachment sub dimension were examined according to the satisfaction variable, it is seen that there is a statistically significant difference ($p < .05$). It is seen that the mean of the teacher attachment sub dimension scores of those who are satisfied with their school ($X^- = 145, 35$) is higher than the those who are dissatisfied ($X^- = 93, 04$).

Table 6. Levels of Parent Attachment by School Grade Variable

	Grade	n	Mean Rank	Chi Square	p
Total Score of Mother Attachment Scale	First Grade	86	136,26	3,365	,186
	Second Grade	116	127,01		
	Third Grade	57	126,64		
Total Score of Father Attachment Scale	First Grade	86	136,65	3,365	,186
	Second Grade	116	132,81		
	Third Grade	57	114,25		

$p > .05$

When Table 6 is examined, it is seen that the levels of mother attachment are not statistically different according to the school grade variable ($p > .05$). When the mean ranks are taken into consideration, it is seen that the mean of the mother attachment scale of the first grade is higher than the mean of the second grade ($X^- = 127, 01$) and the mean of the third grade ($X^- = 126, 64$). There was no statistically significant difference in the level of the father attachment scale ($p > .05$). However, when you look at the mean rank; It is seen that the scores of the first grades are higher than the scores of the second grades ($X^- = 132, 81$) and the third grades ($X^- = 114, 25$).

Table 7. Levels of School Attachment by School Grade Variable

	Grade	n	Mean Rank	Chi Square	p
Total Score of Attachment Scale in Adolescents	First Grade	86	139,75	11,572	,003
	Second Grade	116	112,93		
	Third Grade	57	150,04		
Total Score of School Attachment Sub dimension	First Grade	86	140,94	6,839	,033
	Second Grade	116	116,52		
	Third Grade	57	140,93		
Total Score of Peer Attachment Sub dimension	First Grade	86	124,59	2,729	,256
	Second Grade	116	127,02		
	Third Grade	57	144,24		
Total Score of Teacher Attachment Sub dimension	First Grade	86	143,06	16,271	,000
	Second Grade	116	109,52		
	Third Grade	57	151,97		

When Table 7 is examined, it is seen that there is a significant difference in the school attachment level of high school students according to the class grade variable ($p < .05$). Accordingly, the total score of school attachment of the first grade ($\bar{X} = 139,75$) and the total score of school attachment of the third grade ($\bar{X} = 150,04$) was higher than those in the second grade ($\bar{X} = 112,93$).

A statistically significant difference was also observed when the total scores of the school attachment sub dimension according to the school grade variable ($p < .05$). According to the results of the analysis, the total score of the school attachment of the first grade students ($\bar{X} = 140,94$) and the total score of the school attachment of the third grade students ($\bar{X} = 140,93$) are higher than the score of the second grade students ($\bar{X} = 116,52$).

There was no statistically significant difference when the scores of the peer attachment sub dimension were compared according to school grade variable ($p > .05$). However, it is seen that the total scores of the peer attachment sub dimension of the first grade ($\bar{X} = 124,59$) and the second grade ($\bar{X} = 127,02$) are lower than those of the third grade ($\bar{X} = 144,24$).

According to the school grade variable, there was a statistically significant difference when the total scores of the teacher attachment sub dimension were examined ($p < .05$). According to this, the total scores of teacher attachment sub dimension in the first grade ($\bar{X} = 143,06$) and the third grade ($\bar{X} = 151,97$) are higher than those of the second grade ($\bar{X} = 109,52$).

According to the results of the Tamhaneposthoc analysis, it was found that the significant difference in the general dimension of the school attachment scale in adolescents originate from the relation between the second and third grades ($p < .05$). Likewise, the reason for the significant difference in the teacher attachment sub-dimension is the relation between the first and second grades ($p < .05$).

Table 8. Correlation between Attachment to the Parents and Attachment to the School

	1	2	3	4	5	6
1. Total Score of Mother Attachment Scale						
2. Total Score of Father Attachment Scale	,436**					
3. Total Score of School Attachment Scale	,201**	,271**				
4. Total Score of School Attachment Sub dimension	,163**	,237**	,873**			
5. Total Score of Peer Attachment Sub dimension	-	,198**	,682**	,462**		
6. Total Score of Teacher Attachment Sub dimension	,209**	,227**	,804**	,565**	,346**	

** $p < .001$

When Table 8 is examined, there is a significant positive correlation between adolescents total scores of the mother attachment scale and the father attachment scale ($p < .001$, $r = ,436$). Again, there was a positive correlation ($p < .001$, $r = ,201$) between total score of mother attachment scale and the total score of school attachment scale ($p < .001$, $r = ,201$). According to the results of the analysis, there is a positive correlation between the total scores of the mother attachment scale and the total scores of the school attachment sub dimension scale ($p < .001$, $r = ,163$). There is also a positive significant correlation between the total scores of mother and father attachment scale and the total score of teacher attachment sub dimension scale ($p < .001$, $r = ,206$). As a result of the analysis,

it was seen that there was no statistically significant relation between the total scores of the mother attachment scale and the scores of the peer attachment sub dimension scale ($p > .001$).

According to another finding obtained in the research, it was found that there is a positive correlation between total scores of father attachment scale and total scores of the school attachment scale ($p < .001$, $r = .271$). When we look at the other findings in Table 8, it is found that total scores of father attachment scale are positively correlated with total scores of the school attachment sub dimension scale ($p < .001$, $r = .163$) and total scores of the peer attachment sub dimension scale ($P < .001$, $r = .198$). According to the results of the analysis, there was a positive correlation between the total scores of father attachment scale and total scores of teacher attachment sub dimension scale ($p < .001$, $r = .227$).

According to another finding obtained from the table, there is a positive correlation between the total scores of the school attachment in adolescents scale and the total scores of the school attachment sub dimension scale ($p < .001$, $r = .873$). The same result was also observed between the total scores of the peer attachment sub dimension scale ($p < .001$, $r = .682$) and the total scores of the teacher attachment sub dimension scale ($p < .001$, $r = .804$).

CONCLUSIONS

As a result of the research, there was no statistically significant difference in adolescents' attachment to their parents in terms of gender variable. However, when we look at the mean ranks, it is seen that the total attachment score to parents of women is higher than the total scores of the men. There was no statistically significant difference in terms of attachment to the school according to the gender variable, but it was seen that the average scores of male attachment scale to the school were lower than the average scores of women. These results are similar to the findings of the research conducted by Savi (2011). In addition, these results are in agreement with the findings of the research carried out by Bellici (2015), Duy and Yildiz (2014), Özdemir and Kalaycı (2013).

According to another result obtained, the high school satisfaction of the students does not make a statistically significant difference in terms of the attachment level of adolescents to both mother and father. However, from the mean rankings, it is seen that those who are satisfied with their school have a higher average score of attachment level to parents than those who are dissatisfied. When the literature is examined, it is seen that there are different findings on this result. Indeed, a longitudinal study by O'Connor, Collins, and Supplee (2012) found that insecure attachment in early childhood was associated with late childhood exclusionary and internalizing behaviors, affecting the relationship between child and teacher in the years to come. In a survey conducted by LeCroy and Krysik (2008) with 7th and 8th-grade students, academic achievement increased as the school attachment level increased; it is reported that students who receive support from their parents and teachers have higher school attachment and higher academic achievement.

According to another result, the satisfaction of the student with their high school makes a statistically significant difference in the school attachment levels. According to this, the total school attachment scores by those who are satisfied with their school are higher than the scores of the ones who are not satisfied. When these results are compared with other studies in the field, it shows different results. For example, in a study conducted by Birch and Ladd (1997) with pre-school children, we found that teacher-child proximity is positively associated with the child's academic performance and teacher grades on school love and self-management of children. Another study conducted by Demanet and Van Houtte (2012) reported that students' emotional attachment to their peers, teachers, and colleagues was associated with poor school behavior rather than school collectivity. In addition, it is stated that perceived teacher support and the feeling of belonging to the school reduce the negative behaviors and high peer attachment inhibits abuse rates in schools. In the research conducted by Frey, Ruckhin and Schwab-Stone (2009) with adolescents, attachment to school has been associated with low levels of violent and aggressive beliefs as much as academic motivation. Perceived teacher support is associated with positive school environment and academic motivation.

It was observed that the class level variable did not show statistically significant difference between the high school students and the mothers in terms of the level of attachment to mothers and fathers but when the average of mothers was taken into consideration, it was found that the mothers' and babies' attachment scores of the first graders were higher than the scores of the second and third grades. According to the class level variable of the high school students, the level of attachment to the schools showed a statistically significant difference. According to this, in the first and third grades, the total scores of the attachment scale for the second grade are higher than the scores of the attachment scale for the second grade.

It was observed that the School grade variable did not show statistically significant difference in regard to the attachment levels to parents but when the mean ranks were taken into consideration, it was found that the parental attachment scores of the first graders were higher than the second and third graders. It was observed that there was a statistically significant difference in the level of school attachment depending on the grade level variable of high school students. According to this, in the first and third grades, the total scores of the school attachment were higher than the scores of the second grade. These results partially coincide with the findings of the research that school attachment decreases as the class level increases (Wei and Chen, 2010).

When the results of the relationship between the parent attachment and the school attachment were examined, a positive correlation was found between the total scores of parent attachment scale and the total scores of the adolescent school attachment scale. On the other hand, as the level of parent attachment increased, the level of students' school attachment also increased. Similar results were obtained in a study carried out by Özdemir and Koruklu (2013). According to this, attachment to parents and teachers is considered as a predictive indicator for the life satisfaction of adolescents, and attachment to the school plays an intermediary role between attachment to parent and life satisfaction.

Based on these results, it can be argued that school guidance services can strengthen school attachment if they develop programs for adolescents and their parents. It may also be considered that such programs may be a preventive factor in the risky behaviors of the students.

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The Relationship Between Cultural Intelligence and Work Performance of Malaysian Academic Librarians

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ABSTRACT

The nature of an academic librarian's job requires them to deal with people of different races and culture. Because of this reason, a librarian needs to be emotionally and culturally intelligent. Studies have shown that cultural intelligence plays a significant role in employee's performance. However, past studies have not examined the situations of cultural intelligence among librarians. To this effect, a study was undertaken with the aim of exploring the level of cultural intelligence among Malaysian academic librarians. In addition, it was also aimed at examining the effect of cultural intelligence on librarian's work performance. Cultural intelligence was operationalized as comprising four dimensions, namely, meta-cognitive, cognitive, motivation and behavior while work performance was operationalized as consisting two dimensions, namely, task performance and contextual performance. A survey research method was used and the data was collected using an on-line questionnaire. A total of 166 usable responses was collected and analyzed using the PLS-SEM technique. The results showed that the level of cultural intelligence of the academic librarians as reasonably high. It was also found that all the four dimensions of the cultural intelligences were a significant predictor of work performance. The findings of this study further add to the body of knowledge on the importance of cultural intelligence in promoting work performance. Given the findings, it is crucial that cultural intelligence trainings should be integrated into the librarians' development programs.

INTRODUCTION

The library is considered the backbone of any universities of higher learning institutions. Besides supporting the teaching and learning activities, the main role and contribution of the library is to serve the students and researchers in their research and publications. However, the library will not function properly if the people who manage the library, simply known as the academic librarians (AL), are not equipped with the appropriate skills and competencies. To be an effective and competent AL, two sets of competencies is required, the professional competencies and the personal competencies. Professional competencies relate to the AL's "knowledge of information resources, access, technology and management, and the ability to use this knowledge as a basis for providing the highest quality information services" (SLA, 2014). In contrast, personal competencies represent a set of attitudes, skills and values that enable AL to work effectively and contribute positively to their organizations, clients and profession and these competencies range from being strong communicators, to demonstrating the value-add of their contributions, to remaining flexible and positive in an ever-changing environment (SLA, 2014).

The nature of the AL's job requires them to serve users of different ranks, races and culture. In a multi-racial country like Malaysia, the students, the teaching faculty as well as the working colleague of the AL are also multiracial, dominated by the Malays, Chinese, Indian, Iban, Kadazan and other ethnics. The international students who mainly come from Middle East and African countries adds more diversity of this already diversified library users of different races and nationalities. This situation necessitates the need of a new set of competency known as Cultural Intelligence (CQ). Kodwani (2012) stated that CQ is a "new complementary form of intelligence, which explains variability in coping and functioning with culturally diverse situation". Thomas & Inkson (2004) defined CQ as "being skilled and flexible about understanding culture, learning more about a culture from an individual's interactions with it, gradually reshaping how an individual thinks about culture to be more sympathetic, and changing how an individual behaves to be more appropriate during cross

cultural interactions”. In contrast, Earley & Ang (2003) defined CQ as “capability of an individual to function effectively in situations characterized by cultural diversity”.

Studies have shown that CQ plays a significant role in employee’s performance. However, past studies have not examined the situations of CQ among AL. Against this background, a study was undertaken with the aim of exploring the level of CQ among Malaysian AL. In addition, it was also aimed at examining the effect of cultural intelligence on librarian’s work performance.

LITERATURE REVIEW & THEORETICAL FRAMEWORK

Measuring the work performance of an employee is one of the most researched topics in organizational research. Various models and framework have been developed and proposed by researchers for assessing the employee work performance. According to Koopmans (2014), “individual work performance is one of the key indicators for team and company performance, and consequently, it contributes to the productivity and competitive ability of companies”. Accordingly, the author developed an assessment model of work performance which comprises four components, namely, task performance, contextual performance, adaptive performance, and counter-productive performance. Task performance is defined as the proficiency with which an employee performs central job tasks (Campbel, 1990). Contextual is defined as employee behaviors that support the organizational, social, and psychological environment in which the central job tasks are performed (Borman & Motowidlo, 1993). Adaptive performance, is defined as an employee’s proficiency in adapting to changes in work roles or environment (Griffin, Neal & Parker, 2007). Counterproductive work behavior, is defined as the behavior that is harmful to the well-being of the organization (Rotundo & Sackett, 2002).

Along with the development of models or framework for assessing employee work performance, researcher also identified the corresponding determinants or predictors, which can be generally grouped individual factors, organizational factors and external factors. Individual factors are concerned with the individual traits such as gender, age, length of service, skills and competencies. Organizational factors are normally related to the work setting such as organizational process and working procedure, technological infrastructure, supervisor’s influence, working conditions and etc. External factors are those influences coming from external sources such as clients or customers, suppliers and competitors. Depending on the type of job or designation, the magnitude of effect or impact of the aforementioned factors on work performance may vary. However, at the individual level, the individual factors or traits are always found to be the strongest predictors of and individual work performance. CQ is one of the many individual traits that is found to have bearing on individual work performance.

Earley & Ang (2003) identified the dimensions of CQ as meta-cognitive, cognitive, motivation and behaviour. Metacognitive CQ is an individual’s cultural consciousness and awareness during interactions with others from different cultural backgrounds. Cognitive CQ is an individual’s cultural knowledge of norms, practices, and conventions in different cultural settings. Motivational CQ is an individual’s capability to direct attention and energy toward cultural differences. Behavioral CQ is an individual’s capability to exhibit appropriate verbal and nonverbal actions during interactions with others from different cultural background. Past studies examining the effect of CQ on work performance have provided an interesting result. Lee & Sukoco (2010) studied CQ and work performance of expatriate working in multinational companies in Taiwan. The result of the study suggests reveal that the positive effect of CQ needs to be mediated by cultural adjustment and cultural effectiveness before affecting expatriate performance. In another study, Isfahani, Jooeghami & Azar (2013) found that all the four dimensions of CQ as identified by Earley & Ang (2003) were a significant predictors of work performance of 200 employees working in various business department. Nafei (2013) examined CQ and job performance of employees working in hospitals in the Kingdom of Saudi Arabia. The findings also showed that the former is a significant predictor of the latter. Rafie, Khosravi & Nasiri (2016) explored CQ and its effect on listening ability among students in Iran. Adopting the correlational analysis, the results revealed that there exists a statistically significant relationship between EFL learners’ CQ and their performance on IELTS Listening Module. Jyoti & Kour (2015) investigated CQ and task performance of managers working in nationalized banks in India. The results also confirmed that CQ is a significant predictor of task performance.

Figure 1 presents the theoretical framework of the study. Drawing upon the work of Earley & Ang (2003), CQ is divided into four components which are metacognitive, cognitive, motivation and behaviour. Adapting the work of Koopmans (2014), work performance is divided into task performance and contextual performance. Based on the finding of previous studies (i.e. Isfahani, Jooeghami & Azar, 2013; Nafei, 2013; Jyoti & Kour, 2015; Rafie, Khosravi & Nasiri, 2016) the CQ of the academic librarians will have a significant relationship with work

performance. Given the nature of work of the academic librarians that requires them to deal with different people of different rank and races, the need to have a strong level of CQ is very apparent. As their CQ level increases, the researchers also argue that their work performance will also increase sparingly. A librarian who has a strong command of CQ, will be able to deliver their job with great efficiency and effectiveness. On the basis of this justification, we hypothesized that CQ is a significant predictor of work performance. The details of the hypotheses are presented in Table 1.

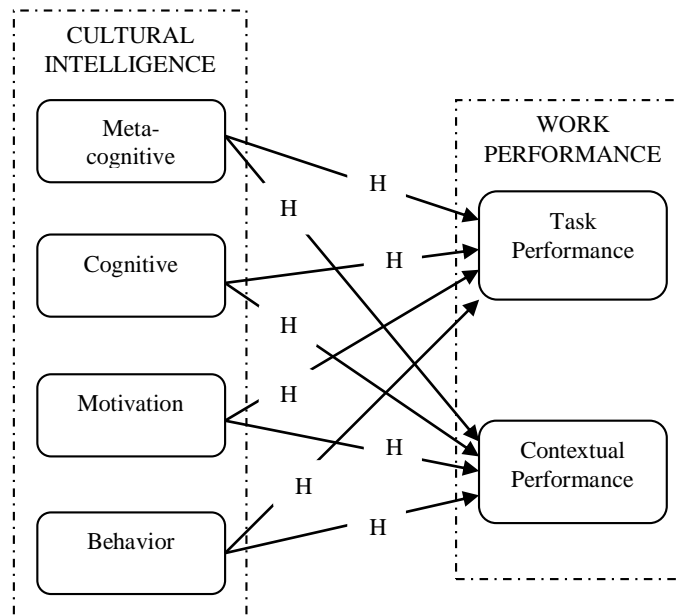


Figure 1: Theoretical Framework

Table 1: Variables, operational definition & hypothesis

Variables	Operational Definition	Hypothesis
Task Performance	The proficiency with which an employee performs central job tasks (Campbel, 1990)	Not applicable
Contextual Performance	The employee behaviors that support the organizational, social, and psychological environment in which the central job tasks are performed (Borman & Motowidlo, 1993)	
Meta Cognitive	Individual's cultural consciousness and awareness during interactions with others from different cultural backgrounds (Early & Ang, 2003)	H1: Meta cognitive significantly predicts task performance H2: Meta Cognitive significantly predicts contextual performance
Cognitive	An individual's cultural knowledge of norms, practices, and conventions in different cultural settings (Early & Ang, 2003)	H3: Cognitive significantly predicts task performance H4: Cognitive significantly predicts contextual performance
Motivation	an individual's capability to direct attention and energy toward cultural differences (Early & Ang, 2003)	H5: Motivation significantly predicts task performance H6: Motivation significantly predicts contextual performance
Behavior	An individual's capability to exhibit appropriate verbal and nonverbal actions during interactions with others from different cultural background (Early & Ang, 2003)	H7: Behavior significantly predicts task performance H8: Behavior significantly predicts contextual performance

RESEARCH METHODOLOGY

Following Noordin & Masrek (2016), this study used survey research methodology. A survey research methodology is a quantitative research approach that is mainly used for research that tests hypotheses. In this study, several hypotheses were developed and to be tested with the collected research data. The population of the study was academic librarians working in Malaysian university. As of December 2016, the total population was 600. Using the convenient sampling technique, an email was sent to targeted respondents. A total of 400 emails were sent out. Friendly reminders were again sent to the targeted respondents every two weeks following the first invitation emails. After two months, a total of 183 responses were received, equivalent to 45.75%. However, upon further scrutiny, 16 responses had to be eliminated because more than 50% questions were not answered, hence, leaving 166 for further analysis.

The questionnaire used in the study was developed based on the validated instrument used in past studies. However, to ensure that validity and reliability requirements are strictly met, the questionnaire was pre-tested with several librarians and fellow researchers. The outcome of the pre-test showed that no serious issues or problems which needed appropriate revisions. Following the pre-test exercise, a pilot test was conducted. A total of 25 postgraduate students as well as academic librarians were engaged in the pilot test. Using SPSS version 22.0, a reliability analysis was executed and the results ranged between 0.613 and 0.789. This result indicated that the questionnaire was acceptably reliable to be used in the actual study.

Besides SPSS Version 22.0, this study also used another called Smart-PLS Version 3.0 (Ringle et al, 2015) for running the PLS structural equation modeling (SEM). SEM analysis involves two-stage analysis, the assessment of measurement model, followed by the assessment of the structural model. The assessment of measurement model will assess the factor loading of items, the convergent validity of items measuring construct and the discriminant validity distinguishing all constructs. The cut of value of the factor loading should be above 0.7 while for convergent validity, the criteria used was composite reliability and average variance extracted, which should be above 0.8 and 0.5 respectively. Discriminant validity is normally assumed when the square root of the AVE of the construct is less than the correlation value amongst construct. Before proceeding to the structural model assessment, it is imperative to assess the model fit. The criteria used for assessing model fit are Standardized Root Mean Square Root Residual (SRMR) and Normed Fit Index (NFI). The recommended value for SRMR should be less than 0.08 while for NFI the value should be more than 0.90.

FINDINGS

4.1 Assessment of Common Method Bias

In any research that uses single sources of data (i.e. single respondent answering all question in the questionnaire), the threat of common method bias is quite possible. Following Podsakoff et al. (2003), this study examined the possibility of this threats using Harman single factor test. The result showed that, when all items constrained to a single factor, the total variance explained was 43.1%, less than the cut-off value of 50% as suggested by Harman (1960). Given the result, it can be argued the data obtained from the study was free from common method bias.

4.2 Demographic Profiles of Respondents

Four demographic information were collected in the questionnaire. In terms of gender the majority was female (71.7%). Age group of 31 and 35 was the majority (43.4%) while the smallest was age group of 51 and 55 (3.8%). In the Malaysian academic librarian position scheme, the ranking is categorized into S41, S44, S48, S52, S54 and JUSA. The S41 is the junior level while senior levels are at the level of S54 and JUSA. The S54 or JUSA level is normally dedicated to the chief librarian post. In this study, the majority of the respondents indicated that they were at the S41 level (45.8%). In terms of length of service, the majority of respondents (35.5%) responded that they had work between 7 and 9 years.

4.3 Assessment of Measurement Model

Table 2 showcases the results of the assessment of the measurement model. The corresponding SmartPLS output is shown at Figure 2. As discussed in the previous section, all the criteria for assessment were fully fulfilled. The factor loading for all items was well above 0.7, the composite reliability for all construct was well above 0.7 and the AVE also surpassed 0.5. On the basis of this result, convergent validity can be assumed.

Table 2: Assessment of Measurement Model

	Items	Factor Loading	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Contextual Performance	CP1	0.839	0.749	0.75	0.857	0.667
	CP2	0.772				
	CP3	0.838				
Meta Cognitive	MET1	0.814	0.783	0.79	0.86	0.608
	MET2	0.854				
	MET3	0.714				
	MET4	0.728				
Cognitive	CO1	0.707	0.799	0.802	0.862	0.555
	CO2	0.779				
	CO3	0.746				
	CO4	0.753				
	CO5	0.738				
Task Performance	TP1	0.822	0.816	0.822	0.878	0.644
	TP2	0.764				
	TP3	0.777				
	TP4	0.844				
Motivation	MO1	0.778	0.821	0.824	0.875	0.584
	MO2	0.726				
	MO3	0.748				
	MO4	0.749				
	MO5	0.817				
Behavior	BE1	0.705	0.822	0.838	0.874	0.581
	BE2	0.735				
	BE3	0.743				
	BE4	0.817				
	BE5	0.805				

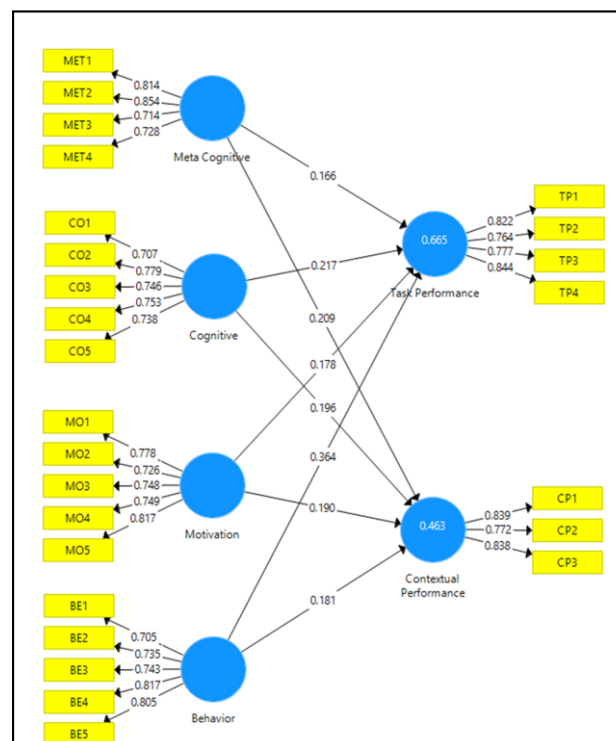


Table 2 presents the results of the assessment of discriminant validity. The bold and italicized numbers are the square root of the AVE of the construct. These values are well above the correlation values among constructs and this implied that discriminant validity was not an issue to be concerned with.

Table 2: Assessment of Discriminant Validity

	Behavior	Cognitive	Contextual Performance	Meta Cognitive	Motivation	Task Performance
Behavior	0.762					
Cognitive	0.677	0.745				
Contextual Performance	0.591	0.600	0.817			
Meta Cognitive	0.668	0.699	0.593	0.780		
Motivation	0.722	0.713	0.599	0.662	0.764	
Task Performance	0.750	0.707	0.730	0.678	0.706	0.802

The SRMR is defined as the difference between observed correlation and the model implied correlation. The RMR for saturated model is 0.068 while for the estimated model is 0.071. These values are less than the cutoff value of 0.08 which implied that the estimated model is fit, measured from the SRMR criteria. However, the NMI was 0.742 for saturated model and 0.732 for estimated model. These did not meet the fit criteria and the possible reason could be that the sample size of this study was relatively small. NFI is sensitive to sample size and a small sample just like in this study will have impact on the score.

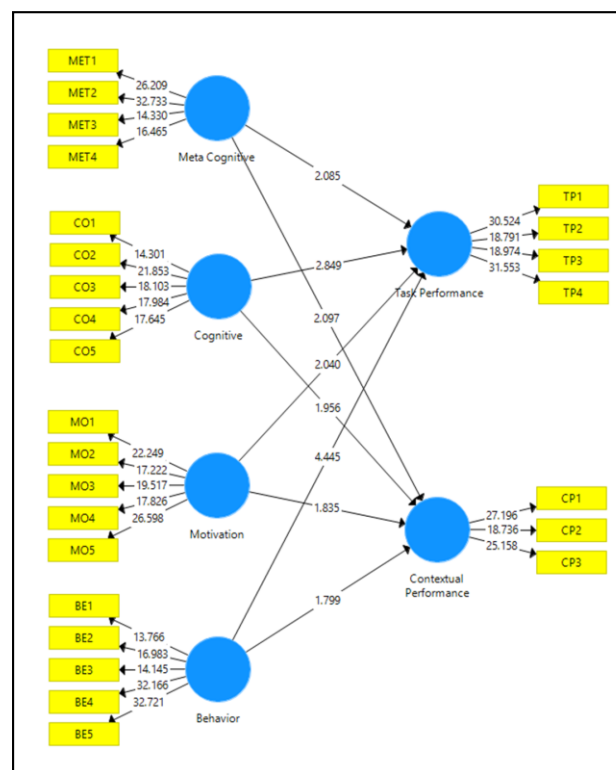


Figure 3.0 SmartPLS output of the Structural Model

4.3 Assessment of the Structural Model

The results on the assessment of the structural model showed that the R^2 values of task performance (0.665) and contextual performance (0.463) can be considered substantial. As shown in Table 3, all the four components of CQ have predicting effect on the two components of work performance. In terms of relative importance in predicting task performance, behavior (0.364) is the strongest predictor, followed by cognitive (0.217), motivation (0.178) and meta cognitive (0.166). For contextual performance, it was meta cognitive (0.209) that has strongest effect, followed by cognitive (0.196), motivation (0.190) and behavior (0.181).

Table 3: Path Coefficients

		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision on Hypothesis
H1	Meta Cognitive → Task Performance	0.166	0.171	0.079	2.085	0.019	Accept H1
H2	Meta Cognitive → Contextual Performance	0.209	0.213	0.100	2.097	0.018	Accept H2
H3	Cognitive → Task Performance	0.217	0.214	0.076	2.849	0.002	Accept H3
H4	Cognitive → Contextual Performance	0.196	0.193	0.100	1.956	0.025	Accept H4
H5	Motivation → Task Performance	0.178	0.177	0.087	2.040	0.021	Accept H5
H6	Motivation → Contextual Performance	0.190	0.184	0.104	1.835	0.033	Accept H6
H7	Behavior → Task Performance	0.364	0.364	0.082	4.445	0.000	Accept H7
H8	Behavior → Contextual Performance	0.181	0.186	0.101	1.799	0.036	Accept H8

Table 4 presents the outcome of the confidence interval bias and construct cross validated redundancy of the assessment of the structural model. As shown in the table, 0 does not straddle in between the confidence intervals bias results, hence suggesting that there is a significant result. Using the blindfolding procedure, the predictive relevance of the model was assessed. The predictive relevance Q^2 of contextual performance has a value of 0.283 and task performance has a value of 0.395, indicating that the model has a predictive relevance.

Table 4: Confidence Interval Bias

	Original Sample (O)	Sample Mean (M)	5.00%	95.00%	Q^2
Contextual Performance	0.463	0.482	0.376	0.589	0.283
Task Performance	0.665	0.679	0.609	0.745	0.395

To assess the relative impact of a predictor construct on an endogenous construct, the effect size (f^2) was examined. Cohen (1988) stated that substantial effect size happens when f^2 is 0,35 or greater. As shown in Table 5, except for one, effect size was small for all predictor variables. The behavior construct was found to have medium effect size (0.156) in producing R^2 for task performance.

Table 5: Assessment of Effect Size (f^2)

	Contextual Performance	Task Performance
Behavior	0.024	0.156
Cognitive	0.027	0.054
Meta Cognitive	0.035	0.035
Motivation	0.025	0.035

DISCUSSION

This paper discusses how CQ increases work performance of academic librarian working in Malaysian public university libraries. The study highlights, the importance of CQ in enhancing the librarian work performance. The results reveal that CQ is an important predictor of work performance and thus corroborates the findings of previous studies (Isfahani, Jooeghami & Azar, 2013; Nafei, 2013; Jyoti & Kour, 2015; Rafie, Khosravi & Nasiri, 2016).

According to Crawford (2012) AL perform a variety of functions in the academy that comprise aspects of research, instruction, and service and require networking and influence in a variety of physical and virtual spaces. ALA (2016) describes that AL need to be responsive and this requires them to determine the situational

context of the individual information needs of users when interacting with each user in person or through another communication channel. In addition, AL must also engage users in discussions about experiences related to their information needs and communicates interest in every user's experiences. ALA (2016) also explains that AL is a disseminator of knowledge and this requires them to teach classes in areas of expertise, prepares presentations in areas of expertise; discusses issues with colleagues; mentors colleagues through listening, coaching, and serving as a role model; and participates in professional discussions through meetings, videoconferences, mail lists via email and other available communication methods and forums.

ALA (2016) also highlights that AL should conduct research to determine what types of reference services to provide and to what types of users these services will be provided. This requires them to conduct surveys, within and beyond the library building, to address the needs of users in the area of reference services; conduct focus groups to meet and interact with users and to discuss and gather information about users' information needs; consults with other libraries to network and brainstorm concerning the programs and services that are provided in the area of reference; and meets with community leaders to bridge the gap between the library reference service and the individuals and groups that make up the community that the service addresses. Additionally, ALA (2016) also highlights that AL should effectively communicate the nature of the reference and information services that are provided to users being served. One of the strategies for this task is by engaging users through lectures, programs, tours, school visits, departmental addresses, and press conferences to promote the reference services offered.

AL are also expected to consistently and systematically assess the effectiveness of the marketing of reference and information services (ALA, 2016). This can be done through in-house meetings and training sessions to gather feedback from reference librarians regarding the success of the reference services being provided and products being offered and engaging users in focus groups, surveys, and feedback forms as a user follow up for reaction and perception of reference services. In terms of relationship, AL are also expected to work closely with colleagues to provide quality service to users; develop collaborative relationships within the profession to improve service to users; cultivate and maintain partnerships beyond the library and the profession to strengthen services to users (ALA, 2016).

It is quite apparent that all of the aforementioned tasks and activities require them to apply CQ. This is because, as stated earlier, the users as well as the colleague whom they will be dealing with, are of different races and cultures and thus, their needs and preferences are diversified. AL who is ill-equipped with CQ will not be able to effectively and efficiently perform all of these tasks.

CONCLUSION

The information and communication technology revolution has caused academic libraries and the profession of academic librarianship to change and will continue changing in many respects. These changes are directly and indirectly impacted the competencies needed by the AL. As shown in this study, CQ is another form of competency that is highly needed by the AL. CQ is essential in increasing the AL's work performance. Given the findings of the study, training focusing on enhancing the AL's CQ should be continuously conducted. As for universities or higher learning institution providing academic programs on librarianship, this finding should alert them on the importance of revising the curriculum so that CQ is also embedded or integrated into the teaching syllabus. From the research perspective, this research has developed an empirical based framework connecting CQ and work performance in the context of AL. This framework can be further validated in other settings involving other types of librarians.

The limitation of this study is in terms of the research design and methodology. While the researchers had tried their level best to collect the sufficient number of samples, the total sample involved was still considered low. Due to this, the finding of this study may not be possible to be generalized to all AL working in Malaysian academic libraries. Secondly, the data obtained through questionnaire may not be as rich or as in-depth as the data obtained through interview. It would be more enriching if future study can complement the data collection technique with a face-to-face interview or focus group session.

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The Relationship Between Preconception and Mental Effort of the Learners Learning With Constructivist Web-Based Learning Environments

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ABSTRACT

This research was aimed at studying students' preconception in learning with Constructivist web-based learning environments, mental effort invested while learning, and relationships between preconception and the mental effort invested. The target group consisted of undergraduate students majoring in Secondary education of Faculty of Education, Khon Kaen University registered in the course 212300 Instructional media during the first semester of 2004. The results revealed as following: (1) Preconception of the students learning with the Constructivist web-based learning environments was at a high level in all of the 4 aspects, especially the expectation. (2) Self-report of the mental effort invested of the learners showed a high level for 3 aspects, especially learners' mental effort to understand while learning with the learning environments. (3) Relationship between preconception of the students in their preference to learn with the Constructivist learning environments and self-report in the mental effort invested while learning with the learning environments was significant at 0.5 level. There was no relationship between preconception of difficulty, expectation, and curiosity with self-report on other mental effort invested, namely, intention and cognitive load while learning with the Constructivist learning environments.

Keywords - Preconception, Constructivist web-based learning environments, Mental effort

INTRODUCTION

After the B.E.2542 National Education Act was enforced, changes of methods have been seen in the teaching and learning at the tertiary level. The former principles were based on the consumer society rather than the productive society (Sinlarat, 2000), forcing Thai people to accept foreign trends all the time. Changes of information sources and knowledge in society caused a shift from teachers to multiple information and technologies. Thus, instruction has to be modified to meet with the new learning paradigm so that university graduates will be able to inquire knowledge by themselves and use technology to the fullest extent to acquire knowledge. Graduates should also be able to criticize, analyze, construct knowledge, and appropriately present their ideas. Important strategies are necessary in developing the required traits for the knowledge-based society according to the 1999 National Education Act, which states that learners are entitled to develop their potential in the use of technology for continuous and life-long knowledge inquiry. It can be seen that the National Education Act 1999 in this respect correlates to the Constructivist theory which supports the learners' construction of knowledge on their own. The notion also coincides with the change of knowledge construction paradigm through cognitive processes that enhance learning and emphasize knowledge construction by thinking process. Former schema is connected with new knowledge and the cognitive structure enlarge. Teachers are not able to alter learners' cognitive structure, but they are able to help learners enlarge their cognitive structure by providing the learning environments that enhance knowledge construction by integrating both the principles and attributions of media and technologies (Chaijaroen, 2004).

It can be seen that web-base has become an innovation in education with characteristics that can serve to the new concept of knowledge construction of learners and collaborative learning. Web-base meet our needs in terms of their attributions and media symbol system through information and hypertext presentation. They are composed of information in major and minor nodes which are interconnected and called hyperlink. They efficiently help learners connect and support for their prior knowledge, and the connection can be made worldwide through web-based networks. Hence, learners have access to worldwide learning sources. The advantages of communication where

learners and the teacher can interact effectively enhance learners' thinking (Chaijaroen, 2004). Additionally, research on utilization of instructional media suggests that media attribution and learners' traits affect learning (Cennamo, 1993). Clark (1983, 1994) suggests that research should be conducted on attributions of media and belief of learners in media. Previous research showed that belief and expectation on media have impact on learners' motivation. An important variable is learners' preconception towards media. With these reasons, our study was on learners' preconception on media and their mental effort invested. The evidence and findings would be implemented in development of learners' cognitive processes that would in turn increase the efficiency of learning and hence future approaches for instruction at the tertiary level.

CONCEPT AND THEORIES

In this respect, the notion of student-centered approach has come into consideration. Instruction that meets the reform of education should accent knowledge construction by learners themselves with these following learning theories: Cognitivism and Constructivism. Appropriate media attributions, web base are also incorporated and designed as learning environments that enhance knowledge construction

Research on the use of media in teaching had suggested that media attribute and learners' characteristic would influence learning (Clark and Salomon, 1986). Clark (1983, 1994) proposed that future researches should begin by investigating variables that are connected with the attributions or beliefs on media. Preconceptions were seen as the most dominating factor from such variables. Several researchers have suggested that the learners' preconceptions of media are an influential factor in achievement (Salomon, 1983; (Salomon and Light, 1984; Krendl and Watkins, 1983; Krendl, 1986). In addition, the learners' beliefs and expectations influenced their motivation to learn. Cognitive theory assumes that motivation influence either engagement in task or the amount and quality of effort invested which in turn is presumed to affect learning. Prior research showed that the preconceptions affect mental effort invested (Cennamo, 1991) and achievement scores (Salomon, 1984; Cennamo, 1993). In addition, the research also indicated that the learners' preconceptions might be influenced by the characteristics of medium, the perceived task and past experience. Therefore, this study aimed to examine the relationship between four dimensions of the learners' preconceptions such as, preference, difficulty, learning expectancy and curiosity toward Constructivism web-based learning environments with the amount of mental effort invested.

RESEARCH PURPOSES

- 1) To explore the learners' preconception of Constructivism web-based learning environments.
- 2) To explore the learners' mental effort invested while learning with Constructivism web-based learning environments.
- 3) To examine the relationship between preconception and mental effort while learning with Constructivism web-based learning environments.

TARGET GROUP

The target group consisted of 11 undergraduate students majoring in Secondary education of the Faculty of Education, Khon Kaen University registered in the course 212300 Instructional media during the first semester of 2004.

RESEARCH VARIABLES

The independent variable in this research was instruction of the course 212300 Instructional media, with the Constructivist web-based learning environments. The dependent variables consisted of: (1) Students' preconception in the Constructivist learning environments of the course 212300 Instructional media, with Constructivist web-based learning environments. (2) Students' mental effort invested while learning the course 212300 Instructional media, with the Constructivist web-based learning environments. (3) The relationship between preconception and mental effort invested while learning with the Constructivist web-based learning environments.

RESEARCH INSTRUMENTS

- 1) The experimental instrument was the Constructivist web-based learning environments of the course 212300 Instructional media designed and developed as follows: The Constructivist web-based learning environments were designed and developed from document analysis and synthesized into the designing framework. The concept and principle of Constructivism was employed as the design basis, integrated with web-based learning where media attribution and media symbol system was taken into account. Major principles of Constructivism including Cognitive Constructivism and Social Constructivism were taken into consideration when designing the web-based learning

environments. Following were the main components: (1) problem bases, (2) learning resources, (3) discovery learning, (4) scaffolding, (5) collaborative learning, (6) coaching. The efficiency was found as following details (Chaijaroen, 2003).

- a) Assessment of product – This involved evaluation of the quality of the Constructivist web-based learning environments by experts in the fields of content, Constructivism-based design, web-based design, and evaluation. The researchers then improved the Constructivist learning environments according to the experts' suggestions.
- b) Assessment of the utilization context – In order to determine appropriate and efficient context for the use of Constructivist web-based learning environments. The researchers studied the contexts related to the most efficient number of members in a group for collaborative problem solving on the Constructivist web-based learning environments. The result showed that there should be 3 members per group to obtain maximal efficiency of collaboration in problem solving and in learning process.
- c) Assessment of opinions of students toward the Constructivist web-based learning environments – using the opinionnaire and interview conducted in three dimensions: quality of web-based design, contents, and instructional design based on Constructivism. The findings showed that students thought that learning with the Constructivist web-based learning environments provided opportunity for them to inquire and construct the knowledge on their own. In addition, certain findings led to improvements, for example, the screen design or some interactions that had been complicated, etc.
- d) Evaluation of students' cognitive ability – In this study, the researchers examined the students' mental model while learning with the Constructivist web-based learning environments. It was found students' mental model in declarative knowledge. Their cognitive structure falls into 3 levels: complex, general, and abstract; which could be a conceptual model, plan or script, or a causal model. The procedural knowledge was constructed through action.

2) Data collection instruments

- a) Questionnaire asking information on students' preconception of Constructivist web-based learning environments. The questionnaire was 5 rating scale based on Cennamo's (1993) study comprising as following: (1) difficulty in learning, (2) preference of learning, (3) expectation in learning, and (4) curiosity for learning.
- b) An self-report form for the mental effort invested while learning with the Constructivist web-based learning environments. This was 5 rating-scale self-report, of Cennamo's (1993), which included 3 aspects: (1) intention while learning, (2) cognitive load used while learning, and (3) mental effort invested for understanding.

DATA COLLECTION

Data were collected as following: (1) The students' preconception questionnaire on the Constructivist web-based learning environments were administered two week before the experiment. (2) Students learned the course 212300 Instructional media with the Constructivist web-based learning environments. Students were divided into small groups of 3 persons and learned about the types of media and educational innovations. The lessons started with the teacher introducing each lesson by linking with students' prior knowledge on the topic so that they would interconnect their cognitive structure with the new knowledge. The students: 1) studied the problem base and 2) analyzed the situation and collaboratively found a means to solve the problem within their groups. They searched and inquired data from information sources provided on the Constructivist web-based resources and others. They were able to ask and exchange their idea or experiences with their teacher, teaching assistant and experts. They could also ask or study other groups' posts on the web board. These were the approaches used in linking nodes of knowledge that led to solution for their group and enlargement of perspectives. 3) When students found the answer or conclusion for their group, they typed their answers on the web board. An expert then checked the answer. Students could be encouraged to think, find a means to solution, or expand their thinking. If any group misunderstood, or misconception they could be advised until they formed accurate concept. Students were able to contact and ask other students, the teacher or experts all the time, both in the class or out of class by web-board or e-mail. 4) Students, the teacher, the teaching assistant drew conclusion together after each group presented their solutions. The teacher and teaching assistant acted like a coach pointing at the learning concepts and encouraged students to articulate the knowledge or their opinions. They instructed students when the latter had problems and framed students' experiences in terms of contents and thinking all through the learning steps. (3) After the lessons, students took an achievement test and answered the self-report on their mental effort invested while learning.

DATA ANALYSIS

1) Mental effort invested while learning with the Constructivist web-learning environments. The rating scale on students' mental effort completed by the students themselves were analyzed by using means (\bar{x}) and standard deviations (S.D.).

- 2) Preconception–The rating scales Preconception questionnaire were analyzed by using means (\bar{x}) and standard deviations (S.D.).
- 3) Relationships between preconception and mental effort were analyzed by using Pearson Correlation.

FINDINGS

The study of students' preconception, mental effort while learning, and the relationships between preconception and mental effort invested in their learning with the Constructivist web-based learning environments showed the following results:

- a) Students' preconception on the Constructivist web-based learning environments. The questionnaire asking students' preconception was conducted before the lessons. The results were as follows:

TABLE I. Means, standard deviations and levels of students' preconception towards the Constructivist web-based learning environments

Lists of preconception towards the Constructivist web-based learning environments	Levels of opinions		
	\bar{x}	S.D.	Level
1) Difficulty to learn with the Constructivist web-based learning environments.	3.90	.30	High
2) Preference to learn with the Constructivist web-based learning environments.	4.18	.40	High
3) Expectation from learning with the Constructivist web-based learning environments.	4.27	.46	High
4) Curiosity to learn with the Constructivist web-based learning environments.	4.18	.60	High

Table 1. illustrated that the students' preconception of the Constructivist web-based learning environments was at a high level for all aspects, especially in their expectation that they would learn from the Constructivist web-based learning environments

- b) Students' mental effort invested while learning with the Constructivist web-based learning environment. The rating scale for students' self-report on their mental effort invested while learning was administered after the students completed their lessons with the Constructivist web-based learning environments. The result was shown in Table 2.

TABLE II. Means, standard deviations and levels of students' mental effort invested while learning with the Constructivist web-based learning environments

Lists of mental effort invested when learning with the Constructivist web-based learning environments	Self-report levels		
	\bar{x}	S.D.	Level
1) Intention to learn with the Constructivist web-based learning environments	3.63	0.50	High
2) Cognitive load used in learning with the Constructivist web-based learning environments	3.81	0.40	High
3) Mental effort invested for understanding from learning with the web-based learning environments	4.09	0.30	High

Table 2. Showed that the students evaluated themselves in terms of mental efforts invested for all of the 3 aspects at a high level, especially in mental efforts invested for understanding while learning with the Constructivist web-based learning environments

c) Relationships between the students' preconception and mental effort while learning Pearson Correlation was used to analyze the relationships between students' preconception and mental effort while learning with the Constructivist web-based learning environments. The results were shown in Table 3

Table III. Correlations between students' preconception and mental effort invested while learning with the Constructivist web-based learning environments.

List of Preconception	List of Mental effort		
	<i>Intention</i>	<i>Cognitive load</i>	<i>Mental effort invested</i>
1) Difficulty to learn with the Constructivist web-based learning environments	.41	-0.15	0.10
2) Preference to learn with the Constructivist web-based learning environments	-.13	0.22	0.67*
3) Expectation from learning with the Constructivist web-based learning environments	.04	0.29	-0.19
4) Curiosity to learn with the Constructivist web-based learning environments	-.90	0.15	-0.10

*Significance level = .05

The analysis shows, as can be seen in Table 3, that students' preconception related to preference to learn with the Constructivist web-based learning environments and their self-evaluation on mental effort invested to learn with the learning environments correlated significantly at .05. Preconception of difficulty, expectation, and curiosity did not show any correlation with self-evaluation in intention and cognitive load used while learning with the web-based learning environment.

DISCUSSION

The findings indicate the following: (1) Correlation with preconception and learning from the Constructivist web-based learning environments. The study of the effects of preconception on learning from the Constructivist web-based learning environments was conducted by surveying students' opinions before intervention. It was found that students' preconception was at high levels in all of the 4 items surveyed, namely: 1) difficulty to learn with the Constructivist web-based learning environments; 2) preference to learn with the Constructivist web-based learning environments; 3) expectation from learning with the Constructivist web-based learning environments; and 4) curiosity to learn with the Constructivist web-based learning environments. Students' expectation in particular, could be congruent with Chaijaroen Sumalee (Chaijaroen, 2003) found that Grade 5 students learning Thai language were eager to learn from web-based lessons on the computer. However, we found that Grade 9 students were eager to learn from the computer, but they expected that they would learn the best from their teacher. Krendl (1986) performed a study in the US and found that learners liked to learn from the computer most of all. It can be concluded from our study that students' preconception towards the Constructivist web-based learning environment was very difficult, but they still wanted to learn with this learning environments. They also expected that this learning environments would enable them to learn more. Their curiosity to learn from the Constructivist web-based learning environments was also high. Students might think that the Constructivist web-based learning environments is an innovation they had never learn with it before. They enjoyed and wanted to learn any content by using the computer, since it is challenging and new. This can be support by students' interview result as follows: Students said, "We are able to search new knowledge from many sources. There are also experts who encourage us to have access to new sources, enabling us to inquire more knowledge. Traditional learning is not the same, for we had to receive knowledge from the teacher." From the findings of research studies and evidences above, it is possible to support suggestions from educators like , Salomon (1983), Salomon and Light (1994), Krendl (1986) and Cennamo (1993) that preconception of students on instructional media has impact on learning achievement. They also stated that belief, preference, opinions on difficulty, curiosity, and expectations of students can lead to learning motivation. Motivation is accepted as a major item in learning. Moreover, Cognitivism states that motivation supports learning, quantity and quality of mental effort invested in learning, all of which affect learning and learning achievement Krendl (1986), Cennamo (1993), Clark (1994), Salomon (1983), Salomon and Light (1994), Krendl (1986), and Cennamo (1993) (2) Self-report on mental effort invested while learning with the Constructivist web-based learning environments and preconception of students on the learning environments. The study of students' self-report on mental efforts invested during the learning process that were based on the Constructivist web-based learning

environments showed that students invested their mental efforts at high levels for all of the three aspects, namely 1) intention to learn from the Constructivist web-based learning environments, 2) cognitive load used in learning, and 3) mental effort invested made to understand when learning with the Constructivist web-based learning environments, especially the last aspect.

Furthermore, this study found preconception of students related to their preference to learn with the Constructivist web-based learning environments correlated significantly at .05 level. Preconception of the difficulty, expectation, and curiosity was not found to correlate with the self-report on other mental effort invested, which included intention and cognitive load while learning with the Constructivist learning environments. Literature also showed that research work by Chaijaroen Sumalee (Chaijaroen, 2004) did not find correlation between students' preconception and difficulty level, expectation and curiosity when Grade 9 and Grade 11 students evaluated themselves on their mental effort invested. This study, however, found correlation between preconception and self-report on mental effort invested while learning with the Constructivist web-based learning environment.

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The Relationship Between Self-Compassion and Depression, Anxiety, Stress Levels of Hemodialysis Patients

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ABSTRACT Hemodialysis patients are more likely to have higher depression, anxiety and stress levels compared to healthy individuals. We conducted a research in order to see that whether self-compassion levels of patients affect this phenomenon. *Depression/Anxiety/Stress Scale (DASS)* and *Self-Compassion Scale* were applied to 142 hemodialysis patients. It is found that there is a negative relationship between DASS and *self-kindness, common humanity, and mindfulness* components of Self-Compassion Scale whereas *self-judgment, isolation and over-identification* components of Self-Compassion Scale correlate positively with DASS. Furthermore, present relationship between components of Self-Compassion Scale and DASS differs for gender, education and marital status of patients.

Keywords: *Hemodialysis, self-compassion, depression, anxiety, stress*

1. INTRODUCTION

There are approximately 70.000 dialysis patients in Turkey. It's well known that majority of them suffers from the adverse effects of the disease in their everyday lives along with both their education and private lives. Depression, anxiety, and stress symptoms are common for dialysis patients as for all chronic patients.

Self-compassion is a newly-emerging phenomenon in the field of psychology. Yet, studies concerning self-compassion increase gradually. Basically, self-compassion is related to individuals' easy-going and merciful attitudes towards themselves without judging after they experience challenging events. Furthermore, it is related to individuals' realization of their distress and sorrow and in the end, eventual acceptance of these unfavorable experiences as parts of human life (Neff, 2003).

Most of the studies about self-compassion focus on the relationship between self-compassion and DAS (depression/anxiety/stress). One of the recent researches indicated that as self-compassion levels of individuals increases with training, their depression/anxiety/stress levels reduce (Karakasidou & Stalikas, 2017). Another research conducted with a Turkish sample showed that there is a negative correlation between individuals' self-compassion scores and DAS scores (Özyeşil & Akbağ, 2013).

In this research, effects of self-compassion levels of hemodialysis patients on their mental status, and the changes due to the treatment process are studied. It is presumed that high levels of self-compassion may help hemodialysis patients to reduce their mental disturbance over the course of their treatments.

2. METHOD

2.1. Participants

142 hemodialysis patients (96 men and 46 women) from private clinics in Adana participated in the study. All patients who filled out the questionnaires are included in the study. Mean age of participants is 58 with the SD value of 14.35. Further demographic information about participants is presented in Table.1.

Table.1

Socio-demographic variables of hemodialysis patients in the study

		#	%
GENDER	Men	96	67,6
	Women	46	32,4
	TOTAL	142	100
EDUCATION	Illiterate/Elementary School	105	73,9
	Middle School or Above	37	26,1
	TOTAL	142	100
MARITAL STATUS	Married	113	79,6
	Single	13	9,2
	Divorced	4	2,8
	Widowed	12	8,5
	TOTAL	142	100
EMPLOYMENT STATUS	Employed	10	7
	Retired	94	66,2
	Housewife	38	26,8
	TOTAL	142	100
AGE	19-40	21	14,8
	41-60	47	33,1
	61-89	74	52,1
	TOTAL	142	100
HOUSE OWNERSHIP	Owner-Occupier	113	79,6
	Rented House Occupier	29	20,4
	TOTAL	142	100
INTERNET USAGE	User	52	36,6
	Not-User	90	63,4
	TOTAL	142	100

2.2. Assessment

2.2.1. Self-Compassion Scale

The Self-Compassion Scale is used to assess the self-compassion levels of patients. The scale contains 26 items that are scored on a five-point scale (range: *1=never* to *5=always*). Rating of the scale is assessed independently for each component. Moreover, it can be summed up to an overall self-compassion rate. Thus, Self-Compassion Scale assesses information about not only the components of self-compassion such as self-kindness, self-judgment, common humanity, isolation, mindfulness, over-identification but also self-compassion as a whole.

2.2.2. Depression/Anxiety/Stress Scale (DASS)

DASS consists of three factors named as Depression, Anxiety, and Stress. The scale contains 42 items that are scored on a four-point scale (range: *0=do not apply to me at all* to *3=applied to me very much*). The items are designed to rate depression, anxiety and stress independently.

2.3. Procedure

Self-Compassion Scale and DASS are given to patients individually. Patients are assessed during the time of treatment process.

3.RESULTS

There is a negative correlation between self-kindness, common humanity, mindfulness components of Self-Compassion Scale and depression/anxiety/stress separately whereas self-judgment, isolation, over-identification components of Self-Compassion Scale correlates positively with DASS (all $ps < .05$). Correlations are presented in Table.2.

Table.2

Correlations between depression, anxiety, stress and self-compassion

Self-compassion	Depression	Anxiety	Stress
Self-kindness	-,476**	-,470**	-,732**
Self-judgment	,479**	,397**	,427**
Common humanity	-,168*	-,246**	-,459**
Isolation	,370**	,224**	,186*
Mindfulness	-,183*	-,264**	-,500**
Over-identification	,416**	,419**	,554**

*** $p < .01$

** $p < .05$

Furthermore, present relationship between components of Self-Compassion Scale and DASS differs for gender, education and marital status of patients.

2.4. Gender differences

Independent samples t-test showed that men ($M = 10.90$, $SD = 3.23$) scored higher on common humanity component of Self-Compassion Scale than women ($M = 9.52$, $SD = 2.97$), $t(140) = 2.43$, $p = .16$. On the contrary, women ($M = 17.54$, $SD = 6.67$) feel more anxious than men ($M = 13.81$, $SD = 7.08$) according to DASS, $t(140) = -2.99$, $p = .003$.

2.5. Education level differences

There is a significant difference between patients who graduated from at least middle school and patients who took less education in self-judgment component of Self-Compassion Scale, $t(140) = 2.08$ and depression/anxiety/stress scales; $t(140) = 4.11$, $t(140) = 3.11$, $t(140) = 2.43$ respectively (all $p < .05$). Patients who had less education scored higher than patients graduated from at least middle school ($MD = 1.98$, $MD = 7.04$, $MD = 4.12$, $MD = 5$ respectively).

2.6. Marital status differences

There is a significant difference between married patients and other patients (single, divorced and widowed) in self-judgment component of Self-Compassion Scale, $t(140) = -1.97$, $p = .51$. Comparisons showed that married patients ($M = 9.86$, $SD = 4.91$) scored lower on self-judgment component than other patients ($M = 11.90$, $SD = 5.26$).

2.7. Internet usage

There is a significant difference between internet-user patients and patients who don't use internet in isolation component of Self-Compassion Scale, $t(140) = 3.07$, $p < .01$; and stress component of DASS, $t(140) = -2.30$, $p < .05$. Internet users feel more isolated than non-users ($MD = 1.44$) whereas they get stressed less than non-users ($MD = -4.34$).

4.DISCUSSION

The present study sets out to examine the relations between self-compassion and depression/anxiety/stress among hemodialysis patients. The aim of the study corresponds to one of the previous researches concerning different diseases. That research shows the relationship between self-compassion and resilience/stress in adults with spina bifida, (Hayter & Dorstyn, 2014).

The present theory indicates that self-kindness, common humanity, and mindfulness components of self-compassion may help patients with chronic diseases in order to produce more positive responses to the adverse effects due to bad experiences. Cross-sectional and experimental studies showed that there is a certain relationship between self-compassion and stress. As mentioned above, studies about self-compassion with patients suffer from chronic illnesses are limited. Nevertheless, studies conducted not only with non-clinical individuals but also with patients who get treatment for chronic diseases point out to the link between lower

stress and higher levels of positive components of self-compassion (Sirois & Rowse, 2016; Soysa & Wilcomb, 2013).

Correlational analysis based on the present study shows that self-kindness, common humanity, and mindfulness components of self-compassion are negatively correlated with depression, anxiety, and stress. On the other hand, further correlational analyses showed that self-judgment, isolation, and over-identification components of self-compassion correlate positively with DAS. These findings are consistent with the meta-analysis that shows self-compassion is a very explanatory phenomenon while one tries to understand mental health (MacBeth & Gumley, 2012).

Over and above, the present study indicates the differences in relationships between each component of self-compassion and DAS for men and women, among with people who have different educational background and marital status, in separate sections.

As a consequence, the proof of the link between positive components of self-compassion and psychological health may be a great guiding light for the authorities to develop training programs that would enhance one's self-kindness, common humanity, and mindfulness senses in order to cope with the feelings of depression, anxiety and stress which spring during treatment. Furthermore, these training programs should not only be applied to patients with chronic illnesses but also to physically healthy individuals in order to make them more ready for the struggles of daily life.

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The Relationship Between Stress, Stress Coping Strategies and Attention Deficit Symptoms in Young Adults

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ABSTRACT

The main purpose of the study is to examine the relationship between stress, stress coping strategies and attention deficit hyperactivity disorder symptoms among adults. Research was conducted with 221 students from Toros University Vocational High School; Justice, Child Development, Graphic Design, Construction Technology, Occupational Health and Safety and Logistics departments. According to research findings, the indication of attention deficit hyperactivity disorder of students varies depending on stress levels. However, there was no correlation between ADHD symptoms and stress coping strategies.

Keywords: Perceived stress, stress coping strategies, attention deficit hyperactivity disorder

INTRODUCTION

Stress, which is an indispensable fact of everyday life, is taken up in many scientific fields along with psychology. Since it is a subject of life, it has preserved its existence since history and is the subject of scientific studies.

While Selye treats stress as a physiological response to the body only in changing situations; According to Lazarus and Folkman (1984), stress is considered as a situation that occurs between the individual and the environment, where the resources of the individual are constrained and the state of well-being is in danger (Lazarus, 1993). In the light of definitions, the results of the factors that cause the individual to experience stress may sometimes be of a quality that will affect the whole life. These results are antagonized under various headings. The lack of attention is one of them. Attention deficit manifests itself in a number of obstacles in executive functions, including the difficulty of focusing on a subject, the inability to complete tasks assigned, the ability to initiate, sustain, suppress, prioritize, organize, and use strategies, such as limited attention span and distraction (Semerci ve Turgay, 2014).

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most important psychiatric problems of childhood with regards to family, school and society. The role of genetic factors in the formation of Attention Deficit Hyperactivity Disorder is accepted as 80-90%. It is defined as a disease that causes neurobiological disorders as a result of the combination of genetic characteristics and environmental biological agents (Ercan, 2015).

Additionally, it is anticipated that Attention Deficit and Hyperactivity Disorder are affecting 5-10% of children and 4% of adults worldwide (Kessler et al, 2010). In our country, this rate is 5% in children and 3-4% in adults (Semerci ve Turgay, 2014). Attention Deficit Hyperactivity Disorder features distraction, extreme mobility, impulsive behaviors and creates problems in the individual's social life, relationships, education and work life. Approximately 70-85% of children with impaired attention deficit hyperactivity has full of symptoms in their adulthood. Clinical observations and studies suggest that more than half of the cases of attention deficit hyperactivity disorder persist in adulthood. Behavior, mood and anxiety disorders, antisocial features and substance abuse, family conflicts, cognitive, psychosocial and academic functions are more common in adolescents without diagnosis and treatment (Öner ve Aysev, 2003).

Types of stress experienced by the individual, the social stresses that the individual may encounter under stress heading form the most frequently encountered psychosocial features; daily stresses, developmental stresses and life stress crisis. Daily stress is the stress that the individual faces in daily life, is limited to a short time, and does not affect the whole of life. Developmental events cause developmental stresses. The fact that children have

fixations during their developmental periods is the basis for further adversely affecting stresses that may arise in the coming years. Stresses created by the events that change the family structure and which will shape the life of the family and the individual are defined as the stresses of life crises (Baltaş, 2015). It is emphasized that impaired family structure, parental attitudes, parental problems and some psychosocial features such as being single or being first child are believed to be related to the emergence of ADHD in Attention Deficit Hyperactivity Disorder (ADHD) cases. Children staying in orphanages were found to be short and overactive due to long-term emotional deprivation. As a result of the adoption, the symptoms improved (Doğangün; Yavuz, 2011).

There are psychological, sociological, environmental and health related variables that are influenced by the individual who is constantly evaluating the changes that take place around him and his life. These variables shape the process of stressing the individual stress (Gök, 1995).

Excessive life stresses and ineffective ways of coping may also lead to display of attention deficit symptoms. These individuals may exhibit carelessness and may fail to use their abilities effectively in their everyday lives. By studying the relationship between stress level and usage of stress coping strategies and exhibition of ADHD symptoms, may give indications and suggestions of how to increase the quality of life of these individuals.

The purpose of the study was to examine the relationship between the degree of attention deficit hyperactivity display and stress levels and ways of coping with stress in junior college students.

METHOD

The sample of the study consists of 221 vocational junior college students, 57 % of whom are female (n=126) and 43 % of whom are male (n=95). The age range was 17 to 29 ($X = 20.96$, $S = 3.541$).

Assessment Instruments

Demographic Information Form: It was prepared by the researcher to determine the various demographic characteristics of the participants. Data on gender and age of the sample was collected through the demographic information form.

Perceived Stress Scale (PSS): This is a self-assessment scale designed to measure the stress level of individuals based on how they assess their stress level being unpredictable, uncontrollable and overloaded (Cohen, Kamarck and Mermelstein, 1983). Participants are asked to rank specific emotions or thoughts in past month from 1 (never) and 5 (very often). The scale's internal consistency coefficient (Cronbach's alpha) is .84. The test-retest reliability coefficient following two measurements conducted in two day span is .85. The Perceived Stress Scale (PSS) was adapted into Turkish by Bilge, Öğce, Genç ve Oran (2007). The internal consistency reliability of the scale is .81.

Stress Coping Styles Scale: This 66-item, 4-point Likert-type scale, was developed by Folkman and Lazarus (1985). As a result of abbreviations made by Şahin and Durak (1995), the scale was reduced to 30 items.

In three separate studies conducted by Şahin and Durak (1995), stress coping Cronbach Alpha internal consistency coefficients for the subscales "optimistic approach" between .49 and .68, for a "self-confident approach" between .62 and .80, between .64 and .73 for the "helpless approach" and between .47 and .72 for the "submissive approach" between .45 and .47 for "social support search".

Adult Attention Deficit Hyperactivity Disorder Self-Report Scale (ASRS): The scale was developed by the World Health Organization for the screening of ADHD (Kessler et al., 2010). Doğan et al. (2009) conducted Turkish validity and reliability studies. In the reliability analysis, the internal consistency of the scale was 0.88 (Cronbach alpha = 0.88). The Cronbach's alpha value calculated for the subscales was 0.82 for 'attention deficit' and 0.78 for 'hyperactivity / impulsivity'.

FINDINGS

1. In terms of Perceived Stress Scale, is there a significant difference between the Arithmetic Mean of the Adult Attention Deficit Hyperactivity Disorder Self-Report Scale (ASRS) scores?

Table 1. Relationship between stress level and attention deficit hyperactivity

		Attention Deficit					Hyperactivity/Impulsivity				
		n	\bar{X}	S	F	P	n	\bar{X}	S	F	P
Perceived Stress	1	41	10,49	.99			41	11,39	.94		
	2	139	12,24	.61	4,16	.01	139	13,50	.58	3,51	.03
	3	41	14,72	1,09			41	15,01	1,04		
Perceived Coping	1	44	14,23	1,05			44	14,76	1,00		
	2	119	12,74	.66	4.20	.01	119	13.05	0,63	2,08	.12
	3	58	10,48	.91			58	12,10	.86		

As seen on the Table 1 , there is a significant difference in attention deficit subscale scores according to arithmetic mean ($F = 4.16$, $p < .05$) in terms of perceived stress levels of students. In terms of perceived stress levels of students, hyperactivity subscale scores showed significant differences in arithmetic mean ($F = 3.51$, $p < .05$). For perceived coping levels of attention, attention deficit subscale scores showed significant differences according to arithmetic mean ($F = 4.20$, $p < .05$); On the other hand, the hyperactivity / impulsivity subscale scores of the students were not significantly different according to the arithmetic mean ($F = 2.08$, $p > .05$) in terms of perceived coping levels.

The Scheffe test was used to determine the difference in between perceived stress levels between the students according to their scores of attention deficit and hyperactivity / impulsivity scores.

According to this, it is seen that students with a low level of perceived stress , scores have lower arithmetic average of attention deficit subscale scores ($\bar{X}=10.49$), than students with high score of perceived stress scale ($\bar{X}=14,72$).

Therefore, the hyperactivity subscale scores of the students with a low level of perceived stress level scores are lower than the arithmetic mean ($\bar{X}= 11.39$) and the arithmetic mean of students with high perceived stress score ($\bar{X}= 15.01$).

Findings revealed that as Perceived Stress Scores increase Attention Deficit Scores also increases. As participants' Perceived Stress Scores increase, their Hyperactivity Scores increases .

2. Is there a significant difference between the Arithmetic Mean of the Adult Attention Deficit Hyperactivity Disorder Self-Report Scale (ASRS) scores in terms of the Stress Coping Strategies Scale levels?

2.1. Is there a significant difference between the level of Stress Coping Strategies Scale and Attention Deficit subscale?

Table 2. Relationship between stress coping styles and attention deficit subscale

		Attention Deficit		
		n	\bar{X}	S
Self Confidence Approach	1	24	10,49	1,48
	2	165	12,02	0,94
	3	32	9,61	1,29
Helpless Approach	1	25	8,85	1,39
	2	159	10,65	0,96
	3	37	12,61	1,25
Submissive Approach	1	29	10,36	1,33
	2	160	11,11	0,85
	3	32	10,65	1,34
Optimistic Approach	1	30	11,04	1,35
	2	155	11,39	0,90
	3	36	9,77	1,30
Social Support	1	41	10,33	1,18
	2	152	10,85	0,84
	3	28	10,93	1,37

As seen in Table 2 , the arithmetic mean of the students with the mean of the subscale of self-confident approach subscale ($\bar{X} = 10,49$), arithmetic mean of those at the highest level ($\bar{X} = 9,61$); The arithmetic mean of the students who are at the lower level of the average scores of the helpless approach subscale ($\bar{X} = 8,85$), The arithmetic mean of those at the highest level ($\bar{X} = 12,61$); The submissive approach subscale mean scores of the students at the lower level ($\bar{X} = 10,36$), The arithmetic mean of those at the highest level ($\bar{X} = 10,65$); The arithmetic mean of the students whose mean scores of the optimistic approach subscale scores were lower ($\bar{X} = 11,04$), The arithmetic mean of those at the highest level ($\bar{X} = 9,77$); The arithmetic mean of the students who are in the lower level of the social support subscale point averages ($\bar{X} = 10,33$), Arithmetic mean of the highest level ($\bar{X} = 10,93$).

Table 3. Analysis of stress coping styles and attention deficit subscale variance analysis

Source of Variance	Sum of Squares		Squares Average	F	p
Self Confidence Approach	150,16	2	75,08	1,83	.16
Helpless Approach	176,91	2	88,45	2,15	.11
Submissive Approach	16,26	2	8,13	.19	.82
Optimistic Approach	57,45	2	28,72	.70	.49
Social Support	9,27	2	4,63	.11	.89
Error	8610,62	210	41,00		
Total	42139,00	221			

As seen in Table3, there is no significant difference between attention deficit scores and arithmetic mean scores ($F = 1.83, p > .05$) in the subscales of stressor coping style. There was no significant difference between attention deficit scores and arithmetic mean scores according to the desperate approach levels ($F = 2.15, p > .05$); There was no significant difference between attention deficit scores and arithmetic mean scores according to the submissive approach levels ($F = .19, p > .05$); There was no significant difference between attention deficit mean scores and arithmetic mean scores according to the optimistic approach levels ($F = .70, p > .05$); No significant difference between attention deficit scores and arithmetic mean scores ($F = .11, p > .05$) was found.

2.2. Is there a significant difference between the Stress Coping Strategies Scale and Hyperactivity subscale?

Table 4. Relationship between stress coping styles and hyperactivity / impulsivity subscales

		Hyperactivity/Impulsivity		
		n	\bar{X}	S
Self Confident Approach	1	24	9,82	1.39
	2	165	12,81	.88
	3	32	13,74	1.21
Helpless Approach	1	25	11,42	1.31
	2	159	11,05	.90
	3	37	13,90	1.17
Submissive Approach	1	29	13,47	1.25
	2	160	12,06	.80
	3	32	10,83	1.26
Optimistic Approach	1	30	11,76	1.27
	2	155	13,22	.84
	3	36	11,38	1.22
Social Support	1	41	12,20	1.10
	2	152	12,80	.79
	3	28	11,37	1.29

As shown in Table 4, the average of self-confident approach subscale scores; The arithmetic mean of the lowest level ($\bar{X} = 9,82$), Arithmetic mean of those at the highest level ($\bar{X} = 13,74$). Mean of helpless approach subscale scores; Arithmetic mean of the lowest level ($\bar{X} = 11,42$), The arithmetic mean of those at the highest level ($\bar{X} = 13,90$), The submissive approach subscale scores average; Arithmetic mean of the lowest level ($\bar{X} = 13,47$), The arithmetic mean of those at the highest level ($\bar{X} = 10,83$), The optimistic approach is based on the mean of the subscale scores; Arithmetic mean of the lowest level ($\bar{X} = 11,76$), Arithmetic mean of those at the highest level ($\bar{X} = 11,38$), The average of social support subscale scores; The arithmetic mean of the lowest level ($\bar{X} = 12,20$), The arithmetic mean of those at the highest level ($\bar{X} = 11,37$).

Table 5. Variance analysis of hyperactivity / impulsivity subscale with stress coping styles

Source of Variance	Sum of Squares		Squares Average	F	p
Self Confident Approach	182,95	2	91,48	2.53	.08
Helpless Approach	179,16	2	89,58	2.47	.08
Submissive Approach	90,82	2	45,41	1.25	.28
Optimistic Approach	115,53	2	57,76	1.59	.20
Social Support	49,37	2	24,68	.68	.50
Error	7588,19	210	36,13		
Total	45473.00	221			

As shown in Table 5 , there is no significant difference between the scores of hyperactivity / impulsivity and arithmetic mean scores of the students according to the levels of self-assurance of the Stress Relief Scale subscales ($F = 2.53$, $p > .05$); There was no significant difference between hyperactivity / impulsivity scores and arithmetic mean scores according to helpless approach levels ($F = 2.47$, $p > .05$); There was no significant difference between hyperactivity / impulsivity scores and arithmetic mean scores according to Submissive approach levels ($F = 1.25$, $p > .05$); Hyperactivity / impulsivity scores and arithmetic mean scores were not significantly different from the optimistic approach levels ($F = 1.59$, $p > .05$); There was no significant difference between hyperactivity / impulsivity scores and arithmetic mean scores according to Social support levels ($F = .68$, $p > .05$).

DISCUSSION AND CONCLUSION

Research concerning Attention Deficit Hyperactivity Disorder, reveal that most of the relevant hypotheses refer to disorders that occur in brain functions for a variety of reasons during genetics, birth or postpartum, and some emphasize psychosocial reasons.

Attention deficit hyperactivity disorder symptoms support the hypothesis that the high frequency of cases are seen at low socioeconomic level, neglected or exploited, exposed to stressful adverse life events, traumatic environment, and inadequate. As an example, the children staying in orphanages were found to be short and overactive due to long-term emotional deprivation. However measures taken after adoption, showed that the symptoms improved (Doğangün; Yavuz, 2011). Compulsive life events, deterioration in family unit and other anxiety-producing factors may be effective in the emergence and persistence of ADHD symptoms. Reasons for ADHD symptoms include the child's temperament, genetic-familial causes, and expectations about the behavior and achievement of the community (Taylor 1986, Weiss 1993).

The environment in which the individual grows is considered as a factor that accelerates the preparation and emergence of attention deficit hyperactivity disorder due to family members, deteriorated family structure, parental attitudes and stress level caused by these factors. In ADHD cases, it is reported that these factors are seen more frequently than healthy controls (Doğangün; Yavuz, 2011).

In a study conducted with early adolescents who grew up in institutional care until about 4 years of age and adopted later, were assessed for ADHD when they were 6 and 11 years old, and the onset of ADHD at the age of 11 was associated with deprivation at early childhood (Şenol, 2008).

Attention deficit hyperactivity disorder was associated with lower parental temperament and higher depression and anxiety, intense stress, inconsistent and aggressive parental involvement when compared with healthy controls in studies with parents of children diagnosed with attention deficit hyperactivity disorder (Durukan et al., 2009).

In the light of the studies done, it seems that, the stress the individual has experienced for various reasons affects his life negatively from the beginning of childhood and that the negative effects, lack of attention and extreme mobility can accompany these symptoms.

Findings of this study support the views in related literature. Stress can cause ADHD symptoms to be observed in an individual's life.

Results revealed that attention deficit hyperactivity disorder symptoms of students varies depending on their stress levels. However, no correlation was found between ADHD symptoms and stress coping strategies.

Results also revealed that; students with low stress level had lower attention deficit scores; whereas students with high stress level had high attention deficit scores. In addition, students with low levels of stress had low hyperactivity/impulsivity scores; it is also seen that hyperactivity/impulsivity scores are high in students with high stress levels.

In addition, students with low levels of stress had low hyperactivity/impulsivity scores; it is also seen that hyperactivity/impulsivity scores are high in students with high stress levels.

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The Result of the Learning Model to Enhance Computer Programming Comprehension by Visual Programming Environment and Advice System

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ABSTRACT

Four purposes of this research are 1) to design and develop a learning model to enhance computer programming comprehension by visual programming environment and advice system 2) to compare learning achievement between students studying in the conventional way and students studying by using the learning model 3) to compare computer programming comprehension between students studying in the conventional way and students studying by using the learning model and 4) to study the correlation between compare computer programming comprehension and learning achievement. The results are revealed as follows. Firstly, the learning model comprises of 6 components that are advice module, resource, experts, collaboration, quiz module and evaluation module which are designed based on educational theories. Secondly, in the experiment at Nakhon Ratchasima Rajabhat University, the average scores of learning achievement and computer programming comprehension derived from students studying by using the learning model are higher than the average scores derived from students studying in the traditional way. In addition, the result shows that there is a positive correlation between computer programming comprehension and learning achievement. Thirdly, the results derived from the experiments at Wongchavartikul University and Nakhon Ratchasiam Rajabhat University are correspondent. This insists the reliability of the learning model.

Keywords: Learning achievement, learning models, computer programming

INTRODUCTION

Computer programming is extremely important to the students in this field since computer programming is the foundation of computer education in the higher level; moreover those who are professionals in the computer must be able to write computer programs. However, from our teaching experience and the preliminary survey for students at faculty of Science and Technology at Nakhon Ratchasima Rajabhat University, we have found that most students can not write a computer program. From students' opinion, computer programming is difficult because they do not understand the logic and algorithm of computer programming; furthermore the workflow of a computer program is an abstraction. Thus Students can not see clearly how the program works. Moreover at present, most of learning environments in the real world still focus on knowledge transmission instead of knowledge construction; thus several researchers encourage students to build their own knowledge (Spiro, R., Feltovich, P., Jacobson, Michael J., & Coulson, Richard L., 1995; Mayer, R. E., 1996; Atherton, J. S., 2013; Amornsinlaphachai, P., 2016; Deejing, K., 2016). This conforms to Thai National Education Act 1999 and Amendment Act (No. 2) 2002 stating that the education should be based on the principle that all students can learn and develop themselves according to Constructivist theory (Vygotsky, L. S., 1962).

For the reasons mentioned above, we are interested to develop a learning model to enhance computer programming comprehension by visual programming environment and advice system. To design this model, media attribution and media symbol system (Salomon, G., 1979) are used to design academic content to represent the content in a conceptual model used to express the relationship of the content in terms of cause and effect (Frederiksen, J., White, B., et al., 1999; Winn, W., 1982). This will help students understand the content more easily (Mayer, R. E., 1996). Furthermore, visual programming environment will be used in teaching and practicing so that students can visualize the workflow of a computer program, clearly. In addition, the model will provide an advice system based on Bloom's Taxonomy principle (Bloom, B. A., 1956) and discovery learning (Bruner, J.S., 1961) to indicate students' weakness and offer a variety of learning resources that are correspondent to the weakness and suitable to each student. Moreover, internet technology is used as a mediator between teachers and students, including the students themselves. This is the source of knowledge in accordance with the theory of Social Constructivist (Vygotsky, L. S., 1962) and Collaborative Learning (Johnson, D. W. and Johnson, R. T., 1987).

THE PURPOSES OF RESEARCH

Four main purposes of this study are as follows.

1. To design and develop a learning model to enhance computer programming comprehension by visual programming environment and advice system
2. To compare learning achievement between students studying in the conventional way and students studying by using the learning model
3. To compare computer programming comprehension between students studying in the conventional way and students studying by using the learning model and
4. To study the correlation between computer programming comprehension and learning achievement.

METHODOLOGY

Target group

Target group utilized in this research is as follows.

1. The 20 first year students in computer education field at Nakhon Ratchasima Rajabhat University studying with the learning model.
2. The 25 second year students in education technology and computer education field at Nakhon Ratchasima Rajabhat University studying in the traditional way.
3. The 22 second year students studying in education technology and computer education field at Wongchavartikul University used to insist the integrity of the learning model.

Scope of content

The content utilized in this research is a part of the computer programming subject at Nakhonratchasima Rajabhat University, Thailand. The content of this subject corresponds to computer programming and algorithm subject at Wongchavartikul University, Thailand.

Research variables

Research variable studied in this study are as follows.

1. Independent variables are two types of learning that are the typical learning without the learning model and the learning with the learning model.
2. Dependent variables are as follows.
 - 2.1 The learning achievement derived from the students studying in the conventional way and the students studying with the learning
 - 2.2 The comprehension scores derived from the students studying in the conventional way and the students studying with the learning
 - 2.3 The correlation between the learning achievement and the comprehension scores derived from the students studying in the traditional way and the students studying with the learning

Research instruments

The research instruments used in this research are as follows.

1. The learning model to enhance computer programming comprehension by visual programming environment and advice system
2. The assessment forms to confirm quality and usability of the learning model
3. The learning achievement tests for typical learning and learning with the model
4. The comprehension tests for typical learning and learning with the model

Data collection and analysis

The data are collected and analyzed as follows.

1. The learning model is evaluated by the experts. Three facets of assessment are (1) learning content, (2) design based on theories and principles and (3) media and technology. The result is analyzed by summarizing interpretation.
2. The students' achievement and students' comprehension are collected and analyzed by using mean (\bar{x}) and percentage (%).
3. The correlation between compare learning achievement and computer programming comprehension is analyzed by using Correlation coefficient of Pearson

RESULTS

The result of this study can be summarized as follows.

1. The result for developing the learning model

The design of the learning model to enhance computer programming comprehension by visual programming environment and advice system comprises of 6 elements that are advice module, resource, experts, collaboration,

quiz module and evaluation module as shown in the framework of a design of the learning model in Figure 1. An example of developing the learning model is shown in Figure 2.

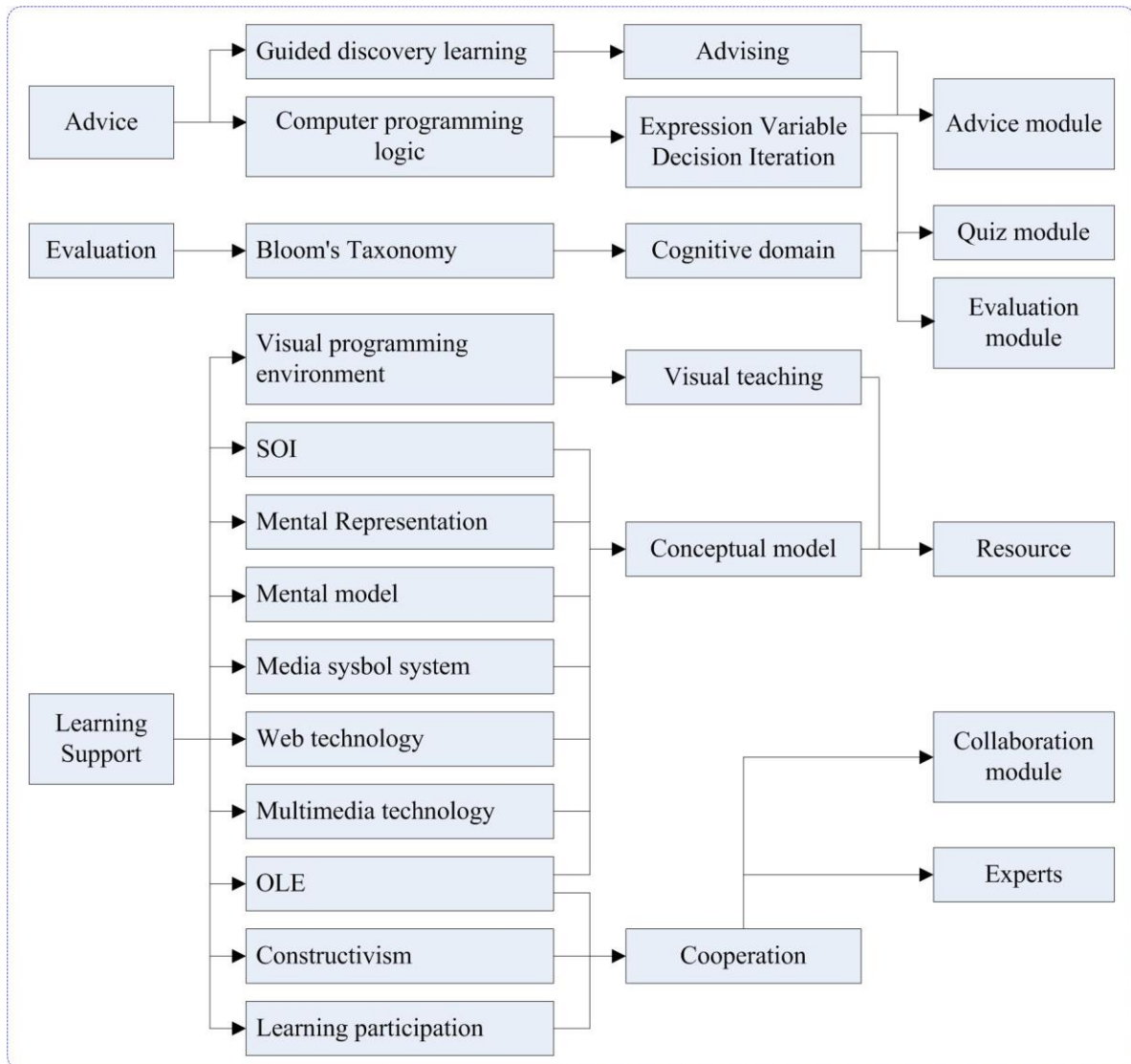


Figure 1. The framework of a design of the learning model

The results derived from evaluating the learning model by four experts are disclosed as follows. Firstly, the learning content is modern and proper for the computer field. Secondly, the theories used for developing the learning model point to the appropriateness of media using; furthermore the social network utilized in the learning model is fashionable and easy to understand. Finally, the components of the learning model conform to learning principles and academic theories.

2. The results derived from comparing learning achievement

The percentage of score of learning achievement derived from learning with the model is 70.80% while the one derived from typical learning is 65.52%. This shows that the learning achievement derived from learning with the model is higher than traditional learning.

3. The results derived from comparing computer programming comprehension

The percentage of score of computer programming comprehension derived from learning with the model is 71.10% while the one derived from conventional learning is 64.72%. Thus the average score of comprehension derived from studying with the model is higher than the average score derived from typical studying.

4. The results of correlation between comprehension and learning achievement

The correlation between computer programming comprehension and learning achievement is experimented at Nakhon Ratchasima University and Wongchavartikul University. The results derived from the experiments at

both University are correspondent. That is there is a positive correlation between computer programming comprehension and learning achievement



Figure 2. An example of developing the learning model

CONCLUSIONS

In this research, a learning model to enhance computer programming comprehension by visual programming environment and advice system are developed and the model consists of 6 elements that are advice module, resource, experts, collaboration, quiz module and evaluation module which are designed based on educational theories. The model is used to perform experiment at Nakhon Ratchasiam Rajabhat University and Wongchavaritkul University. The results derived from the experiment at Nakhon Ratchasiam Rajabhat University are revealed that the average scores of learning achievement and computer programming comprehension of students studying with the learning model are higher than the average scores of students studying in the typical way. Furthermore computer programming comprehension and learning achievement are correlated in the positive way. In addition, the experiments at Wongchavaritkul University insists the reliability of the learning model that are the results derived from these two universities are correspondent. In the future work, data mining will be used in the advice system to predict learning media that is suitable for each student.

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The Role of Motivational Self-Talk and Life Satisfaction on Determining the Flow Experience of Undergraduate Athletes

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ABSTRACT

The objective of this study is to examine the role of motivational self-talking and life satisfaction on determining the flow experience of athletes. 146 female ($\text{Mean}_{\text{age}} = 24, 35 \pm 3,51$), 204 male ($\text{Mean}_{\text{age}} = 24,80 \pm 3,38$) and totally 350 athletes ($\text{Mean}_{\text{age}} = 24,61 \pm 3,43$) participated in the study voluntarily. The study sample consisted of athletes from different branches, different sport levels and backgrounds. Athletes who participated in the study had a sport experience of $11,15 \pm 4,78$ years. The study objective was achieved by using “Flow State Scale-2” that was developed by Jackson and Eklund (2002) and adapted into the Turkish culture by Aşçı et al. (2007), “Self-Talking Questionnaire” that was developed by Zervas et al., (2007) and adapted into the Turkish culture by Engür (2011) and “Life Satisfaction Scale” that was developed by Diener et al. (1986) and adapted into the Turkish culture by Köker (1991). Socio-demographic information about study participants were collected via Personal Information Form, which was developed by the researcher. The acquired data were analyzed by using descriptive statistics methods, independent samples t-test and Multiple Stepwise Regression Analysis. Analyses were conducted in the SPSS package software and the significance level was taken as $P < 0.05$ in the study. As a consequence, it was determined that motivational self-talking and life satisfaction levels of athletes positively determined their flow experience. Besides, it was observed that motivational self-talking, life satisfaction and flow experience differed on behalf of female athletes in terms of the variables of gender, sport experience and being a national sporter.

Keywords: Self talk, flow experience, undergraduate athletes

INTRODUCTION

The number of studies conducted to explore effects of psychological factors on performance in sport settings has been gradually increasing in recent years. Among these psychological factors which are believed to influence performance, the mood of the athlete is perhaps the one that receives the most interest from researchers.

Flow experience, which has been extensively studied by researchers in the field of sport and exercise psychology using different scientific approaches for its effects on various aspects of performance, is known to be an important psychological factor (Jackson, Thomas, Marsh & Smethurst, 2001; Kivikangas, 2006).

As noted by Moneta (2004), the flow experience occurs when the performer experiences the feeling that he has the necessary skills to overcome challenges. Also defined as the balance between the individual’s skill level and the difficulty of the task at hand (Jackson & Eklund, 2004), the flow experience is positive experiential experience. Positive changes are observed in the task performance of the individual/athlete in this positive experiential experience (Csikszentmihalyi, 1990).

It is important to reveal factors associated with flow experience within a sample of athlete in order to explore how this experience where positive changes occur is achieved. Motivational self-talk is one of the factors believed to be associated with flow experience and examined in this study. As previously stated by Bayköse (2014), motivational self-talk is one of the predictors of flow experience.

As well as motivational self-talk, life satisfaction levels of athletes were added to the model within the scope of this study.

Therefore, the purpose of this study is to determine the role of motivational self-talk and life satisfaction in determination of flow experience.

METHOD

In this section, research group, measurement tools and statistical methods utilized in this research were exhibited.

Research Desing

The relational screening model was used in the study. Relational screening models are research models which aim to identify the presence or the degree of covariance between two or more variables (Karasar, 2007). It was aimed in this study to reveal the determining effect of life satisfaction on flow experience of athletes. In this context, the study had a relational screening property. On the other hand, the relational screening model was also used to determine whether flow experience, motivational self-talk, and life satisfaction of athletes vary depending on the gender variable (Karasar, 2007).

Participants

A total of 350 athletes (Age: 24.68 ± 3.469), 146 female and 204 male, from different disciplines (football, basketball, volleyball, handball, taekwondo, wrestling, judo, athletics, etc.) continuing their active sport life and attending different universities volunteered to participate in the study. The average sport experience of the athletes in the study was 10.73 ± 5.048 years.

Measuring Instruments

In addition to the personal information form developed by the researcher for the purpose of the study, the Flow State Scale, the Motivational Self-talk Questionnaire, and the Satisfaction with Life Scale were used in the study. Detailed information regarding the data collection tools can be found below.

Flow State Scale

The Flow State Scale was developed by Jackson and Eklund (2002). The purpose of Dispositional Flow Scale and the Flow State Scale developed by Jackson and Eklund (2002) is to evaluate physical activity and flow state in sport setting. As noted by different researchers, flow state consists of nine dimensions. Csikszentmihalyi lists nine dimensions of flow state as follows: Challenge-Skill Balance, Action-Awareness Merging, Clear Goals, Unambiguous Feedback, Concentration on The Task at Hand, Sense of Control, Loss of Self-consciousness, Transformation of Time, and Autotelic Experience (Aşçı et al. 2007, Ersöz 2011, Keleccek 2013, Carter 2013). Based on the idea that optimizing each of the nine dimensions during a single activity may lead to optimal arousal, the flow state theory suggests that this will influence performance positively (Carter 2013). The scale was adapted to Turkish by Aşçı et al. (2007). The Cronbach's Alpha internal consistency coefficient of the scale varies from 0.42 (Unambiguous Feedback, Sense of Control) and 0.87 (Loss of Self-consciousness) (Aşçı et al. 2007).

Life Satisfaction Scale

The Satisfaction with Life Scale was developed by Diener et al. (1985) to determine life satisfaction levels of individuals and adapted to Turkish by Köker (1991). The scale consists of 5 items: "In most ways my life is close to ideal", "The conditions of my life are excellent", "I am satisfied with my life", "So far I have gotten the important things I want in life", and "If I could live my life over, I would change almost nothing". Each item is marked from 1 "strongly disagree" to 7 "strongly agree".

Motivational Self-Talk Questionnaire

The Self-Talk Questionnaire (S-TQ) (Appendix 1) was developed by Zervas, Stavrou, and Psychountaki (2007) to reveal individual differences in self-talk according to cognitive and motivational functions. The questionnaire was adapted to Turkish culture by Engür (2011:24). It includes 11 items marked in a Likert scale (1 Never, 2 Rarely, 3 Sometimes, 4 Often, 5 Always) and 2 functions, namely the Cognitive Function and the Motivational Function. Engür (2011) found the Cronbach's Alpha value of the motivational function to be .93. The Cronbach's Alpha value of the cognitive function was found to be .87. The reliability coefficient of the overall questionnaire was found to be .95 (Engür 2011). Only the Motivational Self-talk Function of the questionnaire was used in the present study.

Data Analysis

The data obtained was analyzed using descriptive statistical methods, the Independent Samples T test, and the Stepwise Multiple Regression Analysis. SPSS package program was used for analysis and $P < 0.05$ was accepted as statistically significant.

FINDINGS

Table 1. The Relationship between Flow Experience, Motivational Self-talk, and Life Satisfaction

		Flow experience	Motivational Self-Talk	Life Satisfaction
Flow experience	r	1		
	p			
	n			
Motivational Self-Talk	r	0,418**	1	
	p	0,000		
	n	350		
Life Satisfaction	r	0,466**	0,413**	1
	p	0,000	0,000	
	n	350	350	

** p<0,001

As shown in Table 1, flow s experience had a positive correlation with motivational self-talk and life satisfaction levels. Also, a positive correlation was observed between life satisfaction and motivational self-talk.

Table 2. Results of The Regression Analysis Performed to Determine The Role of Self-talk Level and Life Satisfaction Levels in Predicting Flow Experience

	β	T	P
Motivational Self-Talk	0,353	7,053	0,000
Life Satisfaction	0,272	5,427	0,000

R=0,527 ; R²=0,278; Adjusted R²=0.274; F(2,347)=66.842; p=0.000

According to the results of the stepwise multiple regression analysis, factors of motivational self-talk ($\beta=0.35$; $p<0.05$) and life satisfaction ($\beta=0.27$; $p<0.05$) entered into the model. Analysis results showed that motivational self-talk and life satisfaction levels had a significant correlation with flow state level ($R=0.28$; $F(1,128)= 12.352$; $p<0.05$). The correlation of motivational self-talk and life satisfaction levels with flow state level was found to be statistically significant and positive ($p<0.05$). It can be said that this was a moderate correlation. Motivational self-talk levels and life satisfaction levels of the athletes participated in the study explain 28% of the total variance in their flow state levels ($R^2=0.278$; $p<0.05$).

Table 3. T Test Results of the Athletes Related to Motivational Self-talk, Life Satisfaction, and Flow Experience Levels by The Gender Variable

	Gender	n	Mean	Std. Deviation	t	p
Motivational Self-Talk	Women	146	4,2084	,80150	5,297	0,000
	Men	204	3,6275	1,13830		
Life Satisfaction	Women	146	4,6164	1,16773	5,018	0,000
	Men	204	4,0010	1,07886		
Flow Experience	Women	146	4,0805	,57649	5,446	0,000
	Men	204	3,7350	,59701		

Table 3 shows the difference between genders in terms of motivational self-talk levels of the athletes. Analysis results showed a significant difference between genders in terms of motivational self-talk levels ($t=5.297$; $p<0.05$). The findings showed that the difference was in favor of the female athletes.

Analysis performed to explore whether life satisfaction levels of the athletes varied depending on the gender variable showed a significant difference between genders in terms of life satisfaction levels ($t=5.018$; $p<0.05$). The findings showed that the difference was in favor of the female athletes.

Analysis performed to explore whether flow experience levels of the athletes varied depending on the gender variable showed a significant difference between genders in terms of flow experience levels ($t=5.446$; $p<0.05$). The findings showed that the difference was in favor of the female athletes.

CONCLUSIONS

Flow experience was found to have a positive correlation with motivational self-talk and life satisfaction levels. Also, a positive correlation was observed between life satisfaction and motivational self-talk.

It was found that motivational self-talk and life satisfaction levels had a significant correlation with flow experience level. The correlation of motivational self-talk and life satisfaction levels with flow experience level was found to be statistically significant and positive. It can be said that this was a moderate correlation. Motivational self-talk levels and life satisfaction levels of the athletes participated in the study explain 28% of the total variance in their flow experience levels. A similar study was conducted by Bayköse (2014). In a previous study, Bayköse (2014) found both motivational self-talk and cognitive self-talk had positive effects on determination of flow experience. In this context, findings obtained in the study conducted by Bayköse (2014) support our findings. Findings of our study showed a significant difference between genders in terms of motivational self-talk levels. The findings showed that the difference was in favor of the female athletes. Reviewing the literature in the light of this information, the findings obtained in the study conducted by Katsikas et al. (2009), who found that male athletes had a higher self-talk level, are not consistent with our findings. In parallel with our findings, Engür (2011) found that female athletes had a significantly higher motivational self-talk level compared to male athletes.

Analysis performed to explore whether life satisfaction levels of the athletes varied depending on the gender variable showed a significant difference between genders in terms of life satisfaction levels. The findings showed that the difference was in favor of the female athletes. Analysis performed to explore whether flow experience levels of the athletes varied depending on the gender variable showed a significant difference between genders in terms of flow experience levels. The findings showed that the difference was in favor of the female athletes. In the relevant literature, Jackson et al. (2001) and Russell (2001) found no significant difference between genders in terms of flow experience. In this context, studies in the literature do not support our findings. However, the results of the study conducted by Bayköse (2014) were in favor of female athletes in Loss of Self-consciousness subdimension of flow experience. In another study, findings obtained by Ersöz (2011) in Challenge-Skill Balance, Unambiguous Feedback, Autotelic Experience, Action-Awareness Merging, Clear Goals, Concentration on The Task at Hand, and Sense of Control subdimensions of flow experience support our findings.

In conclusion, it can be said that motivational self-talk and life satisfaction levels of athletes are positive predictors of flow experience.

Authors' Disclosures of Potential Conflicts of Interest

The authors indicated no potential conflicts of interest.

Footnotes

This study was presented as a poster presentation in international conference on new horizons in education Congress (INTE), Berlin, Germany, 17-19 July, 2017.

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The Role of Self-Talk and Self-Efficacy Levels of Athletes Studying at Faculties of Sport Sciences on Predicting Mental Toughness

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ABSTRACT

The objective of this study is to examine the role of self-talk and self-efficacy levels of athletes studying at faculties of sport sciences on predicting mental toughness. The study group consisted of totally 277 (Mean_{Age}:24,40±3,57) athletes, 93 female and 184 male, studying at faculties of sport sciences. The study objective was achieved by using Self-Talk Questionnaire that was developed by Zervas, Stavrou and Psychountaki (2007), Self-Efficacy Scale that was developed by Riggs et al., (1994) and Sport Mental Toughness Questionnaire that was developed by Sheard et al., (2009). In order to prove the power of the two aforementioned predicting variables upon predicting stepwise mental toughness, the technique of stepwise regression analysis was applied and the results were explained. The significance level being used in the study was accepted as .05. Examining the study findings; it was observed that motivational self-talk and self-efficacy levels of athletes significantly predicted the lower dimension of control, which is among the lower dimensions of mental toughness, whereas only motivational self-talk predicted the lower dimension of self-efficacy, which is also among the lower dimensions of mental toughness. On the other hand, the lower dimension of toughness, which is among the lower dimensions of mental toughness, was only predicted by cognitive self-talk. As a consequence, the fact that the lower dimensions of mental toughness are predicted by different lower dimensions of self-talk signifies that mental toughness is supported by different psychological mechanisms. According to our study findings, while continuity that is among basic structures of mental toughness is mainly supported by cognitive structures; self-confidence that is also among basic structures of mental toughness is supported by self-efficacy and motivational structures. Control mechanism, the last basic structure of mental toughness is positively supported by motivational self-talk.

Keywords: Mental toughness; self-talk; self- efficacy

INTRODUCTION

Self-talk (also known as internal dialog, self-speech, internal monolog) is accepted as one of the most effective strategies used by athletes and coaches to enhance and improve sports performance (Thelwell, Weston, Greenlees, and Hutchings, 2008; Hardy, 2006). Although extensive studies show that self-talk is correlated with performance and variables related to performance (Hatzigeorgiadis, Zourbanos, Galanis, and Theodorakis, 2011; Tod, Hardy, and Oliver, 2011), a comprehensive self-talk model which can guide systematic research has not been developed yet (Hardy, Oliver, and Tod, 2009).

Studies on self-talk show that self-talk contributes to the improvement of the athlete in terms of skill acquisition and sports performance (Neck and Manz, 1992). Also, studies have revealed that there are different types of self-talk (instructional and motivational), which may be more effective in different sports performances (precision or strength) (Vealey, 2007).

Athletes use self-talk to reconstruct their cognitive condition and transfigure irrational thoughts which do not fit the setting. Self-talk is also used for self-reward and increased effort (Hardy et al., 2007). Participants in the fields of sport and exercise use self-talk for many different purposes. For example, individuals may use self-talk to correct bad habits, focus attention, modify intensity level, build and maintain confidence, and encourage and maintain exercise participation (Williams and Leffingwell, 1996). In this context, mental toughness is another type of psychological skill which researchers focus on in sport settings. To the best of our knowledge, there is no study in the literature which reports that athletes use self-talk to improve mental toughness. Moreover, we have not been able to find a study on the relationship between self-talk and mental toughness as well.

Therefore, this study aims to determine whether self-talk and self-efficacy levels of students in faculties of sport sciences predict their mental toughness levels.

METHOD

In this section, research group, measurement tools and statistical methods utilized in this research were exhibited.

Research Design

In this study, survey method (Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2008; Karasar, 2009) and relational survey method were utilized (Büyüköztürk et al., 2008; Karasar, 2009; Büyüköztürk, 2014). According to Fraenkel and Wallen (2006), the purpose of relational researches is to investigate the relationships among two or more variables without interfering them. In the meantime, existence and degree of the relationships among dependent and independent variables were tried to be revealed based on the model (Crano and Brewer, 2002). Karasar (2009) describes purpose of relational survey models as determining existence and degree of relationships among two or more variables. On the other hand, survey model is the approach which tries to describe a past or present status as it is. Research subject, which could either be an event, a person or a subject, is tried to be defined within their unique conditions and as is (Karasar, 2009). In the present study, relational research, one of the quantitative research methods, was employed and this constitutes an example of a research conducted based on survey model.

Participants

The research group consisted of 277 students, 93 female and 184 male ($\text{Mean}_{\text{age}}:24.40\pm3.57$), attending faculties of sport sciences of various universities and continuing their active sports life.

Measuring Instruments

The Self-Talk Questionnaire developed by Zervas, Stavrou, and Psychountaki (2007), the Self-Efficacy Scale developed by Riggs et al. (1994), and the Sports Mental Toughness Questionnaire developed by Sheard et al. (2009) were used for the purposes of the study. Information regarding measuring instruments can be found below.

Sports Mental Toughness Questionnaire

The questionnaire was developed by Sheard et al. (2009) to measure mental toughness levels of athletes and adapted to Turkish by Altıntaş (2015). The questionnaire consists of 14 items under three factors Confidence as “belief in one’s abilities to achieve goals in tough situations and thinking that one is better than one’s opponents”, Constancy as “one’s willingness to take responsibility, ability to concentrate, and readiness to strive”, and Control as “one’s keeping composure and being controlled and relaxed under pressure or in unexpected situations”. As well as aforementioned factors, the questionnaire provides information about overall mental toughness as well (Altıntaş, 2015). The subject marks statements given in the items in a four-point Likert scale. The questionnaire contains reverse items. The internal consistency coefficient of the questionnaire was calculated using the Cronbach’s Alpha Technique and was found to be 0.81 for the Confidence factor; 0.74 for the Constancy factor; 0.71 for the Control factor; and 0.81 overall (Sheard et al., 2009; Altıntaş, 2015).

Self-Talk Questionnaire

The Self-Talk Questionnaire (S-TQ) (Appendix 1) was developed by Zervas, Stavrou, and Psychountaki (2007) to reveal individual differences in self-talk according to cognitive and motivational functions. The questionnaire was adapted to Turkish by Engür (2011). It includes 11 items marked in a Likert scale (1 Never, 2 Rarely, 3

Sometimes, 4 Often, 5 Always) and 2 functions, namely the Cognitive Function and the Motivational Function. Ergün (2011) reported that the Cronbach's Alpha Internal Consistency Coefficient was .93 for the Motivational Function and .87 for the Cognitive Function. The reliability coefficient of the overall questionnaire was found to be .95.

Self-Efficacy Scale

The instrument was developed to measure the individual's belief in his own capacity. The scale developed by Riggs, Warka, Babasa, Betancourt, and Hooker (1994) was adapted to Turkish by Öcel (2002). The scale consists of 10 items aimed at determining the subject's beliefs in his own capacity. The subject marks statements given in the items in a five-point Likert scale. The scale contains both regular and reverse items. The internal consistency coefficient of the scale was calculated using the Cronbach's Alpha Technique and reported to be .86 (Riggs et al., 1994). In the Turkish adaptation study of the scale, a factor analysis was performed and it was decided to use items with at least .30 factor load. It was seen in the analysis that the scale showed a factor load in the .32 and .85 range and had a uniform construct. The Cronbach's Alpha Internal Consistency Coefficient of the scale was found to be .61 (Öcel, 2002).

Data Analysis

SPSS 22.0 was used in the study for data analysis. Descriptive statistics, the Internal Consistency Reliability Coefficient (Cronbach's Alpha), and the Independent Groups T-test were performed in the study. Moreover, Stepwise Multiple Regression Analysis was used to determine whether self-talk level is a predictor of mental toughness level. Also, tolerance and variance inflation factors (VIF) were examined to explain the multilinear relationship between independent variables to determine the fitness of the data for analysis. According to Tabachnick and Fidell (2007), it is necessary to examine sample size, normality, linearity, homoscedasticity, autocorrelation, multicollinearity, and outliers to perform a Standard Multiple Regression analysis. Once these assumptions are satisfied, the analysis was performed and the findings given below were obtained. $P < 0.05$ was accepted as the statistical significance level.

FINDINGS

Table 1. The Results of the Regression Analyses Concerning the Effect of Athlete's Self talk and Self Efficacy Level on Predictors Their Control (Mental Toughness Sub Scale).

	<i>B</i>	<i>T</i>	<i>P</i>
Motivational Self Talk	0,103	3,869	0.000
R=0,227; R ² =0,052; Adjusted R ² =0,048; F=14,967; p=0,000			

The stepwise multiple regression analysis showed a significant relationship between the motivational function of self-talk and the control factor of mental toughness ($R=0.23$; $F=14.967$; $p<0.05$). While there was a significant and positive relationship between the motivational function and the control factor of mental toughness ($\beta=0.10$; $p<0.05$), the cognitive function of self-talk and self-efficacy were not in the model. Motivational self-talk scores were found to explain 5% of the total variance in mental toughness ($R^2=0.052$; $p<0.05$).

Table 1. The Results of the Regression Analyses Concerning the Effect of Athlete's Self talk and Self Efficacy Level on Predictors Their Constancy (Mental Toughness Sub Scale).

	<i>B</i>	<i>T</i>	<i>P</i>
Cognitive Self Talk	0,079	3,257	0,001
R=0,193; R ² =0,037; Adjusted R ² =0,034; F=10,608; p=0,000			

The stepwise multiple regression analysis showed a significant relationship between the cognitive function of self-talk and the constancy factor of mental toughness ($R=0.19$; $F=10.608$; $p<0.05$). While there was a significant and positive relationship between the cognitive function of self-talk and the control factor of mental toughness ($\beta=0.09$; $p<0.05$), the motivational function of self-talk and self-efficacy were not in the model. Cognitive self-talk scores were found to explain 4% of the total variance in mental toughness ($R^2=0.04$; $p<0.05$).

Table 1. The Results of the Regression Analyses Concerning the Effect of Athlete's Self talk and Self Efficacy Level on Predictors Their Confidence (Mental Toughness Sub Scale).

	<i>B</i>	<i>T</i>	<i>P</i>
Motivational Self Talk	0,064	2,407	0,017
Self Efficacy	0,219	3,919	0,000
R=0,300; R ² =0,090; Adjusted R ² =0,084; F=13,529; p=0,000			

The stepwise multiple regression analysis showed that both the motivational function of self-talk and self-efficacy had a significant relationship with the confidence factor of mental toughness (R=0.30; F=13.529; p<0.05). While there was a significant and positive relationship between the motivational function of self-talk and the confidence factor of mental toughness ($\beta=0.06$; p<0.05) and between the motivational function of self-talk and self-efficacy ($\beta=0.22$; p<0.05), the cognitive function was not in the model. Motivational self-talk and self-efficacy scores were found to explain 9% of the total variance in mental toughness (R²=0.09; p<0.05).

CONCLUSIONS

This study was designed to determine whether self-talk and self-efficacy levels of students in faculties of sport sciences predict their mental toughness levels. The research group consisted of 277 students, 93 female and 184 male (Mean_{age}:24.40±3.57), attending faculties of sport sciences of various universities and continuing their active sports life.

According to our findings, while constancy, one of the building blocks of mental toughness, is mostly supported by cognitive constructs, confidence, another building block of mental toughness, is mostly supported by self-efficacy and motivational constructs. Control, the last building block of mental toughness, is supported positively by motivational self-talk only. Reviewing the literature in the light of these findings, Gülşen (2016) conducted a study with a sample consisting of athletes and found a positive correlation between motivational and cognitive self-talk and self-efficacy. Findings obtained in Gülşen's (2016) study showed a high correlation between motivational self-talk and self-efficacy, whereas a low yet considerable correlation between cognitive self-talk and self-efficacy. Given the information above, our findings showed a positive correlation between motivational and cognitive self-talk and self-efficacy. Therefore, findings obtained by Gülşen (2016) support our findings.

In another study, Akılveren (2016) investigated the correlation between mental toughness and motivational self-talk and reported a positive correlation between mental toughness self-talk and mental toughness factors. It can be said that the findings of this study support our findings as well.

In conclusion, the fact that different mental toughness factors are predicted by different self-talk functions indicates that mental toughness is supported by different psychological mechanisms. According to our findings, while constancy, one of the building blocks of mental toughness, is mostly supported by cognitive constructs, confidence, another building block of mental toughness, is mostly supported by self-efficacy and motivational constructs. It can be said that control, the last building block of mental toughness, is supported positively by motivational self-talk only.

Authors' Disclosures of Potential Conflicts of Interest

The authors indicated no potential conflicts of interest.

Footnotes

This study was presented as a poster presentation in international conference on new horizons in education Congress (INTE), Berlin, Germany, 17-19 July, 2017.

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The Role of Social Advertising in Continuity with the System of Values of Adolescent Youth

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ABSTRACT

One of the most complex and most demanding life stages, speaking about the attitude and coping, is the adolescent age. In each stage, the adolescent youth is a bit different and copes with different troubles with themselves, as well as with the inclusion within the society, the characteristic feature of which becomes not only weakening authority of family and school, of the primary socialization factors, but mainly strengthening role of the media, or the advertisement, with the omnipresent presentation of values of the modern consumer society reflecting in the growing consumerism. The aim of the study is not only to determine the preference of values of today's adolescents, specifically in their teenage years, but to discover what the role of advertising messages is in the particular stage of life, and especially what the impact of social advertising is.

Keywords: adolescent youth, consumer behavior, system of values, authority of family and school, social advertising.

1 INTRODUCTION

Adolescence may be considered to be one of the most demanding stages associated with the necessity of healthy building up of the individual personality of a child. According to Erikson (1999), adolescence represents an identity crisis with its characteristic feature in the growing doubts of the adolescent about their self-perception in continuity with the value of the family, school, and other “automatically” accepted authorities. What becomes the priority are efforts leading to creating a new identity, which would be based on a qualitatively different level, whereas the starting point is not only the need of self-knowledge and self-acceptance, as well as the search for one's own values, opinions, attitudes, and the search for the proper position within the contemporary society. Within the society with the sign of the ever-increasing destruction of the authority of family and school, of the primary socialization factors, and particularly the increasing power of the media, or advertising messages, with the omnipresent presentation of values of the modern consumer society reflecting in growing consumerism.

2 THE STUDY

2.1 Problem formulation

As the Introduction of this paper has already suggested, the primary task at the time of adolescence is for the adolescent to try to build up a new identity qualitatively different in continuity with exploring and accepting new values, opinions, and attitudes - with the aim to become “well-accepted” within the society. What is the contemporary society like, and what are the values it prefers and offers for the creation of a new identity for adolescents? Bauman (2002) says that the identity is not a gift, it is not unchangeable. It is something which gets constructed by various ways and is a task to be done, a task, which cannot be avoided. Questioning of one's identity stems from the feeling of dislocation of one's existence, of its “manipulability”, the feeling of “indeterminacy”, indistinctness and indefiniteness of all forms, which have been so far accepted. Paul Ricoeur (2000) specifies two interconnected problems of the question of identity, whereas the first introduces the distinctness of one's own personality with their specific features constituting the particular distinction from others. The other problem is the continuity of the personality itself, the duration of its characteristic features independent of time and the changing circumstances of life. Coping with these questions has become the essential condition of the life in the modern society.

The early philosophical reflections on the search for the identity of an individual, represented by Descartes, Kant, or the French Enlightenment thinkers, had presented identity as something for a person to be **discovered**. It was supposed to be a journey leading to the discovery of “human nature”, which one only may find through false and everyday experiences which “take him to a false and pseudo way” and “deceitfully lead them to blind alleys”. Only the reason could be the only indicator of the genuine knowledge. (Bauman, 2002, p. 28) And what about today? Is the search for one's own identity and for the self-knowledge for the modern youth easier, or is it vice versa? Are family and school able to maintain its historically proved authority in the eyes of the adolescent, and are the values presented by these primary institutions within the process of socialization still regarded as the predominant ones? What is then the role of i.e. the media, specifically advertising messages which on an everyday basis penetrate the minds of the adolescent to tempt them with their “artificial” consumer worlds to cross the aforementioned “false and untruthly path” and “to deceitfully take them to the blind alleys”? Do they

become an effective instrument for the manipulation of their psyche, as they offer their own description of the world; with the use of prescription they “prescribe” or covertly “order” what must be accepted, and how to behave? Are the youth on their road to adulthood capable of discovering the genuine values which would bring them to the proper way of life? It often happens that they “lose their way” and they need help to get back to their path. Can it be here that advertising, as we know it, may be considered to be one of the most crucial socialization factors for its continuous attacks as well as consequent impacts, and may it show its positive face and thus participate in building values and attitudes of adolescents? This is only a few questions we should not close our eyes against, but for which answers need to be found.

2.2 Conceptual framework

Adolescence, or the stage of pubescence, starts between the 11th and 13th year of life, and ends at the age of 14 or 15, whereas the duration of the individual stages is highly individual, as is the entire course and intensity. The identity is created, the status of “a child” is transferred into “an adult”. It is a period of significant changes in the development of an insightful personality and of considerable problems within the family and school education.” (Čáp, Mareš, 2007) The theory claims that a pubescent child does not regard as absolute what their parents or school (teachers and educators) tell them, but they speculate with the presented opinions, criticize them, define themselves against them, and try to find their own attitude to the particular matter. They need to feel acknowledged and accepted, take on some responsibility for their lives, and not to relate only to the truth of the family (parents, grandparents) and school (teachers, educators). A significant qualitative change occurs in thinking and experiencing, which reflects in the effort to know oneself and at the same time to define in a certain way. This is not easy as they stand in a specific situation - somewhere between their childhood and adulthood. On one hand, the dependence on parents is apparent (existential dependence) and on other authorities, when teachers, educators, supervisors, the elderly, etc. must be obeyed. On the other hand, the pubescent is required to think as an adult, and they themselves often feel to be (mentally) independent. A conflict of roles occurs, which may bring obstacles. Adolescence thus becomes a great test of confidence in the world, of the feeling of security, positive perception of oneself and their relatives, who they relate to in tough times. (Langmeier, Krejčířová, 2006; Piaget, Inhereldová, 2001; Vágnerová, 2008)

If an adolescent child feels lonely in the world, misunderstood, or feels they do not grasp the world, and that the current society does not provide them with a good place for life, it might be at this moment when they can acquire the feeling of being “lost” on their way. They feel unconfident and view themselves only in bad light. It is low self-esteem reflecting in the feeling of uncertainty, insecurity, insufficiency, misunderstanding, and loneliness that stand behind various troubles in the adolescent stage. A pubescent child copes with these feelings in different ways, being it a persisting attack, escape, or making up of miscellaneous masks and compensation behavior patterns. The child becomes weakened against the external impacts, and finds themselves in a labyrinth struggling to get out. (Macek, 2003; Žaloudíková, 2013) A significant role is played by the contemporary medialized world opening to the adolescent the access to various information, symbols, interpretations, and lifestyles, which considerably exceed possibilities that those which may be provided by their parents and teachers. (Šedřová, 2007) The position of the authorities respected in the past thus gradually assume the ideals (models) presented in the media. (Vysekalová, 2012)

And it is here, where the space for the intentional incidence of the media and advertising, as their primary goal is the effort to achieve by persuading, manipulating, and suggesting certain preset changes in attitudes or behavior of an individual in any spheres of private as well as public life. It was Ball-Rokeach and DeFleur (1976, 1996) who focused their attention on the critical research of the media and their audiences, and they thus became the founders of “a dependency model”, i.e. the model of dependence of the audience on the media, whereas they utilized the situation in which the dependency of the audience on the media is given by providing irreplaceable functions important for the audience. They are e.g.: 1. addressing ambiguity and elimination of uncertainty by narrowing the number of interpretations of individual situations; 2. setting up the topics; 3. enlarging the system of “truths” belonging to the general conviction; 4. forming attitudes; and 5. suggesting conflicts of values and explaining the validity of values within the society. They offer a large number of behavior patterns corresponding to numerous situations with which individuals may identify in hope for a successful inclusion within the society.

Let us go back to the characteristic of today’s society. The contemporary postmodern world removes the difference in the perception and acceptance of ideas and values. These then acquire their identical validity and none is rejected. Lipovetský (2003) characterizes the postmodern society as the “democracy of hedonism, victory of “anti-morality” and “anti-institutionalism””; for Petrusek (2007), it is the society of “late times“, “the society of rapid social changes”, “the society of risks” in connection with the inevitable reduction of fear suppressing hecticcy of the contemporary lifestyle in an individual in continuity with the number of changes.

From technological innovations entering our households and reflecting in so-called mobilizing of the social life replacing the “authentic communication burdened with the existential context” - to uninterrupted stream of ever-changing goods with its reflection in the development of new patterns of consumer behavior and the rise of new “life forms”. An individual becomes a part of two parallel worlds, the world of everyday and then so-called simulated world in continuity with a significant change in the value patterns, a so-called fall of the authority, etc., which reflects in the establishment of a new “postmodern mentality” in an everyday behavior, especially in the adolescent youth. (Kohák, 2004)

An opportunity opens for advertising representing one of “the oldest, most visible, and the most important marketing tool of the communication mix”. (De Pelsmacker, 2003, p. 203). It epitomizes “the impersonal form of communication, when different subjects through different media address their existing and potential customers with the aim to inform them and persuade about the usefulness of their products, services, or ideas”. (Příkrylová, Jahodová, 2010, p. 66) Its strong manipulative power increasingly allows to intentionally form attitudes and opinions of an individual, to create their value system, influence their lifestyles, and thus to become an eminent source of model behavior. Fromm (1994) points out inducing with the tendency to orient on the values of owning at the expense of the values of existence. The orientation on the “to have” values, marginalizes, challenge, and discriminate the values of being, which shows in one of the basic forms of alienation of an individual from themselves, from their own “me”. The commercial advertising has its characteristic feature in the presentation of a so-called socially inadequate values, for its primary goal is to lead an individual to accept value attitudes required by consumerism. “The world of mass production and mass consumption cannot be imagined without advertising. However, at the same time, ethical requirements mount on the content of advertising messages.” (Vysekalová, Mikeš, 2007, p. 24)

So-called social advertising is the opposite. Should we follow the traditional typology of marketing communication, i.e. marketing communication mix, the term of social advertising will mean the media communication through the television, radio, press, Internet, etc., which have the aim to create moral values in accordance with the modification in behavior of recipients in any sphere of human activities. Its efforts tend to “positive changes in social attitudes and value orientation, to the awakening of the feeling of responsibility for oneself and others, and to the stimulation of the recipient to do something for themselves or for others who imminently need their help.” (Göttlichová, 2005) Recipients of social advertising are those, who are addressed by the problem directly (or those who may be regarded), and therefore it becomes necessary to correctly define the target groups towards the intention of the advertising message, as well as the proper choice of the particular media in continuity with the corresponding form of addressing in the perspective of achieved efficiency. It is then a vital aspect for “the social advertising to present positive values of the modern contemporary life style more than ever, without diminishing the importance of negative appeals showing the unquestionable efficiency”. (Harantová, 2014)

2.3 Problem solution

As was already mentioned, the problem comes together with a number of questions to which answers must be found. The primary aim of this study is to answer the question *What value scale is preferred by the contemporary young generation in the stage of adolescence?*, also to verify the supposed weakening of the intentional socialization aspects (i.e. family and schools) at the expense of enhancing the functional aspects, specifically advertising messages, particularly with the orientation at the possible influence on values and attitudes of a given target group in continuity with social advertising.

An extensive quantitative research with a questionnaire form was carried out (2016) to answer the preset questions (153 open, semi-closed, and closed questions) at the participation of the implementers and educators of given subjects, i.e. social sciences. 27 schools in 9 regions of the Czech Republic took part in the research survey (the Moravian-Silesian Region, the Region of Pardubice, the South Moravian Region, the region of Olomouc, the Zlín Region, the Central Bohemian Region, the Region of Hradec Králové, the Vysočina Region, Prague). The total of 1,080 pubescents participated - those attending the 8th year of primary schools (PS), i.e. 360 pupils and 9 town schools; 360 pupils and 18 countryside schools (the reason for a double number is a small amount of classes and pupils in a given year in individual schools in the countryside, therefore two schools per a region had to be involved), and 360 corresponding grades at secondary schools (SS), i.e. 9 8-year grammar schools (or gymnasium; for the non-existence of this type of secondary schools in the countryside, the number is inclusion of towns and countrysides where pupils commute, 40 students were addressed from one school per a region). The methodology of the scale of values worked with the battery of values on which the respondent could comment with a five-level scale, whereas level 1 corresponded to the value with the least importance, level 5 with the greatest importance. For every value, indices based on the frequency were determined as weighted

arithmetic means, and a chart was established based on the size of the indices.

3. FINDINGS

3.1 Socializing factors – family and school

Bearing in mind the aim of the study, the attention will be focused on the presentation of the resulting values of the survey leading to the achievement of the preset goal. To be able to assess the extent of the ability of family and school to maintain their authority in the eyes of an adolescent, and whether the values, suggested by these primary institutions in the course of socialization, remain regarded as the key ones, it is fundamental to focus our attention firstly to ascertain the level of the relationship of pubescents to family and school.

Table 1: Model/authority

	Absolutely yes	Absolutely no	Rather yes	Rather no	No answer
Father	358	93	379	216	34
Mother	353	56	430	226	15

Source: Göttlichová

How do the pubescent youth see their parents? We may say that according to the results of the survey [Table 1], parents still keep on being models with some authority for their children. The proof of this is the unequivocally positive total evaluation of the person of a father from the point of view of his authority (**737; 71%**) significantly exceeding the negative perception (309; 29%). An equal situation may be observed in the evaluation of a mother where the positive evaluation (**783; 74%**) overtops, although it had been slightly more than in father, which corresponds to the lower number of negative responses (282; 26%). In the question of trust, 998 (x77) respondents trusted their mothers, 940 (x112) trusted their fathers; mother's advice was trusted by 910 (x166) and father's advice by 820 (x236) respondents. The particular outcomes were confirmed also by the question assessing who is the closest to the particular set of respondents, as next to grandparents, siblings and other members of family and friends, the mother occupies the first place unambiguously (427; 39%), the father remains taking the second place (173; 16%). It is here where we can notice a significant difference in the evaluation of both parents.

Table 2: Relationship to father/mother

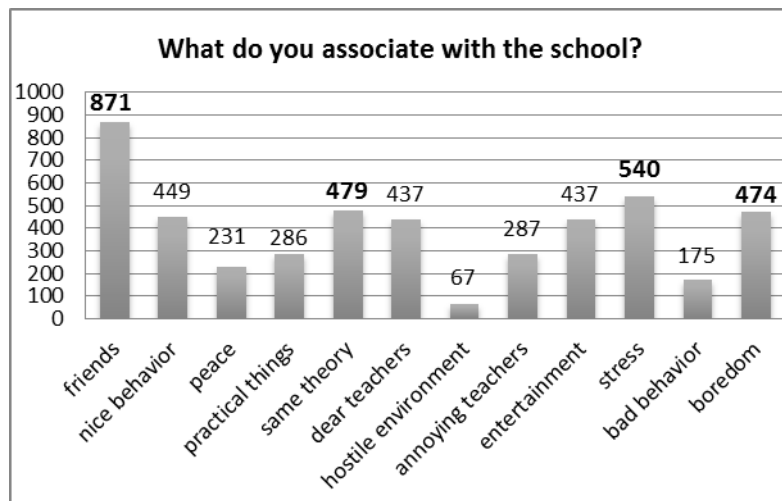
	Neutral relationship	Rather close relationship	Rather distant relationship	Close relationship	Distant relationship
Father	112	390	41	470	34
Mother	84	343	25	600	17

Source: Göttlichová

So what is the relationship of the adolescent in the puberty stage to their closest relatives? As the results suggest [Table 2], young people at the beginning of adolescence do not hesitate to confess their close relationship to their mothers (56%) or fathers (44%), which in continuity with the responses presenting rather a close relationship to mother (32%) or father (38%) is a proof of the positive perception of the mother, when the entire **88%** of the respondents identifies with the perception, for the father it is **82%**. Rather distant relationship may be noted in 4% of the respondents, and neutral relationship was quoted by 8%. For the father, the values were 7% and 11%. And we could go further in the line, as the responses to one of the following questions absolutely convincingly presents the order of those from the close surroundings of the pubescents to whom these come with finding solutions to their problems most frequently. In regards of the fact that some respondents used the option to choose multiple responses, the fundamental base (N=1650) is increased. The resulting values unambiguously prove that it is the mother again who stands in the front for the pubescents to solve their troubles, who is the person to whom pubescents come for help and advice (588; 36%), followed by friends (419; 25%), and the father (257; 15%), whereas in comparison with the responses preferring the mother, almost a 50% decline occurs; a considerable decline may be seen also in comparison with the group of peers. The modern times reflection is then a low position of grandparents (80; 5%), which may prove the eliminated authority of the elderly generation as regarded by the adolescent. Particularly alarming is the weakening in the position of schools/teachers, to whom only a tiny percentage of pubescents would come for help (4; 0,2%).

The option to choose multiple responses was also applied in the questions focused on the assessment of the parents' most powerful influence on pubescents. The responses showed that it is parents who plays an essential role in the lives of adolescents, speaking about their influence on adolescent behavior in relation to others (571), in career choice (475), or in impacting opinions of pubescents on the life in general (462). The main finding was

also the fact that 538 respondents confirmed that it is their parents who influence immensely their shopping behavior, 324 responses revealed reliance merely on their own opinion, then it was friends (156), Internet (118), siblings (111), and they were least influenced by grandparents (57). If we get back to parents, the least impact was revealed in the response to friend's selection, where only 77 respondents were inclined to be advised in this area. Friends, as shown by the responses to other questions, unequivocally stand at the forefront of the influence on spending leisure time (338), which was supported in the response to the question of in what extent do parents organize pubescents free time, where 766 respondents claimed a negative answer, 293 a positive answer, and 21 did not respond. On the other hand, 923 respondents wrote that their parents are interested what they do in their free time, and 150 responses led to claim that their parents are not interested in what they do, only 4 respondents did not provide any answer. For 1,011 respondents, home means a pleasant and safe place (1,044).



Graf 1: Association with the school (Source: Göttlichová)

Nevertheless, another position may on the contrary be seen in another one of the primary socialization factors, i.e. the school, even though the resulting values in the principal question concerning the popularity of school in pubescents, did not show any significant differences (606 positive and 477 negative responses), however, they were particularly the reasons presented which supported the thesis of the destruction of school [Graf 1]. Out of the larger list of presented response options directing at the justification of what evokes school in the eyes of respondents, the primary response stated the preference of friends (871) who they meet in continuity with entertainment (437), however, no educational benefit. From the educational perspective, **stress (540)** and **the accumulation of a huge amount of theory (475)**, or **boredom (474)** stood at the forefront of school-related responses. For 67 respondents, when it becomes to school, an image of a highly hostile environment was described, 174 responses warned about abusive behavior. What can be encouraging was a positive aspect of 284 responses which referred to the acquisition of practical skills, simultaneously with the responses preferring kind and likeable teachers (437) to those unpleasant ones (287). Despite the fact that the responses discovered some negative attitudes, which should be worth considering, they revealed which way school should engage and which approach educators should choose so that the authority does not decline, on the other hand 685 respondents quoted they prepare for school on daily basis, in comparison with those who do not devote their time to school preparation (384). The finding that 988 respondents care about their school results, which very much exceeds the number of those who do not (79) shows as equally beneficial, which also is evidenced by the fact that 386 pupils stated that with their school results they rank above the average, 584 are average students, and 100 respondents confessed to have poor results. Even though teachers do not become confidants for their students, and even though it could be said that they do not fully enjoy their authorities, which may be caused by for instance an inappropriate education leading to boredom or stress, the fact that pubescents care about their studying results. And they are not alone who care, as 1,021 (x59) respondents pointed out that their parents are interested in their children's school results, and 586 (x488) respondents confirmed parents regularly checking whether their children prepare for school.

3.2 Advertising as a socialization factor

At the beginning of the paper, we have raised the question of the extent to which the pubescent youth becomes affected by advertising, and whether besides the "negative" effect of advertising, it can also play the role of a "positive" impact. The aim is therefore to find out what pubescents think about advertising messages, and whether they are aware of their manipulative power. They have not yet been ashamed of admitting their positive attitude towards their parents, and they have also unequivocally presented a negative relationship to advertising

in continuity with shopping behavior. A negative attitude was expressed by **926** respondents, 136 responded positively, and 18 respondents did not answer. 328 respondents said they do not notice any advertising, whether it be a television or a radio, and always switches to another program, some admitted they switch to another program only occasionally, but definitely do not watch advertising (299), 340 respondents admitted they sometimes watch advertisements. Only 74 respondents said they still watch advertisements, and 39 did not comment on the issue at all. When purchasing an unknown product, 131 respondents are affected by advertising, 41 admitted they are significantly influenced, and 21 are subject to advertisement unconditionally. On the other hand, 820 in this case reject the impact of advertising.

However, what about **social advertising**? Are adolescents capable of understanding the passed message of the given form of advertising? And is social advertising able to “open the imaginary door” for the particular target group with regard to their age? The question whether pubescent children watch advertising (social), the aim of which is a behavioral and attitudinal change (no smoking, no alcohol, follow safety instructions, sort waste, etc.), was responded positively (**508**) as well as negatively (**501**) - i.e. almost equivalently, where **388/1** respondents confirmed that they are aware of its **positive benefit and necessity of its existence**, which means roughly a double (**181/5**) contradictory answers (175/2; 200/3; 80/4), where **259/1** (+181/2) think it would be advisable for this form of advertising to be **more widespread** among the target group, this time, on the contrary, almost by half lower number of respondents (**131/5**; 181/4) consider the current state to be sufficient. A prevailing number of respondents (325/3) took the neutral stand. From advertisements, most frequently the respondents named the area of road safety (BESIP, You do not think, you pay), health protection (anorexia, cervical cancer, alcohol, smoking), and the third place for environment protection (sorting and recycling of waste). If they could be creators of advertisement with the particular topic, they most often stated advertising portraying: **no smoking, no alcohol and no drugs, health protection and life style (x anorexia, bulimia)**, protection of animals and the environment..., respect for the elderly generation, interpersonal relationships, child abuse, anti-war advertising, ..., areas in which they see the primary issues necessary to be solved,

Table 3: May social advertising replace/complement family/school by its effect? (I agree- 1)

	1 family/school	2 family/school	3 family/school	4 family/school	5 family/school
Replace	237/192	153/152	311/367	137/156	159/125
Complement	191/ 95	139/131	380/407	117/117	165/150

Source: Göttlichová

As shown by the resulting values of the previous chart [Table 3], also in this case, a considerable number of responses (311, 31%; 367, 37%) presents that the respondents are not quite sure and take rather a neutral stand. Despite this, it is interesting to find that **273** (27%) respondents are fully convinced that social advertising might replace in certain cases the potential insufficiency of families when dealing with an issue falling within the competence of a family, and simultaneously also into the thematic areas of social advertising (e.g. advertising x smoking in a family which smokes), i.e. totally 390, 39% (x296, 30%); in school, the number of responses is lower (344, 35% x 281, 28%). Although the lowest number (**95**, 11%) of responses represents the vision of social advertising in the form of complementing education, there still appears a large space for a neutral stance, which the school may beneficially utilize. And even here, as had already been shown by another research carried out in secondary school youth (Göttlichová, 2016), it should be teachers who should change their approach towards the adolescent youth as they often do not manage to efficiently and persuasively explicate issues connected with the growing problems of our times continuously attacking younger age, being it e.g. anorexia, alcoholism, smoking, drugs, AIDS and STD prevention, domestic violence. The reason may be a generation gap, as well as the ever-persisting impersonal and strict theoretical form of education. To prove this statement, the fact that the most frequently quoted means of the media where the respondents meet with the social advertising was the TV, then the Internet, and consequently printed media, only occasionally it was school, even though media education has become an important part of education. The school could appropriately include social advertising (campaigns) into the educational program of primary schools within family or social education, in biology classes, or even in the media education classes and with the analysis of the issue of the advertisements with the aim to identify with the topic and to take part in its solution, but inform, educate, attract and entertain by specific cases.

3.2 System of values of the pubescent youth

The last part of this paper deals with the last of the questions: *What value system is preferred by the contemporary generation in the pubescence?*

Table 4: Preview of preferred values

Values	Index	Order
Health	4.46	1
Friendship	4.42	2
Freedom	4.30	3
Education	4,29	4
Family and children	4,18	5
Success at work	4,15	6
Developing of own personality	4,14	7
True, knowledge	4,12	8
Peace	4,09	9
Good salary	4,05	10
Hobbies	4,01	11
Being useful for others	4,00	12
Environment	3,99	13
Love	3,94	14
Good position in society	3,92	15
Property	3,83	16
God	2,45	17

Source: Göttlichová

As shown by [Table 4], the forefront of the preferred values, **health** ranked as the first one, which corresponds also to the proposal of an area the respondents would like to pay attention to in the first place if they had the possibility to create a social advertisement. At the same time it is health which pubescents perceive as one of the most significant option in the case of complementation or replacement the influence of their families or schools, as at this age they already realize the consequences of drug abuse, alcoholism, etc. **Friendship** follows fully corresponding to the target group as friends are those who gradually play more important role in the lives of pubescents, and whose presence in their lives was confirmed by 1,053 respondents. With that, preference of **freedom** comes, which verifies the effort for autonomy, again characteristic for the particular age. **Education** considerably enhanced its position in comparison of the surveys carried out at the end of the 20th and at the beginning of the 21st century (Sak, 2004), which becomes evident also from the interest of pubescents in their study results or school preparation under the influence (or supervision) of parents, even though the authority of school/teachers has been being diminished. The **environmental area**, as well as the question of **faith**, has declined significantly since the after-revolutionary era, and this fully corresponds with the character of the contemporary “atheistic society”. Whether it be the relationship to the environment (13), or the help to others (12), the effect of social advertising, based on the responses, would have its well-founded place. The results also show that to know how to integrate oneself into the society, does not yet belong at this age to highlighted priorities. And here we again come to media education, whose important priorities within the curriculum, among other things, include instructing pupils to be aware of the value of their own lives (especially their free time) and the responsibility for its fulfillment; the development of the awareness of prejudices and simplified judgements of the society (especially the minorities) and individuals, and helping to realize the possibility for free expression of one’s own attitudes and responsibility for the way of their formulation and presentation.

CONCLUSIONS

As shown by the results, we may regard the expression of positive relationships to parents as a positive information, which proves that the authority of family, particularly the mother’s position, remains the key role for the adolescent in the pubescence stage even in today’s “over-medialized” world, as in crucial life events and decisions and steps directing these children into the life of adults, parents remain those who determine their direction, to whom they can trust, and who they can lean onto. Home evokes the notion of a pleasant and safe place. Friends enjoy an increasing importance, demonstrated in the preferred value of friendship, reflecting in the strong impact on the leisure time. And here it is important to focus enough attention on the part of the family and the school. Although the research has revealed only minimal values of occasional or regular intake of alcohol, drugs, and smoking in the particular target group, the number of answers for those who have already tried alcohol and cigarettes and those who have avoided this experience is high and almost identical. For example, in the “fight” against smoking, alcohol consumption, drug abuse, etc., we could see a significant contribution of social advertising. It should be the school that should strive to maintain its diminishing authority in the eyes of adolescents. As shown by the research, social advertising can play the role of a prominent partner (not just of a school but also of families) in all four areas as specified by Kotler, Roberto, Lee (2002), in terms of health,

safety and health prevention, environmental protection (with regard to the placement in the scale of values) or social engagement. **Its influence on the values of adolescents at the threshold of adulthood can thus be seen as a positive one, in a direct continuity reflected in changes in attitudes and behaviors** (Cheng, Kotler and Lee, 2011) to which they aim, be it the adoption of a new way of behavior (e.g. focusing on environmental issues and enhancing them), rejecting a potentially dangerous behavior (such as drinking alcohol, drugs), changing current behavior (e.g. less water consumption for washing and showering), or leaving the old behavior (e.g. smoking). As a conclusion, we can acknowledge the contribution of social advertising, which in the form of one of the most important socialization factors hand in hand with the family and the school is capable of helping young people on the threshold of adolescence to direct the presentation of the "proper" values through the "proper" way of life.

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The Role of the Musical Learning in the Development of the Socio and Cognitive Abilities. A Review

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ABSTRACT

Over the last decades, brain research has shown the essential role played by the diving in stimulating experiences during the first years of life in developing both multiple neural connections and networks and cognitive abilities. In this direction, Perry affirmed that the exposure to visual, sound, tactile stimuli contributes to the development of motor, emotional, behavioral, cognitive and social skills. In fact, the early experiences are crucial to the development of the architecture of a young brain and, in particular, in this process the music has a fundamental role. These empirical evidences are subject of a debate that has even invested the educational policies of teaching syllabus in the primary/secondary schools, where the teaching of the music seems to assume an important role in promoting the learning process of language and socio-emotional skills. In light of these premises, the current paper aims to provide a review of the recent empirical studies, which have explored the contribution of musical learning in the development of the cognitive and social skills.

INTRODUCTION

Research in neurosciences has meaningfully contributed to the science of education. In particular, brain research has shown that diving in stimulating experiences during the child's early life is crucial for the formation of multiple neural connections, thus promoting the development of multiple abilities (Olsho, 1984). Previous studies have also shown that approximately 50% of the brain is well structured between 7-11 years and between 9-13 years, and that brain undergoes an elimination process of unnecessary associations, while maintaining those networks used (Thompson & Nelson, 2001). Conversely, other studies found a certain scarcity of neuronal connections in children that were in a state of cultural deprivation and whose brain appears 20-30% smaller than peers (Harris, 2009). This last aspect implies a dual value in research, as several studies have shown that music education in childhood is positively associated with non-musical skills, thus ignoring socio-economic variables, such as parenting and family incomes, which could affect children living in cultural contexts rich in stimuli (Schellenberg & Mankarious, 2012).

Although Perry has recently noted that the exposure to stimuli (visual, sound, tactile) contributed to the development of motor, emotional, behavioral, cognitive and social skills (2000), early studies on musical learning and its effects on cognitive abilities seem to appear in the early 90s. These studies focused the attention on children's exposure to exercises or simply listening to music that would have affected their musical intonation and language development (for a review, Kliuchko, et al. 2015). Gordon has promoted that early musical experiences are fundamental to the development of the architecture of a young brain, thus emphasizing the fundamental role of music in this process (Gordon, 2003). Contemporary studies, however, have overcome correlation results concerning the association between musical (or artistic) learning and other types of school learning, such as mathematics. The focus of research has shifted to cognitive sciences paying attention to modularity, plasticity, and skills transfer (Peretz, 2012). Starting from this consideration, if neuronal connections are responsible for any kind of intelligence, the question that arises is how music can facilitate these connections.

THE STUDY

The first link between music and learning emerges in the acquisition phase of the language that is an articulation of sounds blended into words and phrases. Such language skills will be directed to the written and read form. Gordon's schematization of language and music learning is composed of the following phases: listen-speak-read-write (Gordon, 2003). As it can see, both learnings follow a formally similar pathway, but they differ by content. It should be mentioned that studies on lateralization of the brain have shown that linguistic stimuli are processed by the left hemisphere, while the musical stimuli by the right one. However, a recent review has shown that music education produces not only good listeners, but also better performance in verbal skills tests, including

vocabulary, phonological awareness, reading and spelling (Schellenberg & Weiss, 2012). According to this study, music education is also positively associated with performance on space capacity tests and non-verbal reasoning. The specificity of this study is that by taking into account demographic variables music education is positively associated with performance on the tests of hearing and visual memory (Degé, et al. 2011a) and with Intellectual Quotient (Schellenberg, 2011a).

Another area of research deals with the development of social skills related to music learning. The main objective in children by playing and singing is to have fun; therefore, it has been shown that music is not only a form of social interaction, but also it facilitates implicit acquisition of social skills and behavioral rules. Music, in fact, plays a fundamental role in the construction of social relationships since early childhood, period in which children establish relationships with caregivers through sounds or melodies, too (Deasy, 2002). If there is such a consensus on the association between music learning and social skills, more controversial is the link between musical intelligence and math or sciences learning. An idea that is commonly 'naïvely' shared is that music can be linked to mathematical abilities thank to the real presence of mathematical properties in architectures and organization of patterns and to musical rhythms. Such research have shown the transferability of rhythmic-musical skills and competencies to the scientific field, although these results are still contrasting and unsatisfactory (Scripp, 2002). On the contrary, from these studies a positive association between musical attitude and general intelligence has been found, so that 'Musical Aptitude' becomes an Indicator in predicting general intelligence (Robinson, & Aronica, 2015).

Furthermore, other studies have indicated that specific melodies produce emotions, such as anger, joy, and sadness. Anger, for example, is evoked by complex melodies in conjunction with very powerful sounds; joy, instead, through simple melodies accompanied by a fast pace; sadness through complex melodies and a slow pace (Harris, 2009). Partially overlapping with the emotional construct, the side of emotional intelligence should take into consideration, given that a heated debate has been arisen since the '90s. Indeed, emotional intelligence is characterized by four skills: the emotional discrimination, the access to emotions to generate thought, the understanding of emotional knowledge and the reflection for emotional and intellectual growth. An Interesting research field is related how to find out connections between the language inflections (the stamp) and outcomes on emotional intelligence, as well as the meaning of the song aroused in listeners and its effects on emotional intelligence (Trimmer & Cuddy, 2008). A study carried out by Gleason (2014) has hypothesized that effects on emotional intelligence are related to innate musical abilities rather than to repeated musical training sessions. According to these findings, the musical capacity, stimulated by musical composition tests, mediates the effect of musical formation on the dimensions of emotional intelligence. Supported by this model, emotional intelligence overlaps with the construct of musical intelligence in terms of emotional reasoning and competence, and of the development of social skills underlying the intersubjective nature of emotions.

In this direction, Thompson et al. (2004) hypothesized that music lessons would accelerate improvements in perceiving age-related emotions. This hypothesis raises the possibility that aspects of emotional intelligence are mediating factors in a relationship between musical formation and sensitivity to emotional prosody. A partial disconfirmation comes from two surveys (Resnicow, et al. 2004; Schellenberg, 2006) conducted in different periods and contexts, reporting no differences between musicians and non-musicians on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT, Mayer, et al. 2002). This test is based on the ability that requires judgments in four main branches of emotional intelligence: to perceive emotions, to facilitate the thought of emotions, to understand emotions, and to manage their emotions. These results of the absence of any relationship between musical formation and emotional intelligence are important, because they show no mediating effect of emotional intelligence, although the nature of the relationship between musical formation and sensitivity to emotional prosody has not been described.

FINDINGS

Based on these premises, studies have unequivocally demonstrated that musical education correlates positively with prosocial behavior in early childhood (Schellenberg, et al. 2015). As far as social skills are concerned, an important study has explained that the main activities of music training are carried out to socialize or to be performed together with other people, or to express one's ego. Consequently, based on these results, music education has a fundamentally social matrix and it can play an important role in promoting interpersonal skills, teamwork, and co-operation' (Hargreaves, et al. 2003, p.160). This study is also fundamental, because it stressed the social aspects of music by placing order among all the knowledge in social skills, by tracing the cognitive

aspects that trigger such processes, such as cooperation, communication (both verbal and non verbal), positive peer interactions, peer collaboration, responsibility, attention, impulse control, delayed gratification, and accepting consequences (Hargreaves, et al. 2003).

Starting from this assumption, subsequent research has shown that musical experiences not only have effects on socialization processes, but also it represents a tool that stimulates further learning (such as positive changes in social behaviors), structures positive peer interactions, stimulates nonverbal expression, facilitates self-expression, develops interpersonal skills and group cohesion, facilitates social play, and improves on-task behaviors (Juchniewicz, 2014).

A recent review (Holochwost, et al 2017) underlines some benefits in subjects undergoing various musical treatments to different age ranges and provided for different durations (Schellenberg, 2006). The benefits of these programs are attributable to specific characteristics of musical education such as progressive difficulty and multimodal sensory integration (Bugos, et al. 2007). Within this theoretical framework, the review proposes various explorative hypotheses about the value of musical education on the various aspects of cognition: a very fascinating aspect is the fact that music education offers advantages to conative skills, such as motivation of accomplishment or self-esteem. While the existence of a correlation between musical education and the motivation has been proved (Santos-Luiz, et al. 2015), future research should deepen this hypothesis, focusing on two main research paths: (1) it should be demonstrated unequivocally if musical education produces higher levels of motivation, if this motivation remains constant over time or even decreases. (2) The times of maintaining the motivation, the effects of students' interaction on its levels, and, finally, what effects of the acquired or lost motivation on both the musical and the non-musical formation.

Other positive effects of music education on academic achievements is supported by the mediation of another important mechanism, i.e, executive functions (Schellenberg & Peretz, 2008). On this topic, the empirical investigations have shown different results (Degé, et al. 2011a). Although the question of the mediating role of the executive functions between music learning and academic success has not been unanimously defined, the influence of music on the executive function have also been studied. It has been hypothesized and empirically supported that the repeated and sustained engagement in music, if associated with better effectiveness of the components to executive functions (work memory, cognitive control or cognitive flexibility, etc.) can go on progressively by influencing the parasympathetic nervous system to a configuration that supports the cognitive processes of the executive functions. The empirical evidence of this hypothesis is based on the assertion that the acoustic characteristics of music - especially experienced in social groups - can promote a higher parasympathetic nervous system activity, defining a safe environment for subjects, who report a state of calm (Porges & Lewis, 2009). Although some scholars suggested the role of executive functions in building and training specific skills (Hannon & Trainor, 2007; Schellenberg & Peretz, 2008), results differed in this regard, with obvious associations with some executive function measures, but not with others (Moreno, et al. 2011; Schellenberg, 2011a).

One of the greatest inconsistency emerges from findings on social skills related to artistic education showing partially contradictions. Indeed, some studies revealed that drama lessons improved social skills, but at the same time music lessons will not have effected on such skills (Schellenberg, 2004), and that piano lessons (Costa & Giomi, 2004) and the learning of musical instruments (Portowitz, et al. 2009) were not associated with self-esteem improvements. Although the links between musical formation and cognitive skills are relatively consolidated, the association between musical formation and executive function can not be neglected in research. These results do not support the hypothesis the mediating role of an executive function in the association between music formation and IQ. When considering this topic in depth, Sala and Gobet (2017b) do not share this association, suggesting that children with higher IQs are more geared towards taking music lessons (even at the suggestion of their parents) than peers with lower IQ, and that consistent with their IQ results these children perform good levels in cognitive ability tests,. However, the same study does not explain and investigate the value and role of the executive function.

Musical training is also positively associated with performance on spatial capacity testing and non-verbal reasoning. Because these associations extend into different cognitive domains, they involve general domain processes (it is hypothesized of general intelligence). In fact, even after having taken into account demographic variables, musical formation is positively associated with performance on the tests of auditory and visual memory (Jakobson, et al. 2008; Degé, et al. 2011b) and with IQ (Schellenberg, 2006, 2011a, b; Schellenberg & Mankarious, 2012). These data were basically accepted in almost all studies.

There are interesting studies about the ability to acquire a second language related to music education, or better to say who perceives proper music education can achieve better results in acquiring a second language; in two consecutive studies, Milovanov and Tervaniemi, reported that Finnish children and adults, who have good results in music aptitude tests, tend to have good pronunciation in English. In children musical attitudes have been positively correlated with the visuospatial component of intelligence tests, while in adults, the association between musical attitude and pronunciation of English has remained constant, even when individual differences in musical training, intelligence and the ability to discriminate phonemes have been kept constant. (Milovanov & Tervaniemi, 2011). This once again demonstrates the effectiveness of music training at an early age. These studies show that good foreign language learning presupposes greater musical attitudes in elementary school children, but poses the possibility, during experimental testing, that musical and linguistic skills may in part be elaborated on shared neural mechanisms.

As above-mentioned, a common assumption based on the presence of mathematical properties in patterns and musical rhythm architectures is that music learning is cognitive-related to mathematical skills, Anvari et al. (2002) found a correlation between basic math skills and musical attitudes in 4-year-old children, but not in 5-year-olds. Associations between music education and mathematics, however, are very controversial compared to clearer associations with other aspects of cognition. Only a meta-analysis of correlational studies concluded supported a mild positive association between musical education and mathematical abilities (Vaughn, 2000). Although Bahr and Christensen, (2000) reported a modest positive association between musical education and math skills among high school students in their experimental study, Sala and Gobet (2017a) explained this association in terms of individual differences: children with more intellectual skills are more likely to follow music lessons and thus to have better performance in math tests than other children. Conversely, Southgate and Roscigno (2009) demonstrated that performance on a standardized math test was independent of music training among more than 7,000 second-year high school students.

Finally, other research dealt with the role of personality in music education. The first scholar who defined the musical temperament as a series of character attributes of the artist's personality was Anthony E. Kemp (Kemp, 1997). According to this author, the fundamental dimensions of musical temperament are Introversion, Independence, Sensitivity, Anxiety and Superior Intelligence. Moreover, introversion in musicians is related to the tendency to live, interiorize and symbolize the musical experience. Independence is linked to non-conformity, to individualism and to the eccentricity of artistic life. Sensitivity describes the reflection on the inner dimension of things, rather than on the material dimension. The anxiety of musicians emerges within a sensitive and restless personality characterized by internal concerns, dilemmas, and search for perfection. The trait of intelligence shows that the general intellectual skills of the musician are beyond the average. This fascinating interpretative hypothesis has recently been partially confirmed by further studies (Coffman, 2007; Mihajlovski, 2016), according to which the expression of the personality of the musician is not only determined by musical education, but emerges from many external factors that would affect individuality, perception and the personal identity of a musician. Moreover, these studies confirmed all the dimensions studied by Kemp, except for a higher level of general intelligence in musicians than non-musicians. The artistic personality of musicians would in fact be the result of motivation, self-control, and cognitive constructions needed to create a strong professional devotion to music as well as a high level of musical skills (search for perfection) to be exercised daily.

CONCLUSIONS

The purpose of this study was to find out empirical evidence to the hypothesis according to which music education is involved in the transfer of skills not only in the educational field, but also in the workplace and in everyday life too. The starting point for this study was the examination of two contemporary reviews conducted by Sala and Gobet (2017b), and Holochwost (2017), who point out different views on this subject. Of all the areas investigated, the major of the studies reported that music education has positive effects on general intelligence and memory. To this purpose, it should be remind that from historical point of view Thorndike and Woodworth (1901) defined the transfer of skills, as a shift of learning-based associations into new situations that share common elements with past learning experiences. This general idea guides researches and research designs are based on the affinity between the areas of the investigated skills.

The current research has dealt with the complexity of the topic, reviewing the observed correlations between music formation, intelligence and memory, and the association between music and other cognitive abilities. The

explored studies have showed that music education improves general intelligence that is related to many cognitive abilities and academic skills, such as second language learning or math, thus confirming the hypothesis that music education can improve overall cognitive abilities in children and adolescents, and may have secondary effects on all the other investigated skills and competences.

Another explanatory hypothesis dealt with the influence of education on executive functions as the basis of the transfer of skills, since studies have shown that early-adolescence and early-stage music treatment are positively correlated with work memory, cognitive control or cognitive flexibility. Moreover, when considering the education of music in relation to the study of an instrument, the specificity of the training involves various executive functions.

Music learning is intersecting with language, communicative, and social skills, although specialists are still struggling if there are correlations with mathematical learning and other kinds of understudied skills, as suggested by some researchers. In adolescence, music education has effects not only on brain development but also on the acquisition of various cognitive abilities. Finally, a fruitful field of research focuses on the link between emotional and musical intelligence and how they influence each other in order to explore future implications in the educational field.

A highly accredited and shared hypothesis concerned the possibility that some aspects of emotional intelligence are mediating factors in the relationship between musical formation and emotional sensitivity. Although musical treatment is related to the age in which it is performed, it can affect emotions, facilitates emotional thinking, permits to understand the emotions transmitted by a musical track and, ultimately, to handle one's emotions.

The success of all these researches has many explanations: studies, in fact, question whether music education was associated with better performance on measures of good academic success, to reformulate didactically the teaching programs in the school. The international context presents a strong interest from a teaching point of view on music education in study programs. In the United States, some extracurricular music education programs are generating great interest from those who deal with educational policies for learning centered on the individual and positive effects on school leakage for their continuation over lesson hours. These programs produced, at a first glance, an educational success in terms of recovering students at risk (Houlahan & Tacka, 2015), and, like sport discipline and subject matter, in terms of the decreasing of aggressive behaviors (Monacis, et al., 2014; 2015).

Within the Italian context, the current educational policy and politics are affirming that children and teenagers have been undoubtedly become the major scholars in music education. These concepts are nowadays subjected to debate concerning the general school planning and the introduction of new experimental musical secondary school courses (Toto, 2015). This new kind of educational opportunity could address future research to better understanding of the role of music in learning and in general intelligence. On the other side, if the validity of the causal relationships between music education and general learning will be tested, then important implications will be implied in terms of rethinking the didactic methodologies with new learning objects (Blacking, 2017).

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The Role of the Rehabilitation Nurse in Pain Management

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ABSTRACT

Pain is a public epidemic affecting millions of people worldwide, increasing health care expenses, diminishing work performance and increasing lost productivity. This study it has as objective describe the role of the rehabilitation nurse in pain management. One is about a bibliographical revision based in the literature specialized selected scientific articles through search in the data bases, specially MEDLINE. Although no restrictions were made on the articles language, most of them were written in English. Abstracts and titles from references of the used articles were analyzed in order to choose possible eligible studies useful in this review. The studies found on the role of the rehabilitation nurse, pointed out that this professional has a very important intervention in the prevention and control of pain.

Key words: Rehabilitation, Nurse, Pain Management, Health

INTRODUCTION

Pain is a public epidemic affecting millions of people worldwide, increasing health care expenses, diminishing work performance and increasing lost productivity (IOM, 2011 cited by Williams, 2017). Nurses can play a key role in pain management, using best practices in the assessment and management of pain under a holistic approach where the person plays a proactive role in addressing the disease progression (Morales-Fernandez, et al. 2015). This current pain management includes pharmacological and non-pharmacological measures. Additionally, nurses, in collaboration with additional healthcare personnel, must select an appropriate method for the treatment of pain and adjust it appropriately to the subject's preferences and values. Nurses can make recommendations on medication, due to their pharmacological training, and help implement complementary non-pharmacological procedures (Registered Nurses' Association of Ontario, 2007 cited by Morales-Fernandez, et al. 2015).

According to the Association of Rehabilitation Nurses (ARN, 2014), rehabilitation nurses play an important role in assessing and managing acute and chronic pain. In this role, they assist as a manager of care and as a patient advocate to enable a self-management plan. Additionally, provides pain management information and instructs patients and families to encourage wellness, with the intention of improve functional capabilities. Rehabilitation nurses have a scientific understanding of physiology, pathophysiology, psychosocial factors, and also uses pharmacological and non-pharmacologic approaches to prevent, identify and alleviate pain. In addition, these healthcare professionals may pursue further education and accreditation in areas of pain management. Specialized advanced practice nursing roles in handling pain, can encourage and educate greatest practices for rehabilitation nurses.

Definition of pain management for rehabilitation populations

In 1974, the International Association for the study of Pain defined pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. This description constitutes imperative advances in the conceptualization of pain, viewing it as subjective, granting

importance to the subject's verbal expression in defining the disorder and presenting it as a complex experience. This concept comprises sensory, cognitive and motivational dimensions and consequently, a multidimensional method is required (Morales-Fernandez, et al. 2015).

The rehabilitation nurse's role is to respond to individuals affected by pain with appropriate patient-centered interventions and empathy (ARN, 2014).

Importance of controlling pain

The patient suffering will have various consequences in their life and in their relationship with others. Physical and psychological wellbeing are greatly dependent of the degree of pain they are feeling. Physically, pain will reduce patient's mobility, which may lead to serious consequences such as pneumonia, deep vein thrombosis, or pulmonary embolus, which have to be addressed in time and successfully by nursing care to prevent even worse outcomes (Wells et al, 2008). The stress these patients are daily subject, due to their pain, may also lead to temporary impairment of gastrointestinal function and increase in risk of ileus. Immune functions may also become suppressed, including natural killer cells, which can be especially harmful in patients with metastatic cancers (Pasero, et al. 1999; Liu, et al. 1997; Page & Ben-Eliyahu, 1997 cited by Wells et al. 2008). These facts will lead to psychological issues. Psychologically, the lack of response in reducing or eliminate patient's pain will lead to their frustration and disbelief in medical care. In more sensitive cases, this can lead to states of anxiety or depression, which can become chronic if the pain remains unwell addressed and the patient begins to feel hopeless. In ultimate cases, patients who feel they can't pursue the life they once had, pain-free, that can't maintain a job because of the suffering they're in, or have successful relationship with others, may, in despair, turn to suicide. Ultimately, if not well addressed and relieved, acute pain can become chronic at a later date (Hampton, 2005; Opstelten, 2004 cited by Wells, et al. 2008).

Chronic pain is most often complex and caused by different reasons, such as physical, social, psychological and spiritual factors, affecting one in five individuals worldwide, according to IASP and EFIC. In Europe alone, the prevalence of chronic non-cancer pain is 19% (Breivik et al., 2006 cited by Morales-Fernandez, et al. 2015). Individuals with severe diseases, as cancer patients, hospitalized or outpatients, describe an ongoing moderate to severe pain, revealing that these don't receive the optimal pain management and care (Rustoen et al, 2008). The presence of metastases and breakthrough pain increase exponentially the pain scores in these people (Holtan, et al., 2007; cited by Rustoen et al, 2008).

It leads individuals in search of various solutions and treatments, often leading to none or limited improvement of the degree of pain, being a common reason for patients to seek medical care (Teets, 2010; Hillinger, 2017). Chronic pain is described as one that does not improve with time, and that exists continuously for more than 3 months or intermittently so for 5 or more days per week. Half of the people with chronic pain are thought to suffer from severe pain, and 1 in 3 patients with chronic pain have reduced ability to live an independent life (Mayo Clinic, 2006; Morales-Fernandez, et al. 2015). This persistent pain can affect only a specific part of the body, for instance a low back pain, or several regions, like fibromyalgia and osteoarthritis. Musculo-skeletal disorders, although most of the times being associated with self-limiting pain, are the leading cause of temporary absence from work or permanent work disabilities across Europe in working adults (Bevan, 2015 cited by Cochrane et al, 2017). At this stage, pain becomes an illness itself, and not only a symptom of a disease or injury (Mayo Clinic, 2006).

Establishing Goals for Pain Management with People in Rehabilitation

According to ARN (2014), improving the quality of life and maximize the level of functioning of patients with pain, are the primary goals for rehabilitation patients undergoing pain management. As an ultimate goal, these individuals are expected to return to their normal day-to-day activities, with increased strength, flexibility and less use of pain drugs. They will acquire stress management techniques and learn how to minimize pain behaviors, which will grant them a more independent life, reducing their necessity of healthcare professionals. There for, pain management will allow these patients to work efficiently, improve their personal relationships and enjoy recreational activities (Mayo Clinic, 2006).

Assessment of Pain

The successful management of pain is above all related with its correct assessment, which is a basic step to reach a stable and comfortable pain control (Wells et al, 2008). The evaluation and description of the pain felt by the patient himself is often not accurate due to various facts such as erroneous beliefs or a culture of fatalism. This will influence the addressing of pain by healthcare professionals, which most of the times aren't fully prepared and/or don't have the necessary equipment (Consejería de Salud. Junta de Andalucía, 2011 cited by Morales-Fernandez, et al. 2015). Nurses are crucial in the assessment and management of pain, which is a nursing sensitive indicator (Brant et al, 2017). Sometimes, the difficulty relies in finding a treatment plan to handle an acute and punctual pain, over a preexistent and chronic pain (Keen et al., 2017).

Pain intensity can be measured in a numeric rating (e.g., visual analogue scale, numeric rating scales), verbal rating (mild, moderate or severe pain), or using scales with draws/pictures for patients with limited cognitive-ability. These scales were developed and validated in order to measure the intensity of pain in a standard, simple and brief way, and should be used in all cases to improve the success of the treatments. Adding to this scales, location and quality of pain are also important elements to remember in this process. The positioning of the patient during a procedure or the padding used may cause some pain, which needs to be differentiated from chronic pain the individual may suffer from. Therefore, the quality of pain changes accordingly with the underlying etiology (Wells et al, 2008). The process of determine the origin and type of pain is an important assessment performed by the rehabilitation nurse, which has to be able to differentiate between several different types of pain (orthopedic, neurologic, surgical, musculoskeletal, oncological, among others) (ARN, 2014).

Treatment Disciplines

During decades, pain was badly handled by healthcare professionals, including nurses. This was due to the lack of knowledge or wrong notions on how to manage pain, that were then perpetuated. This is demonstrated in several researches available in the literature (Brant, et al. 2017).

Treating pain is often a challenge due to various factors, such as social stigma about pain itself, fear of addiction, and the difficulty of healthcare personal to find the adequate response to the specific pain (Institute of Medicine, 2011; Meeker et al, 2011; Oliver et al, 2012 cited by Brant et al, 2017).

Nowadays, addressing pain and its management is a required field in any healthcare setting, which makes rehabilitation nurses a vital staff in every scenery. They are the first people in contact with the patients' complaints, in areas so different as at school nursing, home care, nursing homes, and numerous others places, being able to act in the prevention and care of pain (Hanks-Bell, et al, 2004 cited by Williams, et al, 2017). Rehabilitation nurses guide themselves by the validated guidelines and standards for pain management (ARN, 2014). Besides these guidelines, these professionals also have to take in account the patients beliefs and phycological state, to help them set and achieve individualized rehabilitation goals. They have to stablish a relationship of collaboration with the patient's family, along with others healthcare professionals, as well (ARN, 2014).

Rehabilitation nurses have to be able to follow the right path to treat the patient's pain, choosing between the various paths and therapies currently known to be helpful in managing pain. If the treatment doesn't have the expected results in controlling pain to an acceptable level or, preferably, end it, these professionals have to be able to direct the treatment to a more suitable and effective plan (ARN, 2014).

Drug Techniques to Manage Pain

Controlling pain is greatly associated with the use of pharmacological strategies, which normally is very cost effective. Several medications are not subjected to medical prescription, like analgesics, which are specially used by elderly people, normally to reduce chronic musculoskeletal pain. This self-management of pain may have serious consequences to this population, probably contributing to an under treatment of pain. (American Geriatrics Society, 2009; Hanlon, et al. 2001 cited by Nawai, et al. 2017).

The diversity of underlying mechanisms involved in persistent pain makes it multifaceted, along with the need to use and vary several pharmacological approaches in order to restrain it (Pasero & McCaffery, 2011 cited by

Keen, et al. 2017). Sometimes the method used may not be the most efficient and/or lack to deliver the fast reply the patient is expecting, persuading providers to prescribe, unconsciously, an increasing amount of pain killers to give patients the illusion of a stronger and faster pain control (Bandstra, 2016 cited by Keen, et al. 2017). Statistically, 64% patients believe that the pharmacological treatment they're receiving is inadequate (Morales-Fernandez, et al. 2015). Along with this statistic, another study done with older adults subjected to treatments and medications for their pain, attests that these patients suffering from moderate to severe pain only report a relief of 41-70% in their degree of pain. Based in this study, we can deduce that medical treatments usually aren't sufficient to entirely relieve individuals from their chronic pain (Nawai, et al. 2017).

In the other hand, there are innumerable studies attesting the success of pharmacological treatments in individuals suffering from pain. The difference stands in the correct use of analgesics at the right time, which attests the importance of a correct assessment, prescription and administration of analgesics by healthcare personnel (McCaffery, 2002 cited by Wells, et al. 2008).

Rehabilitation nurses play a vital role at this matter. They will decide what is the correct analgesic to administrate, in what dose, at what time, and that will make all the difference in the patient's pain relieve. Desirably, there has to be the sensitivity to anticipate the need to control the patients' pain, before implementing therapy activities (ARN, 2014).

The fact that moderate to severe pain can be anticipated, based on clinical practice along with supportive evidence, is a great help in doing so. According to these evidences, a rapid reaction, a correct analgesic management, at a fixed-dose schedule will be crucial to control activity-related pain. When talking about the use of opioid drugs, several steps have to take into account in order to guarantee their safety for the patient. It's very important to start the treatment with a lower dose, and carefully assess the outcomes of that administration, always remembering the onset of action of the drug administered (ex. IV or oral opioids). To maintain or alter the analgesic administration plan, healthcare personnel need to compare the pain intensity described by the patient before and after the administration of the medication, and any side effect the individual may be attest. If rehabilitation nurses come to the conclusion that the used drug isn't the better plan to follow with the patient, they can turn to another in the same class of drugs, based on the fact that each patient respond differently to different analgesics (opioid or nonopioid) (Wells et al, 2008).

Sometimes, there's a need to raise the home regime of the opioid, when inpatients who suffer from persistent pain simultaneous experience acute pain, in consequence of procedures or a punctual disease, for instance (Pasero & McCaffery, 2011 cited by Keen et al, 2017). The high and continuous use of opioid will make patients develop a certain tolerance to that drug, which obliges to a constant increase of the concentration to obtain a comfortable pain relieve for the patient. Taking this into account, healthcare personnel usually don't feel comfortable increasing the dose of the drug right away. Sometimes this developed tolerance by the patients may cause the healthcare professionals to doubt the constant apparent need to increase the dose, and lead to patient discrimination, based on individual characteristic (Lewis, 2015). Besides this stigma, the continuous use of opioid is associated with sometimes tough side effects, like diminishing of one's functioning or mobility. All of these facts make the use of opioids a complex and sometimes controversial matter. There is medication available that relatively successfully controls individual's pain with fewer side effects, depending on the patient response to them. In addition, regularly there's the need to control other illnesses associated with chronic pain, like depression. Appropriate medication can help manage these conditions (Mayo Clinic, 2006).

Thus, there are several alternatives to achieve a comfortable pain control, most of which are intrinsically attached to opioids, who are the most used prescribed analgesics to control different types of pain (Wells, et al. 2008).

There's still a need to improve knowledge about analgesics in general, opioids and nonopioids, in order to dismiss fears about this medication. This will help nurses improve pain management with their patients at a safer and more successful way (Brant et al. 2017).

Nondrug Techniques to Manage Pain

Due to the complexity and usual side effects associated with the use of drugs on managing pain, the use of alternative and non-pharmacologic therapies is uprising. Regularly, in their day-to-day life, people use some of these strategies in order to relieve their own pain (Wells, et al. 2008).

There are several complementary and noninvasive strategies that can and are normally used by rehabilitation nurses to control pain and improve functional status, like therapeutic massage, application of cold and heat, acupuncture, among others. These types of technics belong in the group of physical practices, helping alleviate pain by altering physiological processes involved in it. Along with these, homeopathic and holistic strategies, like relaxation, music and pet therapy are also used by nurses to manage pain on a free-drug manner. These kinds of cognitive approaches are very important, since there are proofs that there is a significant relief in patients' pain, when their attention is turned to other subjects. Expectably, the meddling these techniques do with the patients' mental functions, will help them experience a momentary feeling of well-being. (ARN,2014; Wells et al, 2008).

Stress Management and Relaxation

An important interaction to have in mind when we are talking about people with chronic pain is their physical condition along with their mind status. The way patients face their illness will have a strong impact in their healing process, and in the way, they'll learn to manage their pain. These people are subjected to a continuous stress that will consequently lead to an increase of the patients' degree of pain, caused by, for instance, muscular tension. This increase in the felt pain will, consequently, augment patients stress, being a harmful and ceaseless cycle. Rehabilitation nurses, throw stress management, will teach their patients the skills to break this vicious cycle, throw exercises of relaxation, among others. This will allow patients to fell more in self-control, less anxious and ultimately and desirably with diminished muscle tension (Mayo Clinic, 2006).

Relaxing is very important in managing chronic pain, but also in episodes of acute pain. Different kinds of exercises should be used for each case, differing in their complexity and time of training needed. For acute pain episodes, there are simple techniques patients can use to help them relieve their pain, live rhythmic breathing or jaw dropping. In persistent pain, the time dispended has to be greater and the exercises are more complex, usually needing primary training and practice. During 15-30 minutes, the patient has to do exercises that include progressive, systematic or autogenic training. This is a common path to follow when the goal is muscle relaxation, for instance (Wells, et al. 2008).

Music

It's well known the positive effects music brings to people, awakening senses that relaxes and improves physical, cognitive and emotional aspects of one's life. Throw music, patients experience a momentary relief in their pain and anxiety, probably by the fact that their mind is somewhat distracted (Dunn, 2004; Vaajoki, et al. 2012 cited by Hsu, et al. 2016). Not all kinds of music are good pieces to achieve this goal. They have to be soothing and bring a feeling of peace to the patient, like instrumental and rhythmic music. During 20-30 minutes people will be exposed to a single or multiple exposure of slow jazz, synthesizer, harp, piano or orchestral (Good, et al 1999 cited by Wells, et al. 2008). There's a study done with burn patients that proves that playing crystal music, originated from a crystal piano (60 dB), during dressing changes, begging 15 min before until 30 minutes after, leads to an expressively relief of the patients' pain (Hsu, et al. 2016).

Cognitive Behavioral Therapy (CBT)

CBT has been the base of study of several recent researches which states that this therapy is very useful when dealing with chronic pain. Although, these researchers came to the conclusion that it's a therapy more successful in easing mind illnesses, more than to relieve pain itself (Williams et al, 2012; Knoerl et al, 2016 cited by Hillinger et al, 2017). It is often integrated in rehabilitation programs in order to treat chronic pain, being the most used in behavioral treatment approaches, with given prof to be the most effective of the psychodynamic and behavioral therapies (Turk, et al. 2008 cited by Teets, et al. 2010). In this therapy, nurses teach their patients about pain, setting goals, measuring to stimulate self-confidence, training in coping skills, relaxation technics, among others (Richardson, et al, 2006, Ortega et al, 2009, cited by Morales-Fernandez, 2015).

Massage Therapy

Massage therapy is a very important procedure when it comes to rehabilitation, acting in unpleasant stimuli, pain, anxiety, insomnia, fatigue and stress. In hospitalized patients, who are subjected to a more wearing environment, these massages, besides helping these individuals physically, will as well relief these patients emotional suffering. This kind of therapy can be ordered or simply be part of a consistent nursing care (Hellstrom & Willman, 2011; Richards, et al. 2000 cited by Westman & Blaisdell, 2016). The all set that is created in order to perform a therapeutic massage, will create or improve the patient-nurse relation, which is very important for the healing process in an inpatient (Westman & Blaisdell, 2016).

Massage is defined as the systematic manipulation of soft tissue by mechanical or manual means implemented by trained therapists for therapeutic purposes (Beck, 1999 cited by Wells, et al. 2008; Field, 1998 cited by Raymon, et al. 2010). Is usually applied as a complementary therapy before an intervention or exercise (Furlan, et al. 2002 cited by Raymon, et al. 2010). Massage therapy act by stopping or at least slow down the transmission of noxious stimuli competing with pain messages sent to the brain from the injured area of the body. This happens in both chronic or acute episodes of pain. Proves of this have been gathered by researchers using the gate control theory of pain, in an acute care setting (Adams, et al. 2010 cited by Westman & Blaisdell, 2016). Besides knowing how massage works biologically, still there's the need to quantify it's results in a practical matter, measuring the real decrease in the patients' degree of pain. This can be done by several methods, like habitually through changes in stress hormone levels, vital sign measurements and pain scores (Westman & Blaisdell, 2016).

Massage has an undiscussable positive effect on patients' pain relief (Wells, et al. 2008). However, the real effect on each patient depends greatly on the therapy styles and dosage given to the patient, to their specific chronic pain condition. This makes it hard to study this process and come to a general conclusion (Hillinger, et al. 2017). Massages can usually last from 5 to 20 minutes. There are studies claiming that the recommendation should be 20 minutes of therapeutic massage in order to relief efficiently patients' pain. Nevertheless, there's not enough conclusive studies done in this matter to make this a solid recommendation. (Wong & Keck, 2004 cited by Wells, et al. 2008).

In rheumatoid arthritis, reflexology has been used as a complementary therapy to relieve pain and fatigue, together with a special kind of massage: aromatherapy massage. In this specific disease, it's proven these techniques result in a short term and successfully reduction of the patients' pain (Metin & Ozdemir, 2016). Aromatherapy is defined as the use of essential oils extracted from plants to produce physiologic or pharmacologic effects through the sense of smell or absorption through the skin (Steflitsch & Steflitsch, 2008 cited by Metin & Ozdemir, 2016). In reflexology, it's used specific hand and finger techniques to apply pressure to individual body parts and organs at specific reflex points on the hands and feet to stimulate endocrine glands. Other studies reported that reflexology has been found to reduce migraine, neck and arm, and low back and muscle-associated pain, and to improve muscle strength and tone (Wang, et al. 2008 cited by Metin & Ozdemir, 2016).

Physical Therapy

This kind of therapy involves a greater effort on the patient's part, who will have to learn how to make baseline exercises like stretching, strengthening trainings and aerobic conditioning. During this therapy individual's will also learn how to improve their posture, to let go of pain behaviors, learn about lifting techniques and proper body mechanisms. The goal of the physical therapist when teaching all these methods is that the patient will learn how to live his day-to-day life alongside with his pain. All these techniques will make it easier by teaching the patient how he should move to escape his pain and by improving his shape (Mayo Clinic, 2006). It's a common technique used with neck and pelvic floor pain (O'Riordan et al., 2014 cited by Hillinger et al., 2017).

Heat/Cold Therapy

This technique is commonly used in nursing care and by patients themselves to reduce pain. Still, there's little investigation concerning the utility of heat or ice in the process of pain (Wells et al., 2008). Specifically, cold therapy can be useful in musculoskeletal dysfunctions, inflammatory processes, traumas and acute pain episodes

(Florentino et al., 2012). Heat therapy helps managing pain by a process of vasodilatation. It promotes muscular relaxation, improves metabolism and local circulation, the extension of soft tissues and decreased inflammation. Heat therapy can be done using thermal bags, paraffin baths, contrast baths, infrared, among others (Sampaio et al, 2005 cited by Florentino et al., 2012).

Promotion of Successful Living

Rehabilitation nurses are very important during all the process of rehabilitation and in every area involved. The relation these professionals develop with their patients will be crucial, helping along the process as they observe and easily understand the patients' verbal and non-verbal pain signals. This relation will also permit the establishment of a tangible goal for the patient, but that at the same time that empowers maximal function. One of the most difficult things is dealing with the constant pain. Rehabilitation nurses can teach patients how to go around the negative feelings this persistent agony can bring. To be able to do this, patient's will need all the support them can get, specially from their family, which can gather information next to the patients' nurse in how to better help the patient at home. One of the most important things is taking the prescribed drugs correctly and on time, and when the patients go home, is their obligation and their families to guarantee the medication correct use. It's also the nurses job to educate them about this matter.

If applicable, these professionals may also give recommendations concerning the patients return to an active and working life, or simply to community reintegration activities. Rehabilitation nurses must always be present to smooth the transition of the patient, throw, per instance, the coordination of a follow up plan (ARN, 2014).

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The Role of the Rehabilitation Nurse in Pain Management

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ABSTRACT

Pain is a public epidemic affecting millions of people worldwide, increasing health care expenses, diminishing work performance and increasing lost productivity. This study it has as objective describe the role of the rehabilitation nurse in pain management. One is about a bibliographical revision based in the literature specialized selected scientific articles through search in the data bases, specially MEDLINE. Although no restrictions were made on the articles language, most of them were written in English. Abstracts and titles from references of the used articles were analyzed in order to choose possible eligible studies useful in this review. The studies found on the role of the rehabilitation nurse, pointed out that this professional has a very important intervention in the prevention and control of pain.

Key words: Rehabilitation, Nurse, Pain Management, Health

INTRODUCTION

Pain is a public epidemic affecting millions of people worldwide, increasing health care expenses, diminishing work performance and increasing lost productivity (IOM, 2011 cited by Williams, 2017). Nurses can play a key role in pain management, using best practices in the assessment and management of pain under a holistic approach where the person plays a proactive role in addressing the disease progression (Morales-Fernandez, et al. 2015). This current pain management includes pharmacological and non-pharmacological measures. Additionally, nurses, in collaboration with additional healthcare personnel, must select an appropriate method for the treatment of pain and adjust it appropriately to the subject's preferences and values. Nurses can make recommendations on medication, due to their pharmacological training, and help implement complementary non-pharmacological procedures (Registered Nurses' Association of Ontario, 2007 cited by Morales-Fernandez, et al. 2015).

According to the Association of Rehabilitation Nurses (ARN, 2014), rehabilitation nurses play an important role in assessing and managing acute and chronic pain. In this role, they assist as a manager of care and as a patient advocate to enable a self-management plan. Additionally, provides pain management information and instructs patients and families to encourage wellness, with the intention of improve functional capabilities. Rehabilitation nurses have a scientific understanding of physiology, pathophysiology, psychosocial factors, and also uses pharmacological and non-pharmacologic approaches to prevent, identify and alleviate pain. In addition, these healthcare professionals may pursue further education and accreditation in areas of pain management. Specialized advanced practice nursing roles in handling pain, can encourage and educate greatest practices for rehabilitation nurses.

Definition of pain management for rehabilitation populations

In 1974, the International Association for the study of Pain defined pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. This description constitutes imperative advances in the conceptualization of pain, viewing it as subjective, granting importance to the subject's verbal expression in defining the disorder and presenting it as a complex experience. This concept comprises sensory, cognitive and motivational dimensions and consequently, a multidimensional

method is required (Morales-Fernandez, et al. 2015). The rehabilitation nurse's role is to respond to individuals affected by pain with appropriate patient-centered interventions and empathy (ARN, 2014).

Importance of controlling pain

The patient suffering will have various consequences in their life and in their relationship with others. Physical and psychological wellbeing are greatly dependent of the degree of pain they are feeling. Physically, pain will reduce patient's mobility, which may lead to serious consequences such as pneumonia, deep vein thrombosis, or pulmonary embolus, which have to be addressed in time and successfully by nursing care to prevent even worse outcomes (Wells et al, 2008). The stress these patients are daily subject, due to their pain, may also lead to temporary impairment of gastrointestinal function and increase in risk of ileus. Immune functions may also become suppressed, including natural killer cells, which can be especially harmful in patients with metastatic cancers (Pasero, et al. 1999; Liu, et al. 1997; Page & Ben-Eliyahu, 1997 cited by Wells et al. 2008). These facts will lead to psychological issues. Psychologically, the lack of response in reducing or eliminate patient's pain will lead to their frustration and disbelief in medical care. In more sensitive cases, this can lead to states of anxiety or depression, which can become chronic if the pain remains unwell addressed and the patient begins to feel hopeless. In ultimate cases, patients who feel they can't pursue the life they once had, pain-free, that can't maintain a job because of the suffering they're in, or have successful relationship with others, may, in despair, turn to suicide. Ultimately, if not well addressed and relieved, acute pain can become chronic at a later date (Hampton, 2005; Opstelten, 2004 cited by Wells, et al. 2008).

Chronic pain is most often complex and caused by different reasons, such as physical, social, psychological and spiritual factors, affecting one in five individuals worldwide, according to IASP and EFIC. In Europe alone, the prevalence of chronic non-cancer pain is 19% (Breivik et al., 2006 cited by Morales-Fernandez, et al. 2015). Individuals with severe diseases, as cancer patients, hospitalized or outpatients, describe an ongoing moderate to severe pain, revealing that these don't receive the optimal pain management and care (Rustoen et al, 2008). The presence of metastases and breakthrough pain increase exponentially the pain scores in these people (Holtan, et al., 2007; cited by Rustoen et al, 2008).

It leads individuals in search of various solutions and treatments, often leading to none or limited improvement of the degree of pain, being a common reason for patients to seek medical care (Teets, 2010; Hillinger, 2017). Chronic pain is described as one that does not improve with time, and that exists continuously for more than 3 months or intermittently so for 5 or more days per week. Half of the people with chronic pain are thought to suffer from severe pain, and 1 in 3 patients with chronic pain have reduced ability to live an independent life (Mayo Clinic, 2006; Morales-Fernandez, et al. 2015). This persistent pain can affect only a specific part of the body, for instance a low back pain, or several regions, like fibromyalgia and osteoarthritis. Musculo-skeletal disorders, although most of the times being associated with self-limiting pain, are the leading cause of temporary absence from work or permanent work disabilities across Europe in working adults (Bevan, 2015 cited by Cochrane et al, 2017). At this stage, pain becomes an illness itself, and not only a symptom of a disease or injury (Mayo Clinic, 2006).

Establishing goals for pain management with people in rehabilitation

According to ARN (2014), improving the quality of life and maximize the level of functioning of patients with pain, are the primary goals for rehabilitation patients undergoing pain management. As an ultimate goal, these individuals are expected to return to their normal day-to-day activities, with increased strength, flexibility and less use of pain drugs. They will acquire stress management techniques and learn how to minimize pain behaviors, which will grant them a more independent life, reducing their necessity of healthcare professionals. There for, pain management will allow these patients to work efficiently, improve their personal relationships and enjoy recreational activities (Mayo Clinic, 2006).

Assessment of pain

The successful management of pain is above all related with its correct assessment, which is a basic step to reach a stable and comfortable pain control (Wells et al, 2008). The evaluation and description of the pain felt by the patient himself is often not accurate due to various facts such as erroneous beliefs or a culture of fatalism. This will influence the addressing of pain by healthcare professionals, which most of the times aren't fully prepared and/or don't have the necessary equipment (Consejería de Salud. Junta de Andalucía, 2011 cited by Morales-Fernandez, et al. 2015). Nurses are crucial in the assessment and management of pain, which is a nursing sensitive indicator (Brant et al, 2017). Sometimes, the difficulty relies in finding a treatment plan to handle an acute and punctual pain, over a preexistent and chronic pain (Keen et al., 2017).

Pain intensity can be measured in a numeric rating (e.g., visual analogue scale, numeric rating scales), verbal rating (mild, moderate or severe pain), or using scales with draws/pictures for patients with limited cognitive-ability. These scales were developed and validated in order to measure the intensity of pain in a standard, simple and brief way, and should be used in all cases to improve the success of the treatments. Adding to this scales, location and quality of pain are also important elements to remember in this process. The positioning of the patient during a procedure or the padding used may cause some pain, which needs to be differentiated from chronic pain the individual may suffer from. Therefore, the quality of pain changes accordingly with the underlying etiology (Wells et al, 2008). The process of determine the origin and type of pain is an important assessment performed by the rehabilitation nurse, which has to be able to differentiate between several different types of pain (orthopedic, neurologic, surgical, musculoskeletal, oncological, among others) (ARN, 2014).

Treatment disciplines

During decades, pain was badly handled by healthcare professionals, including nurses. This was due to the lack of knowledge or wrong notions on how to manage pain, that were then perpetuated. This is demonstrated in several researches available in the literature (Brant, et al. 2017).

Treating pain is often a challenge due to various factors, such as social stigma about pain itself, fear of addiction, and the difficulty of healthcare personal to find the adequate response to the specific pain (Institute of Medicine, 2011; Meeker et al, 2011; Oliver et al, 2012 cited by Brant et al, 2017).

Nowadays, addressing pain and its management is a required field in any healthcare setting, which makes rehabilitation nurses a vital staff in every scenery. They are the first people in contact with the patients' complaints, in areas so different as at school nursing, home care, nursing homes, and numerous others places, being able to act in the prevention and care of pain (Hanks-Bell, et al, 2004 cited by Williams, et al, 2017). Rehabilitation nurses guide themselves by the validated guidelines and standards for pain management (ARN, 2014). Besides these guidelines, these professionals also have to take in account the patients beliefs and phycological state, to help them set and achieve individualized rehabilitation goals. They have to stablish a relationship of collaboration with the patient's family, along with others healthcare professionals, as well (ARN, 2014).

Rehabilitation nurses have to be able to follow the right path to treat the patient's pain, choosing between the various paths and therapies currently known to be helpful in managing pain. If the treatment doesn't have the expected results in controlling pain to an acceptable level or, preferably, end it, these professionals have to be able to direct the treatment to a more suitable and effective plan (ARN, 2014).

Drug techniques to manage pain

Controlling pain is greatly associated with the use of pharmacological strategies, which normally is very cost effective. Several medications are not subjected to medical prescription, like analgesics, which are specially used by elderly people, normally to reduce chronic musculoskeletal pain. This self-management of pain may have serious consequences to this population, probably contributing to an under treatment of pain. (American Geriatrics Society, 2009; Hanlon, et al. 2001 cited by Nawai, et al. 2017).

The diversity of underlying mechanisms involved in persistent pain makes it multifaceted, along with the need to use and vary several pharmacological approaches in order to restrain it (Pasero & McCaffery, 2011 cited by Keen, et al. 2017). Sometimes the method used may not be the most efficient and/or lack to deliver the fast reply the patient is expecting, persuading providers to prescribe, unconsciously, an increasing amount of pain killers to give patients the illusion of a stronger and faster pain control (Bandstra, 2016 cited by Keen, et al. 2017). Statistically, 64% patients believe that the pharmacological treatment they're receiving is inadequate (Morales-Fernandez, et al. 2015). Along with this statistic, another study done with older adults subjected to treatments and medications for their pain, attests that these patients suffering from moderate to severe pain only report a relief of 41-70% in their degree of pain. Based in this study, we can deduce that medical treatments usually aren't sufficient to entirely relieve individuals from their chronic pain (Nawai, et al. 2017).

In the other hand, there are innumeros studies attesting the success of pharmacological treatments in individuals suffering from pain. The difference stands in the correct use of analgesics at the right time, which attests the importance of a correct assessment, prescription and administration of analgesics by healthcare personnel (McCaffery, 2002 cited by Wells, et al. 2008).

Rehabilitation nurses play a vital role at this matter. They will decide what is the correct analgesic to administrate, in what dose, at what time, and that will make all the difference in the patient's pain relieve.

Desirably, there has to be the sensitivity to anticipate the need to control the patients' pain, before implementing therapy activities (ARN, 2014).

The fact that moderate to severe pain can be anticipated, based on clinical practice along with supportive evidence, is a great help in doing so. According to these evidences, a rapid reaction, a correct analgesic management, at a fixed-dose schedule will be crucial to control activity-related pain. When talking about the use of opioid drugs, several steps have to take into account in order to guarantee their safety for the patient. It's very important to start the treatment with a lower dose, and carefully assess the outcomes of that administration, always remembering the onset of action of the drug administered (ex. IV or oral opioids). To maintain or alter the analgesic administration plan, healthcare personnel need to compare the pain intensity described by the patient before and after the administration of the medication, and any side effect the individual may be attest. If rehabilitation nurses come to the conclusion that the used drug isn't the better plan to follow with the patient, they can turn to another in the same class of drugs, based on the fact that each patient respond differently to different analgesics (opioid or nonopioid) (Wells et al, 2008).

Sometimes, there's a need to raise the home regime of the opioid, when inpatients who suffer from persistent pain simultaneous experience acute pain, in consequence of procedures or a punctual disease, for instance (Pasero & McCaffery, 2011 cited by Keen et al, 2017). The high and continuous use of opioid will make patients develop a certain tolerance to that drug, which obliges to a constant increase of the concentration to obtain a comfortable pain relieve for the patient. Taking this into account, healthcare personnel usually don't feel comfortable increasing the dose of the drug right away. Sometimes this developed tolerance by the patients may cause the healthcare professionals to doubt the constant apparent need to increase the dose, and lead to patient discrimination, based on individual characteristic (Lewis, 2015). Besides this stigma, the continuous use of opioid is associated with sometimes tough side effects, like diminishing of one's functioning or mobility. All of these facts make the use of opioids a complex and sometimes controversial matter. There is medication available that relatively successfully controls individual's pain with fewer side effects, depending on the patient response to them. In addition, regularly there's the need to control other illnesses associated with chronic pain, like depression. Appropriate medication can help manage these conditions (Mayo Clinic, 2006).

Thus, there are several alternatives to achieve a comfortable pain control, most of which are intrinsically attached to opioids, who are the most used prescribed analgesics to control different types of pain (Wells, et al. 2008). There's still a need to improve knowledge about analgesics in general, opioids and nonopioids, in order to dismiss fears about this medication. This will help nurses improve pain management with their patients at a safer and more successful way (Brant et al. 2017).

Nondrug techniques to manage pain

Due to the complexity and usual side effects associated with the use of drugs on managing pain, the use of alternative and non-pharmacologic therapies is uprising. Regularly, in their day-to-day life, people use some of these strategies in order to relieve their own pain (Wells, et al. 2008).

There are several complementary and noninvasive strategies that can and are normally used by rehabilitation nurses to control pain and improve functional status, like therapeutic massage, application of cold and heat, acupuncture, among others. These types of technics belong in the group of physical practices, helping alleviate pain by altering physiological processes involved in it. Along with these, homeopathic and holistic strategies, like relaxation, music and pet therapy are also used by nurses to manage pain on a free-drug manner. These kinds of cognitive approaches are very important, since there are proofs that there is a significant relief in patients' pain, when their attention is turned to other subjects. Expectably, the meddling these techniques do with the patients' mental functions, will help them experience a momentary feeling of well-being. (ARN,2014; Wells et al, 2008).

Stress management and Relaxation

An important interaction to have in mind when we are talking about people with chronic pain is their physical condition along with their mind status. The way patients face their illness will have a strong impact in their healing process, and in the way, they'll learn to manage their pain. These people are subjected to a continuous stress that will consequently lead to an increase of the patients' degree of pain, caused by, for instance, muscular tension. This increase in the felted pain will, consequently, augment patients stress, being a harmful and ceaseless cycle. Rehabilitation nurses, throw stress management, will teach their patients the skills to break this vicious cycle, throw exercises of relaxation, among others. This will allow patients to fell more in self-control, less anxious and ultimately and desirably with diminished muscle tension (Mayo Clinic, 2006).

Relaxing is very important in managing chronic pain, but also in episodes of acute pain. Different kinds of exercises should be used for each case, differing in their complexity and time of training needed. For acute pain episodes, there are simple techniques patients can use to help them relieve their pain, like rhythmic breathing or jaw dropping. In persistent pain, the time dispended has to be greater and the exercises are more complex, usually needing primary training and practice. During 15-30 minutes, the patient has to do exercises that include progressive, systematic or autogenic training. This is a common path to follow when the goal is muscle relaxation, for instance (Wells, et al. 2008).

Music

It's well known the positive effects music brings to people, awakening senses that relaxes and improves physical, cognitive and emotional aspects of one's life. Through music, patients experience a momentary relief in their pain and anxiety, probably by the fact that their mind is somewhat distracted (Dunn, 2004; Vaajoki, et al. 2012 cited by Hsu, et al. 2016). Not all kinds of music are good pieces to achieve this goal. They have to be soothing and bring a feeling of peace to the patient, like instrumental and rhythmic music. During 20-30 minutes people will be exposed to a single or multiple exposure of slow jazz, synthesizer, harp, piano or orchestral (Good, et al 1999 cited by Wells, et al. 2008). There's a study done with burn patients that proves that playing crystal music, originated from a crystal piano (60 dB), during dressing changes, beginning 15 min before until 30 minutes after, leads to an expressively relief of the patients' pain (Hsu, et al. 2016).

Cognitive Behavioral Therapy (CBT)

CBT has been the base of study of several recent researches which states that this therapy is very useful when dealing with chronic pain. Although, these researchers came to the conclusion that it's a therapy more successful in easing mind illnesses, more than to relieve pain itself (Williams et al, 2012; Knoerl et al, 2016 cited by Hillinger et al, 2017). It is often integrated in rehabilitation programs in order to treat chronic pain, being the most used in behavioral treatment approaches, with given proof to be the most effective of the psychodynamic and behavioral therapies (Turk, et al. 2008 cited by Teets, et al. 2010). In this therapy, nurses teach their patients about pain, setting goals, measuring to stimulate self-confidence, training in coping skills, relaxation technics, among others (Richardson, et al, 2006, Ortega et al, 2009, cited by Morales-Fernandez, 2015).

Massage therapy

Massage therapy is a very important procedure when it comes to rehabilitation, acting in unpleasant stimuli, pain, anxiety, insomnia, fatigue and stress. In hospitalized patients, who are subjected to a more wearing environment, these massages, besides helping these individuals physically, will as well relief these patients emotional suffering. This kind of therapy can be ordered or simply be part of a consistent nursing care (Hellstrom & Willman, 2011; Richards, et al. 2000 cited by Westman & Blaisdell, 2016). The all set that is created in order to perform a therapeutic massage, will create or improve the patient-nurse relation, which is very important for the healing process in an inpatient (Westman & Blaisdell, 2016).

Massage is defined as the systematic manipulation of soft tissue by mechanical or manual means implemented by trained therapists for therapeutic purposes (Beck, 1999 cited by Wells, et al. 2008; Field, 1998 cited by Raymon, et al. 2010). Is usually applied as a complementary therapy before an intervention or exercise (Furlan, et al. 2002 cited by Raymon, et al. 2010). Massage therapy act by stopping or at least slow down the transmission of noxious stimuli competing with pain messages sent to the brain from the injured area of the body. This happens in both chronic or acute episodes of pain. Proves of this have been gathered by researchers using the gate control theory of pain, in an acute care setting (Adams, et al. 2010 cited by Westman & Blaisdell, 2016). Besides knowing how massage works biologically, still there's the need to quantify it's results in a practical matter, measuring the real decrease in the patients' degree of pain. This can be done by several methods, like habitually through changes in stress hormone levels, vital sign measurements and pain scores (Westman & Blaisdell, 2016).

Massage has an undiscussable positive effect on patients' pain relief (Wells, et al. 2008). However, the real effect on each patient depends greatly on the therapy styles and dosage given to the patient, to their specific chronic pain condition. This makes it hard to study this process and come to a general conclusion (Hillinger, et al. 2017). Massages can usually last from 5 to 20 minutes. There are studies claiming that the recommendation should be 20 minutes of therapeutic massage in order to relief efficiently patients' pain. Nevertheless, there's not enough conclusive studies done in this matter to make this a solid recommendation. (Wong & Keck, 2004 cited by Wells, et al. 2008).

In rheumatoid arthritis, reflexology has been used as a complementary therapy to relieve pain and fatigue, together with a special kind of massage: aromatherapy massage. In this specific disease, it's proven these

techniques result in a short term and successfully reduction of the patients' pain (Metin & Ozdemir, 2016). Aromatherapy is defined as the use of essential oils extracted from plants to produce physiologic or pharmacologic effects through the sense of smell or absorption through the skin (Stefflitsch & Stefflitsch, 2008 cited by Metin & Ozdemir, 2016). In reflexology, it's used specific hand and finger techniques to apply pressure to individual body parts and organs at specific reflex points on the hands and feet to stimulate endocrine glands. Other studies reported that reflexology has been found to reduce migraine, neck and arm, and low back and muscle-associated pain, and to improve muscle strength and tone (Wang, et al. 2008 cited by Metin & Ozdemir, 2016).

Physical Therapy

This kind of therapy involves a greater effort on the patient's part, who will have to learn how to make baseline exercises like stretching, strengthening trainings and aerobic conditioning. During this therapy individual's will also learn how to improve their posture, to let go of pain behaviors, learn about lifting techniques and proper body mechanisms. The goal of the physical therapist when teaching all these methods is that the patient will learn how to live his day-to-day life alongside with his pain. All these techniques will make it easier by teaching the patient how he should move to escape his pain and by improving his shape (Mayo Clinic, 2006). It's a common technique used with neck and pelvic floor pain (O'Riordan et al., 2014 cited by Hillinger et al., 2017).

Heat/Cold Therapy

This technique is commonly used in nursing care and by patients themselves to reduce pain. Still, there's little investigation concerning the utility of heat or ice in the process of pain (Wells et al., 2008). Specifically, cold therapy can be useful in musculoskeletal dysfunctions, inflammatory processes, traumas and acute pain episodes (Florentino et al., 2012). Heat therapy helps managing pain by a process of vasodilatation. It promotes muscular relaxation, improves metabolism and local circulation, the extension of soft tissues and decreased inflammation. Heat therapy can be done using thermal bags, paraffin baths, contrast baths, infrared, among others (Sampaio et al, 2005 cited by Florentino et al., 2012).

Promotion of successful living

Rehabilitation nurses are very important during all the process of rehabilitation and in every area involved. The relation these professionals develop with their patients will be crucial, helping along the process as they observe and easily understand the patients' verbal and non-verbal pain signals. This relation will also permit the establishment of a tangible goal for the patient, but that at the same time that empowers maximal function. One of the most difficult things is dealing with the constant pain. Rehabilitation nurses can teach patients how to go around the negative feelings this persistent agony can bring. To be able to do this, patient's will need all the support they can get, specially from their family, which can gather information next to the patients' nurse in how to better help the patient at home. One of the most important things is taking the prescribed drugs correctly and on time, and when the patients go home, is their obligation and their families to guarantee the medication correct use. It's also the nurses job to educate them about this matter.

If applicable, these professionals may also give recommendations concerning the patients return to an active and working life, or simply to community reintegration activities. Rehabilitation nurses must always be present to smooth the transition of the patient, throw, per instance, the coordination of a follow up plan (ARN, 2014).

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The Specifics of Logopedic and Special Education Intervention in Children with Psychiatric Diagnosis

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ABSTRACT

Introduction: Communication disorders can be often linked to psychiatric diagnosis in children. The aim of this article is the need to point out the specifics of speech and language intervention in children with psychiatric diagnosis. **Methodology:** The qualitative analysis of psychiatric disorders and communication disorders was carried out in Psychiatry Hospital in, Czech Republic. **Results:** The most frequent sequence of psychiatric diagnosis combinations and communication disorders were specific language impairment, specific learning disabilities and communication disorders in intellectual disabilities with ADHD. **Conclusion:** The need for speech and language therapy and special education intervention in children in the psychiatric hospital setting is indispensable. Partial results of the investigation are related to the issue of specific learning disorders related to the project IGA “Research on selected disorders and differences of communication ability with focus on the specifics of speech and language therapy and special education for hearing impaired assessment and intervention” conducted at the Institute of Special Education Studies Faculty of Education in Palacký University Olomouc, Czech Republic, IGA_PdF_2015_024.

Key words: communication disorders, special education, psychiatry, children, hospital, specific language impairment, specific learning disabilities, ADHD

INTRODUCTION

A stimulating and supporting family background is crucial for general development of the child, especially for speech and language development. Children’s adequate language skills are often an important prerequisite for the child to engage in successful social interaction (Damberg et al., 2014). One of the main distractors of successful development of speech and language is a dysfunctional family. Specific language disorders carry a significant risk of comorbid psychiatric disorders that occur in early childhood and can persist into adulthood (Sundheim and Voeller, 2004). These psychiatric disorders are attention deficit and hyperactivity disorder (ADHD), anxiety disorders, depression and antisocial personality disorder (ibid.). Margari and Buttiglione (2013) state a comorbidity of specific learning disorders with these neuropsychopathologies: Hyperkinetic disorders (ADHD), Anxiety Disorder, Developmental Coordination Disorder, Language disorder and Mood Disorder (diagnosis categorized with respect to WHO ICD-10 classification). Horowitz et al. (2003) in Sundheim and Voeller reported, that children with language problems tended to come from homes characterized by low education, low expressiveness, poverty, high levels of parenting stress and parents who reported worrying about their children’s language problems.

Children with language impairment (e. g. Specific language impairment - SLI) more often have demonstrated for example: aggressive behavior, distractive attention, heightened levels of anxiety, somatic complaints, social withdrawal and excessive shyness in comparison with children without language impairment. (Damberg, 2014). That behaviour causes problems in social areas e.g. functioning in the class that may lead to behaviour disorders.

Specific learning disorder is comorbid with ADHD (Gilmore, 2000 in Scharff, 2012). According to Scharff (2012) the specific learning disorder/ ADHD symptom shows inattention, impulsivity, hyperactivity and frustration at being held back in concentration, expression, perception, processing and retention leading to difficulties in relationships with peers, teachers, siblings and parents. Speech and language delay especially in preschool children with normal hearing may be a pointer toward ADHD (Venkatesh et al., 2012). Students with ADHD and specific learning disorders had poorer reading skills, inferior social skills, and more behaviour problems when compared with their peers with LD alone, and those differences persisted over time (Xin, 2014). El Sady et al. (2013) found out some reasons why the speech and language differ in children with ADHD in comparison with intact children.

ADHD represents a group of disorders that affects processes essential in the development of language: attention, thinking, learning process and social interaction of the child. Children with ADHD show lower working memory –it takes longer for children with ADHD to process syntactically complex information. Children with ADHD have considerably lower accuracy in comprehension. Speech and language differ in children with ADHD because of its neurological origin - frontal lobe and basal ganglia involvement were claimed to affect both ADHD and language disorders (ibid.). Pokorná (2010) mentions 4 types of reactions to failure among children with specific learning disabilities: the first is a defensive and avoidant mechanisms: the child refuses to cooperate, does not write homework, the child is in opposition to school; the second type is a compensatory mechanism: the child tries to push through misbehaving; the third is aggression and hostility: children resort to aggression, children bully others; And the last one is anxiety : children feel weak, they are closed, sensitive, restless, depressed. Psychosomatic symptoms occur with the last mechanism: vomiting, loss of appetite, sleep disturbances, decreased immunity (ibid.). Based on this mechanism psychiatric disorders could occur. The presence of ADHD has a long-term deleterious effect on academic, social and behavioural outcomes for students with learning disabilities and emotional disturbances (Xin, 2014). Both specific learning disorders and ADHD frequently persist into adulthood, and long-term consequences of their remaining undetected include an increased risk for developing substance abuse addiction and psychiatric disorders such as anxiety disorder, depression and oppositional defiant disorder (Karande et al., 2007)

Within the categorization on impaired speech and language therapy (SLT) we can speak, in case of children with psychiatric and communication disorders, aboutso called symptomatic speech disorder. According to Vitásková (2013), or Lechta (2002), they are represented by a wide range of manifestations in verbal and non-verbal communication. The aethiological conditions may be variably related to a primary disability, therefore this area of SLT is very closely connected to special education, especially if we consider the contemporary inclusive educational trends. All communication levels (phonetic-phonologic, morphologic-syntactic and lexical-semantic level and the pragmatic level), may be impaired. The causesof the specific symptoms of symptomatic speech disorders may be completely independent of the comorbid health impairment having other impacts on the sphere of verbal or non-verbal manifestations. From the pragmatic perspective,the impaired co-verbal behaviour of the client during expressive oral-verbal production may be even more distractive and intruding than the impaired articulation itself.

THE METHODOLOGICAL DESIGN OF THE STUDY

The goals of this research survey are:

- to analyse the environment, communication disorders in children and psychiatric disorders in children
- to analysespecific logopedic and special education intervention in children with psychiatric disorders
- to verify the association communication disorders and psychiatric disorders.

The research was mainly based on analysis of communication disorders, psychiatric disorders and the anamnestic data of children. The research was conducted on children patients currently hospitalised in Children's Department in Psychiatric Hospital, Czech Republic. The research sample includes all patients from Section B (here are boys in primary school) and patients from Section A only who attends speech and language therapy. In the Section A there are hospitalised preschool children and girls. The research sample contains 21 children in total, 3 girls and 18 boys. The age of children varies from 3 to 17 years of age.

RESEARCH FINDINGS

Analysis of environment

The children's department in Psychiatric hospital, Czech Republic was established in 1958. There are 3 sections: A forpre-schoolers and girls (17 beds), B for boys of elementary school age (18 beds) and C for adolescents; boys, girls (20 beds). The reasons for hospitalization are behavioural disorders, auto mutilation, adaptation disorders, affective disorders, anxiety disorders, eating disorders, incipient and developer psychosis. Hospitalization within diagnostic stay could be in case of differential diagnostics of autism spectrum disorders (ASD) and developmental diagnostics of children. The team of professionals is interdisciplinary: medical doctors (senior consultant and medical doctors - psychiatrists), nurses, psychologists, a speech language therapist (SLT), occupational therapist, art therapist and social worker. During the week the child obtain the care of: medical doctor every day, senior consultant medical doctor once a week, nurses full day, teachers in the morning, educator to fulfil the assignment. In the afternoons there are therapies with SLT, psychologist, occupational therapist and art therapist. Late afternoon continues with sports activities and hippo therapy. During free time children play games, have some competitions, trips or other group activities.

The admission is based on the request of doctors (paediatrician, outpatient psychiatrist) When the child comes to Hospital, he or she is assessed by all members of the team, after the medication is adjusting. The child is observed,

the therapy is provided. The cooperation with family or children's home in leadership and education is routine. When the health condition is stabilised, child could start to go to therapeutic leaves home or Children's home. After that a dismissal comes. In case of need the health condition is monitored by an outpatient psychiatrist, outpatient psychologist.

Analysis of specifics logopedic and special education intervention and communication disorders in children with psychiatric disorders

The special education and SLT care in the observed institution can be described this way: the assessment is realized in cooperation with an interdisciplinary team. The therapy is provided according to type and severity of communication disorder. Group and individual therapy with preschool children runs in the morning. Individual therapy with school children in severe disorders also takes place in the morning. Individual therapy with school children proceeds in the afternoon. There are some specifics in special education and SLT care. SLT has to cooperate with other members from the interdisciplinary team. The care depends on the character of patients - children come from dysfunctional families, children's homes and sometimes with syndrome CAN. The SLT needs to know an anamnesis of children and work sensitively with children. Sometimes children should be tired and sleepy according to adjusting medication. The cooperation with the family is limited in the case of dysfunctional families. Often diagnosis in children with psychiatric disorders are: dyslalia, delayed language development (DLD), specific language impairment (SLI), specific learning disabilities (SpLD), communication disorder in intellectual disability (CD in ID), stuttering, cluttering, communication disorder in autism spectrum disorder (CD in ASD).

Association between communication disorders and psychiatric disorders

Table 1: The communication disorders and psychiatric disorders with a brief family anamnesis in children in special education and SLT care, the Section A (diagnosis categorized with respect to WHO ICD-10 classification)

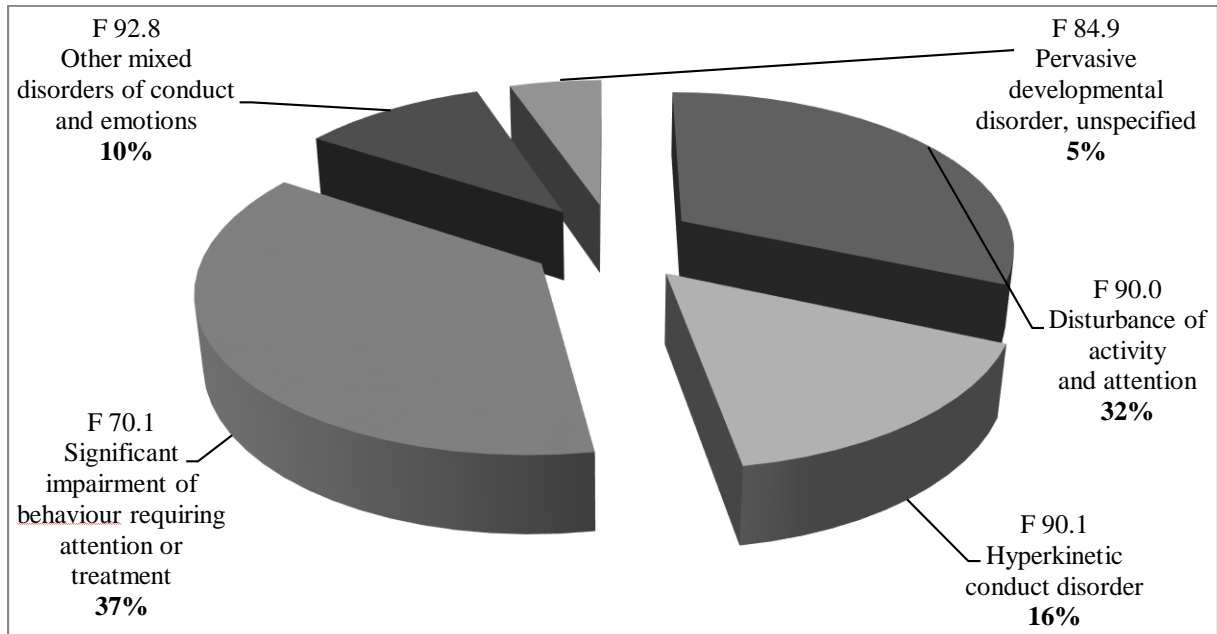
Child	Diagnosis	CD	Family background
E. I.	F 70.1	CD in ID	From 6 months in the Institute of Infant care because of neglect of mother (prostitution), father is imprisoned, now in children home
M. J.	F 90.0	DLD	mother comes from a children's home, the father abused the child, the father is a drug user, now imprisoned, mother raises a child alone
M. T.	F 84.9	CD in ASD	mother with psychiatric burdens, mild intellectually disabled and alcoholic, father has primary education
N. P.	F 70.1	CD in ID	Inconsistent upbringing, divorced family
P. K.	F 70.1	CD in ID	Dissociated family - mother is a prostitute, she mistreated her child, the child now in the care of his father

As seen from Table 1, the communication disorder in intellectual disability is associated logically with the children with intellectual disability. The communication disorder in ASD and delayed language development occurs once in the table 1. The tested children come from dysfunctional families (Table 1).

Table 2: The communication disorder and psychiatric disorders with a brief family anamnesis for the section B – boys in younger school age

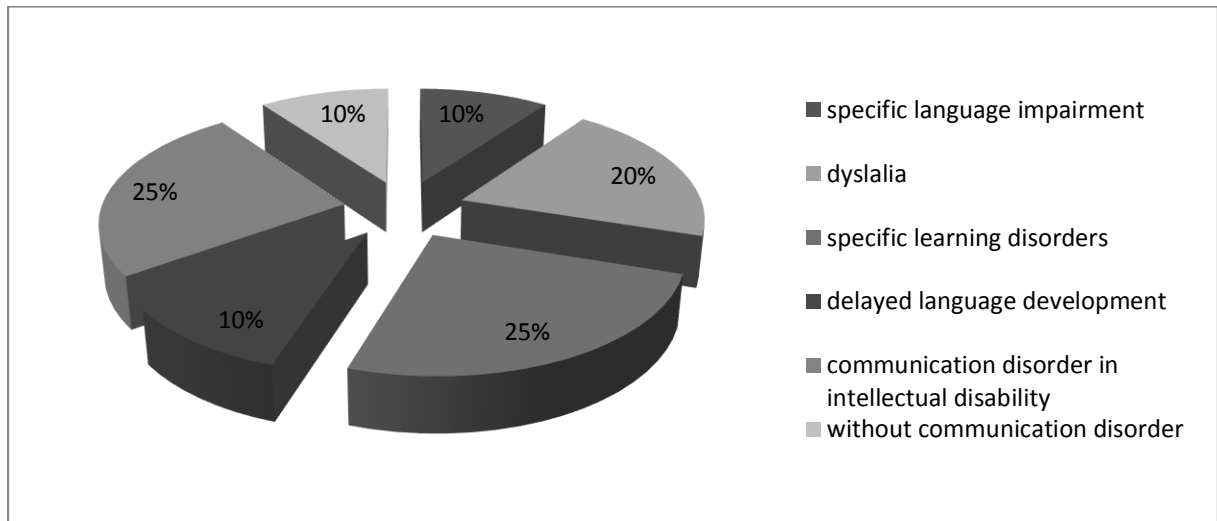
Child	Diagnosis	CD	Family background
M. B.	F 90.1	DLD, SLI	socially deprived child, grew up in uninspiring family, now in children home
T. B.	F 70.1	CD in ID	dissociated family - alcoholism
T. H.	F 91.2	Without CD	child witnessed physical abuse of mother by father, currently in children home
A. H.	F 92.8	dyslalia	Intact family
T. H.	F90.0	SpLD	Dissociated family
D. K.	F 70.1	CD in ID	divorce family, inconsistent upbringing
P. K.	F 90.0	DLD, dyslalia	Inconsistent upbringing
P. K.	F 90.1	dyslalia	Dissociated family, child witness of aggressivity of father (alcoholism), disagreement between parents
L. K.	F 92.8	SpLD	Psychiatric anamnesis in mother, child doesn't know his father, brought up by grandparents from 3 years of age
M. M.	F 70.1	CD in ID	Mother has only Elementary school, child raised without father
J. P.	F 90.1	SpLD	removed from the family for neglect, now lives in children's home
R. R.	F 90.1	Without CD	He raised only by father and grandmother because of mothers disinterest
P. S.	F 90.0	dyslalia	Mother has only elementary school education, from 6 years of age brought up by grandparents because of mother's disinterest
L. S.	F 70.1	CD in ID	Mother only elementary school education, uninspiring, neglectful background, now in care of grandfather
R. Š.	F 90.0	CD in ID	emotionally cool environment, parents are divorced, now in children's home
L. Z.	F 90.0	SpLD	father in prison, foster family, bullied at school

Table 2 summarizes children with communication disorders and psychiatric disorders with brief family anamnesis too. The children have these communication disorders: delayed language development, specific language impairment, dyslalia, communication disorder in intellectual disability and specific learning disorders. Only two children are without any communication disorders.



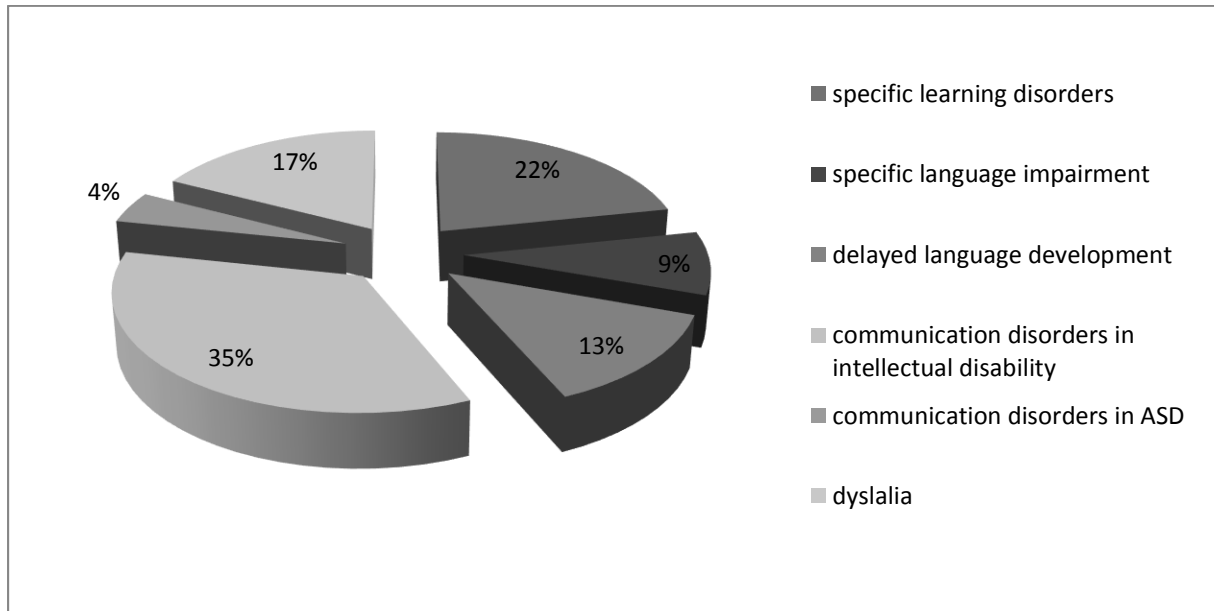
Graph1: Participation of psychiatric disorders in children with communication disorders in sections A and B.

The most frequent diagnosis is Significant impairment of behaviour requiring attention or treatment (37%), next Disturbance of activity and attention (32%) and Hyperkinetic conduct disorder (16%). 10% of children suffer from other mixed disorders of conduct and emotions and 5% of children have been diagnosed with Pervasive developmental disorder, unspecified. (Graph 1)



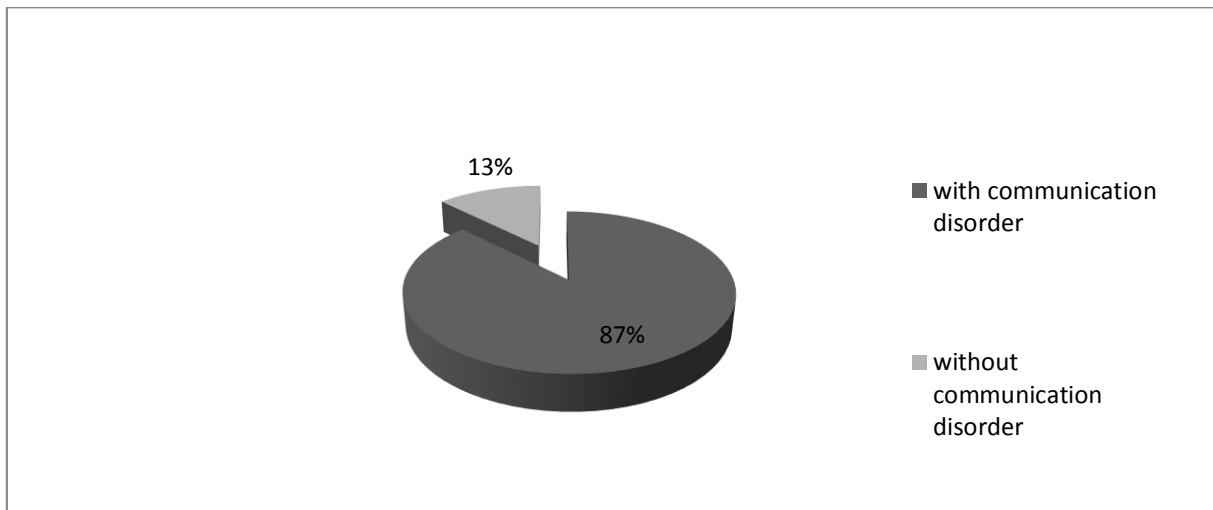
Graph 2: Participation of communication disorders in patients hospitalised in the section B.

The most frequent communication disorder in children hospitalised in Section B is specific learning disorders and communication disorder in intellectual disability – both 25%, then dyslalia with 20%, next specific language impairment and delayed language development with 10%. Only 10% of patients in Section B have not been diagnosed with any communication disorders.



Graph 3: Total participation of communication disorders in Section A and B

Communication disorder in intellectual disability records the highest participation (35%), after that are specific learning disorders (22%), dyslalia (17%), delayed language development (13%), specific language impairment (9%). The lowest percentage was recorded with communication disorder in autism spectrum disorder (4%).



Graph 4: Participation of communication disorders in all patient hospitalised in Section B

Communication disorders have been recorded with 87 % of the children in the Section B; only 13% of children are without any communication disorders.

CONCLUSIONS

The analysis of environment, communication disorders, psychiatric disorders, the association communication disorders and psychiatric disorders and specific logopedic and special education intervention in children with psychiatric diagnosis was carried out. To conclude, the professional background of Psychiatric Hospital is interdisciplinary. Child patients come from dysfunctional families. The association between communication disorders and psychiatric disorders is obvious: 87% of primary school children in the Psychiatric Hospital have some communication disorder, the most frequent psychiatric diagnosis was F 70.1- Significant impairment of behaviour requiring attention or treatment, the most frequent communication disorder was communication disorders in intellectual disabilities with the syndrome ADHD. The presence of SLT at workplaces of child psychiatry is indispensable.

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The Teachers' Satisfaction in Higher Education Institutions as Key Factor of the Strategic Management and of the Organizational Competitiveness

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ABSTRACT

Currently Higher Education Institutions (HEIs) are operating in the massively competitive international environment. The present society asks important challenges to current HEIs in several issues: technological, managerial, academic and economic. Consequently, organizations define and adopt strategies that support high performance and organizational competitiveness, with particular attention to human resources as a key factor in the efficient implementing of its strategy. In this regard, professional satisfaction adopts a growing interest in understanding quality of professional life and its influence on strategic management and organizational competitiveness. High job satisfaction contributes to the professional finding meaning in his professional activity and to adoption positive attitudes towards organizational performance. In this perspective, the article purposes to verify if there are differences in socio-demographic, professional, training and labour variables related to the level of satisfaction of the teachers that belong to the HEIs of the Kwanza South Province (Angola). As well as to know the level of satisfaction of those professionals. The results show that the level of teachers' satisfaction is positive and allows understanding the determinants of teachers' satisfaction and their mastery in strategic management and competitiveness of the HEIs of Kwanza South Province.

Keywords: Satisfaction; Higher Education Institution; Strategic Management; Competitiveness.

INTRODUCTION

The sustainability and organizational performance are getting more and more taking on greater relevance for currently organizations, which compete in a global and extremely dynamic market. Phenomenon as Globalization, international competition, changing customers' demand, innovation and technology advancements incite rapidly and dynamic changing in the economic environment forcing organizations to adopt strategies that improve competitiveness and organizational sustainability. Consequently, to compete and retain in a global environment so competitive and dynamic, the organizations need to continually and systematically improve their performance by innovating their products/services and processes, reducing costs, enhancing quality and productivity. According to several studies (Allui & Sahni, 2016; Brito & Oliveira, 2016; Bisma, 2014; Bontis, 1996; Dahie & Mohamed, 2017; Hasani & Sheikesmeili, 2016), human resources may be the first sustainable competitive advantage that an organization has in the ever globalized environment. Moreover, Hasani and Sheikesmeili (2016) completes that, more than ever before, human capital is more important than new technologies or financial and material resources. Indubitable, the Human resources are the main factor for keeping the organization in the market. Aware that human capital is the key element of organizational competitive advantage, it is important to define and implement a strategy that effectively involves the organization's professionals in improving the organizational performance. In short, it is extremely necessary to implement human resources strategic management and adapt and coordinate this human capital strategy with organizational strategy.

Furthermore, Human capital is considered one of the most important resources of currently organizations. Strategic management of human resources is more essential than other competitive assets because these people use other resources in organization, build productivity, competitiveness and achieve objectives. Thus, the human resources management discharges a core role in organizations' success by having great effect on organizational performance. Therefore, organizations need to know and comprehend the expectations of their professionals to attain the greater

performance. The concretization of workers' expectations will allow the desired behaviour of the work forces in the organization. A few the organization's desired outcomes in managing its workforce are: competence; employee cooperation among them; employee cooperation with managers; showing the capabilities of employees; employee behaviour; motivation, commitment and satisfaction; attitude and presence (Cania, 2014)

The management of human resources is based on the affectation of the behaviour of the people and their correlation with the institutional objectives. The management of the employees, their planning, their direction and leadership, and their control are closely related to the dimensions perceived by the workers. Validating dimensions that promote job satisfaction is construction a set of determinants that can be evaluated in the context of Human Resource Management in order to maximize value for the professional and for the institution. This study was carried out for teachers of the Public Higher Education Institutes (HEIs) of Kwanza South Province (Angola). Tries to observe the job satisfaction of these professionals, and to relate the variables associated to this condition (sociodemographic, professional context, training context and labour context).

Job activity occupies most of the time of workers, and undoubtedly takes on a remarkable importance in the life of the active population. To this extent, it is extremely relevant that the workplace provides well-being, since this satisfaction exhibits a direct connection with the other spheres of workers' lives. According to Graça (1999), job satisfaction comprises an attitude or an emotion that assumes concrete meaning in behaviours and opinions expressed. Barros and Cunha (2010) affirm that it is the activity that determines the set of all the actions (thoughts, feelings and emotions) that characterize human behaviour at work. There are several studies that show that job satisfaction has an effective effect on the productivity of organizations, on the well-being of employees and also on the various dimensions that are directly or indirectly associated with people, both in the labour and personal fields. Several dimensions were indicated in order to ascertain professional satisfaction: working and health conditions, job security, achievement, autonomy, relationship, prestige and remuneration. Professional satisfaction can be assessed by different approaches and in different environments. Job satisfaction has become increasingly important because it is pointed out as a variable, implicitly and explicitly, that is linked cumulatively to the productivity and personal fulfilment of workers. Greater professional satisfaction contributes to the professional finding meaning in their work activity and adopting positive attitudes towards institutional development. Research at the global level suggests that good socialization practices lead individuals to understand their role more clearly, getting more involved in work and organization, leading to greater satisfaction, since according to Gomes et al. (2008). In the initial stages of the individual's life in the organization, it is important that the new employee have good opportunities to interact and socialize with his peer and leaders.

In spite of the existence of a multiplicity of studies that deal with the subject of professional satisfaction, there are a few studies that study the professional satisfaction of teachers, particularly in Angola. It is intended, therefore, to contribute in some way to the widening of knowledge and to the enrichment of the Angolan and international bibliography. In this sense, the main purpose of this research is to examine the determinants of Public HEI job satisfaction and understand which aspects are more valued by these professionals in their work environment. The present study supposes a reflection about the way in which the sociodemographic variables, of professional context, of training context and of labour context influence the level of professional satisfaction of the teachers of the Public HEIs of Kwanza South Province, namely: Institute Superior Polytechnic of Kwanza South (ISPKS) and Higher Institute of Education Sciences of Sumbe (ISCED). Therefore, it is crucial that ISPKS and ISCED understands what its teachers expect and have a duty to promote such measures, evidently within the parameters admissible and practicable by the institution. The realization of this research on the job satisfaction of teachers makes it possible to understand the perception of these professionals about this reality, to know what motivates them and what their expectations, and through this knowledge to improve their productivity and efficiency, as well as quality of education. Lobos (1978) argues that so many managers and social researchers believe that if labour dissatisfaction were reduced, human barriers to production would be eliminated and transformed into a force that would promote improved performance and consequently productivity. With regard to the professional of the higher education, the way in which he feels and faces his work, determine categorically the success and the quality of the education. Because it is a profession that is dynamized particularly in the field of human relations, the satisfaction in the workplace becomes essential. In fact, teaching is a profession that has undergone changes and restructurings in the sense of achieving excellence in teaching. With the growing development of communication and information technologies, education professionals need constant updating so as not to compromise professional competence and the quality of teaching and service delivery to students and the community.

This article is organized in 5 sections. In addition to the present introduction, there is a section with the theoretical framework, another with the supporting methodology of the whole study. Following is the section where the results achieved with the teacher's satisfaction of the Public HEIs of Kwanza South Province are displayed and analysed. Finally, the main conclusions and contributions of the present study are highlighted. It is hoped that this study will contribute to a better understanding of the job satisfaction of higher education teachers in order to allow ISCED

and ISPKS to define strategies and adopt intervention measures that favour the well-being, the expectation of teachers and promote simultaneously, the better institutional competitiveness and the quality of education.

THEORETICAL BACKGROUND

In the current context of globalisation, the work environment has undergone profound and significant changes around the need to systematic adaptation of the organizations to the new market challenges (Lawler, 2005). As a consequence, organizations have implemented an organizational culture that favours high performance, with particular attention to human resource management as an essentially strategic issue. The growing interest in strategic management of human resources reveals the progressive concern with people, considered as the key resource for organizational success, whether private or public organizations (Mendes, 2012). When it comes to strategic human resource management, it refers to “designing and implementing a set of internally consistent policies that ensure that the company's human capital contributes to achieving business objectives” (Huselid, Jackson & Schuler, 1997:172). This view states that not only the different human resources management practices and policies must be closely interlinked, but also aligned with the organization's overall strategy. One of the great and current requirements of organizations is to use the range of knowledge in a strategic and integrated way, rather than simply need to retain the best professionals. In this sequence, according to Handel (2005), professionals considered more satisfied, who perceive greater autonomy and decision-making freedom in the pursuit of their activities, tend to become more involved with their work and to perceive it more in function of the designated ones rewards intrinsic, related to their interests, demands and needs, which most impact on their performance and inherently in organizational performance.

Thus, not only firms such also organizations like HEI have begun to invest in strategic management and particularly in human resource management, which reveals the progressive concern with people, regarded as the key factor for excellent performance and organizational competitiveness. In addition to the usual sources of competitive advantage, people have come to be seen not as a mere organizational resource that should be managed like other resources but rather as the strategically most important "resource" for gaining competitive advantage. In the search for this advantage, the contribution requested for the human resources management is in the capacity of production of added value, representing this capacity, the implementation of certain strategic activities of human resources management (Mendes, 2012). The systematic and continuous adaptation of organizational practices to environmental changes and the adoption of leadership styles that stimulate the proximity between goals and interests shared by professionals and organizations undoubtedly lead to the improvement of sustainable organizational performance. To this extent, organizations such as HEI must implement a human resources management that is closer to professionals, which verifies the impact of their actions on their performance, with special incidence on measuring of the level of the satisfaction of their employees.

Some studies investigate the supposed relation between the job satisfaction and his professional performance. Locke (1976) understands job satisfaction as an emotional state, pleasant or positive, which necessarily results from work-related experiences. Such an emotional state is determined by agents (such as relationships with bosses and colleagues, organizational policies and procedures, etc.) and events (such as physical conditions in the industry and recognition by others) related to the work, capable to promote such satisfaction. Tsang and Wong (2005) define job satisfaction as a positive emotional state or pleasure sensation resulting from assessment of a work or related aspects simultaneously. Several studies (Locke, 1969; Cura & Rodrigues, 1999; Judge, Thoresen, Bono & Platten, 2001; Aiken, Clarke & Sloane, 2002; Martinez, Paraguaya & Latorre, 2004; Marquez & Moreno, 2005; Santos, Spagnoli, Ramalho, Passos & Caetane, 2010; Moura, 2012; Azevedo, 2012; Leite, 2013) point to an implicit link between job satisfaction and the high performance of its professionals. According to Lu, Barribal, Zhang and While (2011) workers' expectations play a role in the traditional model of job satisfaction and, in turn, job satisfaction is related to performance. Mezomo (2001) points out that an organization with satisfied employees has a potential advantage, since, as a rule, it attracts the best, reduces staff turnover, increases productivity, reduces costs, improves image in the community and gains competitiveness. The senior works of a higher education institution has an important role in creating job satisfaction, identifying which factors cause satisfaction and / or dissatisfaction, and to use those data to identify strategies that lead to improved situations that are less satisfactory, and to use this data to identify strategies that lead to improving less satisfactory situations, since they are crucial aspects since job satisfaction has a significant impact on employees' commitment to organizations, work performance and motivation (Noordin & Jusoff, 2009; Machado-Taylor, Soares & Gouveia, 2010; Machado-Taylor, et al., 2016).

According to the two-factor theory developed by Frederick Herzberg there are two types of factors that affect the satisfaction of human needs, classified as hygienic factors and motivational factors. Hygienic factors are factors related to the working environment or living conditions; the motivational factors are those that can promote active attitude and job satisfaction (Alpay & Verschoor, 2014; Wei & Junyan, 2015). The motivation and the particular interest in this subject were triggered, above all, by the supposed relationship between teacher satisfaction and professional performance. In this paper it will be present the results of a studies (Locke, 1969; Cura & Rodrigues,

1999; Judge, Thoresen, Bono & Platton, 2001; Aiken, Clarke, Sloane & Caetane, 2010; Moura, 2012; Azevedo, 2012; Leite, 2013) that point to an implicit link between job satisfaction and the high performance of its professionals.

The top management of a higher education institution has a central role in creating job satisfaction, identifying which factors cause satisfaction and/or dissatisfaction, and use those data to identify strategies that lead to improved situations that are less satisfactory. As a result, job satisfaction has a major impact on employees' commitment to organizations, work performance, and motivation (Machado-Taylor, Soares & Gouveia, 2010; Machado-Taylor et al., 2016). Furthermore, job satisfaction is a critical condition for improving the functioning of organizations, and educational managers have a decisive role, through the promotion of strategies that lead to increase the satisfaction of the workers, with a view to achieving results in terms of creativity, commitment and productivity (Alpay & Verschoor, 2014; Castro et al., 2011, Machado-Taylor et al., 2016, Wei & Junyan, 2015).

METHODOLOGY

This research deals with the job satisfaction of the teachers who work in Public HEIs of the Kwanza South Province, namely ISCED and ISPKS, and intends to understand some of the determinants that influence, how the teacher feels in the workplace and how he perceives his profession. In order to answer to the main objective, the following research hypotheses (HI) were established:

HI₁: There are differences in the average values of job satisfaction for sociodemographic characteristics;

HI₂: There are differences in average values of job satisfaction for the level of training;

HI₃: There are differences in average values of job satisfaction for professional category;

HI₄: There are differences in average values of job satisfaction for the labour characteristics;

HI₅: There are differences in average satisfaction values in each leadership practice for each leadership style;

HI₆: There is a direct positive relationship between satisfaction dimensions and overall satisfaction.

In order to answer to the main objective of the present study, an anonymous and confidential questionnaire survey was applied to ISCED and ISPKS teachers, divided into two parts. First part, consisting of a previous questionnaire, the questions were elaborated by the researchers, including sociodemographic, professional, training and labour variables, among others. A second part consists in the CAF Model 2006, Common Framework for Quality Assessment of the Common Administrations of the European Union. After data collection, the database was constructed, processed, processed, analysed and interpreted.

Initially, in order to describe and characterize the study sample, an exploratory descriptive analysis of the data was performed according to the nature of the variables under study. Statistical measures were used: absolute frequencies, relative frequencies, mean, standard deviation, bar graphs, in order to describe the characteristics: sociodemographic, professional, labour and satisfaction manifested by the respondent. Subsequently, in order to perform the necessary inferential analysis, it was applied the parametric tests, to understand the differences between means and the relationship between variables, whenever possible, and when the assumptions for their application were not violated, and when this is not possible non-parametric tests.

The relationship between variables of the first part of the questionnaire with the dimensions of the Satisfaction with Work scale, namely: Overall satisfaction of employees with the institution (SGFI); Satisfaction with management and management systems (SGSG); Satisfaction with working conditions (SCT); Satisfaction with Career Development (SDC); Levels of motivation (SL); Satisfaction with leadership style (SEL); Satisfaction with top leadership style (SELT); Satisfaction with leadership style of intermediate level manager (SELI); Satisfaction with hygiene, safety, equipment and service (SCHSES); Satisfaction with the current remuneration system (SSRV) will allow to establish the predominant determinants of satisfaction with work in these professionals.

FINDINGS

Sociodemographic characterization

The sociodemographic characteristics of the respondents under study are presented in Table 1. The sample size is composed by 75 teachers, who carry out teaching duties at ISCED and ISPKS. Based on the information in the below table, 78.7% (59) of these work at the ISPKS institution and 21.2% (16) work at the ISCED institution. Regarding the gender, 62.7% (47) of the respondents are male and 37.3% (28) female. As for age, 17.3% (13) of the individuals were aged up to 30 years, 45.3% (34) were between 31 and 40 years old and 37.3% (28) were over 40 years old. In terms of nationality, 62.7% (47) of the respondents are Angolan, 33.3% (25) of the respondents are Cuban, one is Portuguese and two are Vietnamese. Regarding marital status, 46.7% (35) were unmarried,

46.7% (35) were married / de facto, two were divorced and three were widowed. The majority of children (77.3%) had children, of whom 46.6% (27) had a child, 31.0% (18) had two children and 22.4% (13) had three To five children. Regarding the qualifications, it was verified that 37.3% (28) of the respondents were licensed, 58.7% (44) finished the master's degree and three respondents had the doctorate. Regarding the employment relationship, 50.7% (38) stated that they were effective and 49.3% (37) were employees.

Table 1 Sociodemographic Profile.

Variables		n	%
Institution	ISPKS	59	78,7%
	ISCED	16	21,2%
	Total	75	100%
Gender	Male	47	62,7%
	Female	28	37,3%
	Total	75	100%
Age	Up to 30 years old	13	17,3%
	From 31 to 40 years old	34	45,3%
	Greater than 40 years old	28	37,3%
	Total	75	100%
Nationality	Angolan	47	62,7%
	Cuban	25	33,3%
	Vietnamese	1	1,3%
	Angolan	2	2,7%
	Total	75	100%
Marriage Status	Not married	35	46,7%
	Married/Union in fact	35	46,7%
	Divorced/Separated	2	2,7%
	Widower	3	4,0%
	Total	75	100%
Have Children	Yes	58	77,3%
	No	17	22,7%
	Total	75	100%
Number of children	One child	27	46,6%
	Two children	18	31,0%
	Three to five children	13	22,4%
	Total	58	100%
Educational Qualifications	Licensed	28	37,3%
	Master	44	58,7%
	Doctor	3	4,0%
	Total	75	100%
Job link	Effective	38	50,7%
	Collaborator	37	49,3%
	Total	75	100%

Results of the Sociodemographic Dimension

This section presents the results obtained regarding the satisfaction of ISCED and ISPKS teachers in the dimensions assessed by the CAF scale. In this subchapter, we present the results of the dimensions of the CAF scale according to the sociodemographic dimension. Regarding the gender of the respondent, it is verified that in all dimensions of the CAF scale, the average values obtained for women are higher than the average values obtained for men. The following stand out: SGFI, female with mean value of 3.62 and male with mean of 3.26; SEL, with a mean in the female of 3.93 and a mean of 3.40 in the male; SELT, with a mean of 3.85 in the female and 3.34 in the male, Overall satisfaction with a mean in the female of 3.64 and a mean of 3.19 in the male. The differences observed between men and women are statistically significant, with the women being the most satisfied.

The results of the CAF scale dimensions according to the age group of the respondent revealed that, the employees aged between 31 and 40 years had higher mean values of satisfaction in SGFI (3.49), SGSG (3.31), SDC (3.29), SCHSES (2.73) and SG (3.38). In general, it is verified that the results are very close between different age groups, so that the application of the ANOVA test concludes that the observed differences are not statistically significant in all dimensions, except for the SSRV dimension, highlighting the oldest teachers with greater satisfaction with younger teachers.

Regarding the nationality of the respondent, the results obtained show that in all dimensions the average values obtained for employees with a nationality other than Angolan are higher than the average values obtained for Angolan employees. The following stand out: SGFI, non-Angolan with an average value of 3.68 and Angolan with an average of 3.22; SCT, with a mean of 3.71 in non-Angolan and of 3.12 in Angolan; SDC with a mean of 3.57 in non-Angolan and 3.07 in Angolan; SCHSES with an average of 2.99 in the non-Angolan and of 2.43 in the

Angolan; SSRV, with an average of 3.79 in the non-Angolan and of 2.65 in the Angolan. The SGFI, SGSG, SCT, SDC, SCHSES, SSRV and SG dimensions show that the observed differences between Angolans and non-Angolans are statistically significant, with non-Angolan officials being the most satisfied.

The results of the dimensions of the CAF scale according to whether or not the child has children shows that the institution's teachers who have children were, on average, more satisfied in the dimensions: SGFI (3.41), SGSG (3.24), SCT (3.41), SDC (3.29), SCHSES (2.73), SSRV (3.24) and SG (3.38). In the remaining dimensions the employees without children presented the highest results. By the application of the t-test we conclude that the observed differences are statistically significant in the SSRV dimension, and the children-less respondents were significantly more satisfied. In the other dimensions, the observed differences are not statistically significant. Based on these results the first hypothesis was partially validated.

Dimension Training Results

The results of the dimensions of the CAF scale according to the literary qualifications of the respondent revealed that employees with literary qualifications at the master's/doctoral level had higher average satisfaction values in all dimensions. It is observed that the results are considerably different among the respondents with different literary qualifications, so that by applying the appropriate statistical test it is concluded that the observed differences are statistically significant in the dimensions: SGFI, SGSG, SCT, SEL, SELT, SELI and SG. With regard to the results of the dimensions of the CAF scale according to the facility that the institution offers to make the respondent frequent training, it is verified that in all dimensions the average values obtained by the respondents who stated that they are easy to attend training were higher than respondents who stated that they have not an easy time attending training. The SGFI, SGSG, SCT, SDC, SEL, SELT, SELI, SCHSES and overall satisfaction dimensions were highlighted, for which it was concluded that the observed differences are statistically significant. In other words, respondents who feel that the institution is easy to attend training in their area of work are clearly more satisfied. Thus, the second hypothesis of research was confirmed.

Results of the Professional Dimension

With regard to the results of the dimensions of the CAF scale according to the HEI where the teacher interviewed performs his/her duties. The ISCED teachers were, on average, more satisfied in all dimensions. However, at a significance level of 5%, it is concluded that the observed differences are statistically significant in the SGSG, SCT, SEL, SELI, SCHSES and overall satisfaction dimensions. The results of the dimensions of the CAF scale as a function of the teachers' work link show that in all dimensions, with the exception of SCHSES, the average values obtained for the employees are higher than the average values obtained for the employees. However, at a significance level of 5%, it is concluded that the differences are not statistically significant. The third hypothesis of research is not validated since there was insufficient statistical evidence to corroborate it.

Results of the Work Dimension

The results of the dimensions of the CAF scale according to the reasons that led the teacher interviewed to work at the institution show that the teachers who invoked the interest/experience reasons to work at the institution had higher average satisfaction values in the dimensions SGFI (3.47), SGSG (3.36), SDC (3.36), NM (3.94), SEL (3.75), SELT (3.65), SELI (4.11), SCHSES (2.68) and SG (3.46). In the remaining dimensions were the employees with other reasons to work in the institution that presented higher satisfaction results, with the exception of the SGSG dimension. By the application of the ANOVA test it was concluded that the observed differences are statistically significant in the dimensions: SEL and SELI, in the remaining the differences observed were not statistically significant. With regard to the results of the dimensions of the CAF scale depending on the possibility of re-choosing the same institution to work. Teachers who stated that they would choose the same institution to work showed the highest average levels of satisfaction in all dimensions of the scale. On the other hand, teachers who stated that they would not choose the same institution to work had the lowest average levels of satisfaction in all dimensions. By the application of the ANOVA test it was concluded that the differences are statistically significant in all dimensions, with the exception of NM and SSRV. As regards the fourth hypothesis of investigation, it can be said that it is validated once enough statistical evidence has been recorded to corroborate it.

Result of management practices for the different leaderships

It was noted that in general the focused initiatives are identified by the majority of respondents at both top-level and intermediate levels. At the top leadership stand the initiatives: "Demonstrates commitment to the process of change" and "Delegates competencies and responsibilities"; which showed levels of agreement slightly higher than the intermediate leadership. In the remaining initiatives, the agreement of its existence is slightly superior in the intermediate leadership. The table below (Table 2) shows the characterization of the satisfaction with the leadership practices (top and intermediate) of the ISCED and ISPKS institution's teachers. It was observed that for all the focused initiatives the average levels of satisfaction are close between top leadership and intermediate leadership, and there are no statistically significant differences between the two types of leadership. With the

exception of the "Accepts constructive criticism" initiative in which the respondents were significantly more satisfied with the interim manager. The initiatives: "Delegates competences and responsibilities"; "Ensures the development of a culture of change"; "Accepts constructive criticism" "; "Demonstrates engagement in the change process" and "Accepts improvement suggestions" present the highest average levels of satisfaction in both types of leadership. In this sense, the fifth hypothesis of research was not corroborated.

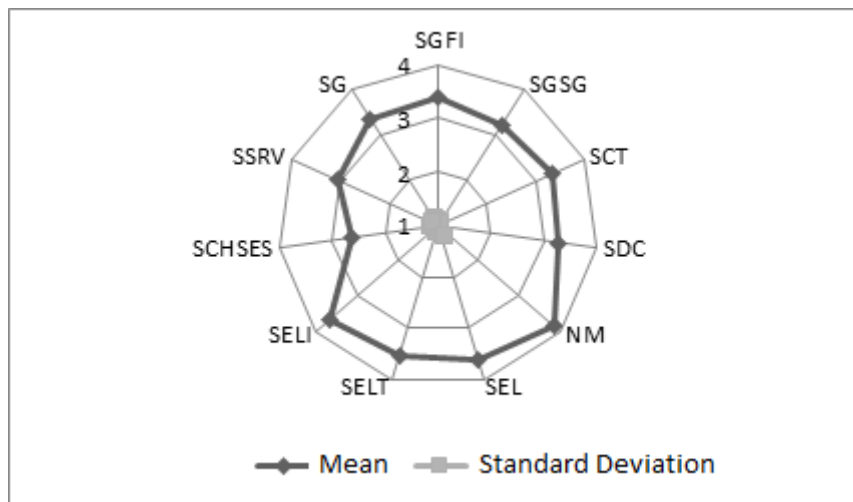
Table 2 Characterization of satisfaction with the leadership practices (top and intermediate).

Dimensions	Activity	Mean	Standard deviation	t-Student Test	p-value
Lead through example	Top Manager	3,56	1,12	-1,143	0,257
	Intermediate manager	3,71	1,01		
Demonstrates commitment to the process of change	Top Manager	3,53	1,11	-0,426	0,671
	Intermediate manager	3,57	1,12		
Accepts constructive criticism	Top Manager	3,36	1,15	-2,314	0,023
	Intermediate manager	3,60	1,12		
Accepts suggestions for improvement	Top Manager	3,57	1,07	-1,685	0,096
	Intermediate manager	3,75	1,05		
Delegates powers and responsibilities	Top Manager	3,84	1,09	0,252	0,801
	Intermediate manager	3,81	1,05		
Stimulates people's initiative	Top Manager	3,57	1,13	-0,618	0,539
	Intermediate manager	3,64	1,09		
Encourages mutual trust and respect	Top Manager	3,52	1,18	-0,823	0,413
	Intermediate manager	3,63	1,18		
Ensures the development of a culture of change	Top Manager	3,49	1,20	-1,026	0,308
	Intermediate manager	3,61	1,11		
Promotes training actions	Top Manager	3,72	1,23	-0,790	0,432
	Intermediate manager	3,83	1,02		
Recognizes and rewards individual and team efforts	Top Manager	3,31	1,17	-1,905	0,061
	Intermediate manager	3,56	1,09		
It suits the treatment given to people, needs and situations	Top Manager	3,39	1,24	-1,616	0,110
	Intermediate manager	3,61	1,14		

Characterization of the Job Satisfaction Scale

The results obtained for the dimensions of the CAF scale are presented in this section. For each dimension its average was calculated based on the number of items that integrate each dimension. The scale used to measure the items was Likert's 5-point, where 1 corresponds to Very dissatisfied and 5 to Very Satisfied. Theoretically the expected average in each dimension is 3 points. Through the analysis of figure 1 it is possible to observe the average level of satisfaction of the respondents in all dimensions as well as the dispersion of results. It is verified that, with the exception of the SCHSES and SSRV dimensions, the average satisfaction recorded was close to or higher than 3.5 and that the dispersion values in all dimensions are small. It can be said that the employees of the institutions under study are generally satisfied. This conclusion of general satisfaction of the professionals under study, extracted from figure 1 is complemented and reinforced by Table 3.

Figure 1 Summary of global mean and overall standard deviation of dimensions.



SGFI - Overall satisfaction of employees with the institution; SGSG- Satisfaction with management and management systems; SCT - Satisfaction with working conditions; SDC- Satisfaction with career development; NM - Levels of motivation; SEL - Satisfaction with leadership style; SELT - Satisfaction with top leadership style; SELI- Satisfaction with the managerial style of intermediate level manager; SCHSES - Satisfaction with hygiene, safety, equipment and service conditions; SSRV - Satisfaction with the current remuneration system.

Table 3 presents the results of dimension characterization. It is observed that in terms of internal consistency this varies from good to very good, since the lowest Cronbach coefficient is 0.863 and the highest is 0.980. It can be observed that in all dimensions the highest value of satisfaction (5 points) was reached and that the average values obtained were higher than the theoretical average value, except for the dimension Satisfaction with hygiene, safety, equipment and service conditions (SCHSES) (Average of 2.64 points). And in the dimension Satisfaction with the current remuneration system (SSRV) the average obtained (3.07 points) is slightly higher than expected. It can be stated that, considering only the average values obtained, it is possible that the respondents are minimally satisfied in the dimensions: Overall satisfaction of employees with the institution (SGFI), Satisfaction with management and systems of management (SGSG), Satisfaction with the conditions of (SCT), Satisfaction with Career Development (SDC), Levels of Motivation (NM), Satisfaction with leadership style (SEL), Satisfaction with top leadership style (SELT) and Satisfaction with leadership style of Manager (SELI). Regarding the dispersion of the responses among the respondents, it is verified that this one exists (values of standard deviation of at least 0,75 points) and is more evident in the dimensions: NM, SDC and SSRV.

Table 3 Characterization of the dimensions evaluated in the CAF questionnaire

Dimensions	Alpha Cronbach	Empirical minimum	Mean	Standard deviation
SGFI	0,909	1,44	3,39	0,84
SGSG	0,938	1,11	3,23	0,92
SCT	0,903	1,13	3,34	0,89
SDC	0,870	1,00	3,26	0,96
NM	0,916	1,25	3,85	0,98
SEL	0,965	1,27	3,60	0,87
SELT	0,949	1,00	3,53	0,94
SELI	0,948	1,45	3,67	0,92
SCHSES	0,909	1,00	2,64	0,94
SSRV	0,863	1,00	3,07	1,07
Satisfaction	0,980	1,75	3,36	0,75

SGFI - Overall satisfaction of employees with the institution; SGSG- Satisfaction with management and management systems; SCT - Satisfaction with working conditions; SDC- Satisfaction with career development; NM - Levels of motivation; SEL - Satisfaction with leadership style; SELT - Satisfaction with top leadership style; SELI- Satisfaction with the managerial style of intermediate level manager; SCHSES - Satisfaction with hygiene, safety, equipment and service conditions; SSRV - Satisfaction with the current remuneration system

In order to complement the study, we analysed the correlation between all dimensions and also the weight of each dimension in the overall satisfaction (Table 4). It was necessary to recourse to Spearman's correlation coefficients

because the normality assumption in all dimensions was not verified. All the coefficients presented are statistically significant at a significance level of 1% and are positive indicating a relationship in the same sense between the different dimensions. Table 4 shows the coefficients with values greater than 0.70, which shows a strong association. Thus, it can be said that the associations between: SGFI and SGSG; SCT and SGSG; SDC with SGFI, SGSG and SCT; SEL with SCT and SDC; SELT with SGSG, SCT, SDC and SEL; SELI with SEL and SELT are at least strong. Regarding the overall satisfaction, the strongest contributions are of the dimensions: SEL, SGSG, SDC, SCT, SELT and SGFI, with correlation coefficients above 0.80. In this sense, it can be said that there is a direct positive relationship between the dimensions of satisfaction and overall satisfaction, so the sixth research hypothesis is confirmed.

Table 4 Spearman's correlation coefficients.

Dimensions	SGFI	SGSG	SCT	SDC	NM	SEL	SELT	SELI	SCHSES	SSRV	Satisfaction
SGFI	1	0,828	0,704	0,754	0,550	0,703	0,641	0,613	0,649	0,646	0,855
SGSG		1	0,817	0,818	0,411	0,816	0,831	0,655	0,694	0,496	0,933
SCT			1	0,755	0,360	0,777	0,774	0,650	0,707	0,450	0,880
SDC				1	0,360	0,820	0,800	0,695	0,689	0,430	0,894
NM					1	0,434	0,396	0,346	0,249	0,306	0,487
SEL						1	0,913	0,906	0,665	0,326	0,925
SELT							1	0,688	0,652	0,304	0,877
SELI								1	0,542	0,270	0,800
SCHSES									1	0,540	0,778
SSRV										1	0,523
Satisfaction											1

SGFI - Overall satisfaction of employees with the institution; SGSG- Satisfaction with management and management systems; SCT - Satisfaction with working conditions; SDC- Satisfaction with career development; NM - Levels of motivation; SEL - Satisfaction with leadership style; SELT - Satisfaction with top leadership style; SELI- Satisfaction with the managerial style of intermediate level manager; SCHSES - Satisfaction with hygiene, safety, equipment and service conditions; SSRV - Satisfaction with the current remuneration system; Satisfaction - overall average satisfaction. a - significant correlation coefficient at 5%; b - significant correlation coefficient at 1%. Spearman correlation coefficient.

DISCUSS AND CONCLUSION

This paper investigated the job satisfaction in HEI of the Kwanza South Province (Angola), concretely how the sociodemographic, professional, training, labour and leadership variables related to the level of satisfaction of teachers that belong to the HEIs (ISCED and ISPKS). The findings show that variables studied influence the level of job satisfaction in HEIs, both the sociodemographic and the leadership initiatives. Currently, Angolan HEIs are facing major challenges surrounding the development of human capital, especially of the Institute members and need to devote more attention to their Human Recourses Management practices. The performance evaluation and compensation system can be successfully used for directing and motivating academic staff in their activities and seeing that their activities are in accordance with the strategic planning and human resource management of the HEI. As the HEI evolves and systematically adapts to the rapid changes in the social and economic environment, it is necessary implement changes in the organization mean there could be a drastic increase in the workload of academic staff. It is therefore crucial to implement specific motivation systems and work out the united and fair performance evaluation and compensation system, since that only thus will their evolution be successful. The study also showed that the existence of information about the job satisfaction, it is an appropriate and important instrument to assist HEI in finding an excellent performance and competitiveness. Distortion or lack of information can result in ineffective plans intended to improve job satisfaction. As a result of this study, higher education institutions which focus on improving job satisfaction with strategic human resource management alignment might have more successful results.

Moreover, such as final considerations, it is intended to summarize the information discussed in previous sections, also explaining the limitations of the study as well as the possible directions for future research. According to Almeida (2003), any organization is a result of its human capital and, of course, does not exist if there are no people. In this sequence, the strategic management of human resources has been adopting new roles, from a management of only administrative and bureaucratic personnel, with concerns cantered only on compliance with the legislation, a management of human resources with more strategic orientations, focused on Valuation of human capital, motivation and job satisfaction (Mendes, 2012). In this research it can be said that meet the view of Mezomo (2001), who argues that no organization is successful, that is, it achieves objectives without the effort and reciprocal commitment of all workers, who must work as a team, in the search for and operationalization of the objectives, which are added to improve organizational performance. Any organization with satisfied employees

has the potential to add benefits, as it typically attracts the best, reduces staff turnover, increases productivity, reduces costs, improves image vis-à-vis the community, and gains competitiveness. The present study was based on a reflection on how sociodemographic variables, professional context, training context, work context and leadership context determine the level of job satisfaction of ISCED and ISPKS of the teaching professionals. At the same time it provided the knowledge of the image that the teachers perceive of the HEI where they carry out activity. This knowledge allows identifying the reasons for mismatches and nonconformities and their consequences in order to implement measures that promote the desired transformations and satisfaction.

This research proposes, regarding sociodemographic variables and job satisfaction, that: female teachers always declared a superior satisfaction than male teachers; professionals are 31 to 40 years old had higher satisfaction than those of the highest age groups, except for satisfaction with the current remuneration system (SSRV), which showed higher satisfaction among older teachers; teachers with children showed higher satisfaction than those without children and Non-Angolan teachers presented greater satisfaction than Angolan teachers.

Respecting the professional variables in job satisfaction, it can be conclude that: teachers with ties to the institution were slightly less satisfied than the collaborators, although the differences observed in each dimension were not statistically significant and Teachers that work in ISCED presented higher levels of professional satisfaction than the teachers that work in ISPKS. Concerning the variables of training in job satisfaction, it can be conclude that: teachers with higher academic qualifications presented greater satisfaction; professionals who stated that they were able to attend training were more satisfied than those who did not have the opportunity to attend training.

Regarding labour variables and job satisfaction, it can be concluded that: teachers who invoked the interest/experience reasons to work at the institution showed higher satisfaction values and teachers who stated that they would choose the same institution to work showed the highest average levels of satisfaction in all dimensions of the scale. About variables leadership and job satisfaction, it can be concluded that: teachers satisfaction levels are close to top leadership and intermediate leadership

Teachers performing HEI of the Kwanza South Province functions were moderately satisfied (empirical average of 3.36 and standard deviation of 0.75). Given the results obtained, it can be affirmed that it was possible to relate sociodemographic variables with the degree of professional satisfaction of ISCED and ISPKS teachers and thus contribute to a better understanding of the influence of satisfaction on improving the competitiveness and performance of this institution. The results obtained aim to highlight the relation between age and job satisfaction, where it was observed that the group of subjects over 40 years of age showed the highest degree of job satisfaction in the SSRV dimension. The statistical analysis applied to the data of this study with respect to the age group proves that the hypothesis is only validated in the SSRV dimension, because in this dimension the results obtained showed significant differences being the teachers between the ages of 31 and 40 which were significantly different from the others (less satisfied). In the remaining dimensions, the observed differences between age groups were not statistically significant. The results achieved converge with satisfaction theories, particularly with the pyramid theory of Maslow's needs, which identifies one of the needs as security (stable employment, social protection), which in this study can be observed in the determinant of the link with the organization. Which allows to conclude that although the satisfaction of individuals with fixed-term contracts is slightly higher than the actual teachers, the differences observed in each dimension were not statistically significant. It is believed that the labour bond factor did not present the clearly superior result in favour of the effective state because the collaborating professors are foreign professionals with remunerations much higher than the salaries earned in their countries of origin (Cuba and Vietnam). This raises the discussion about considering this fact in the design of policies and strategies of Management and more specifically Human Resources Management (HRM). The purpose of the reflection is to impose flexibility, adaptability and availability, without there being a compromise between the employee and the organization in the long term. In recent years, there has been a growing choice of organizations for forward contracts and services, in a clear adaptation to the demands of global society and to internal and external policies that affect organizations economically and socially.

Additionally, it is crucial that human resource managers remain alert to employee signals. In this research, it can be concluded that the professionals pay particular attention to the values and attitudes of their managers and leaders, both intermediate and top. To this extent, it is believed that this study can contribute to a reflection on how to contribute to the construction of a better and healthier society, inside and outside the organizations, where the values that identify the professionals as human beings, dignified, respectful, ethical, supportive, and do not get run over by negative attitudes such as selfishness, egocentrism, rivalry. It is assumed that this scenario is possible since greater job satisfaction contributes to the employee finding meaning in their professional activity and adopting positive attitudes towards institutional development. Successful organizations are known to take pride in practicing excellent HRM and for their part, the professionals are proud and "wear the jersey of the organization" leading these organizations to success.

This study reveals that academic staff of the Public HEI of the Kwanza South Province are globally satisfied and this satisfaction has contributed directly to improving the teaching quality and competitiveness of this institution, covering these professionals, enhances a better communication and institutional valuation. The results from this research are mainly important to a several of stakeholders. Primarily, this is especially relevant since higher education institutions are answerable for the effective use of resources. Besides, the administration that governs each HEI might be able to further identify the variables and the initiatives que enhanced a greater job satisfaction that may offer a better method in their work efficiencies and effectiveness. Similarly, the teachers in Angolan HEI, may be better able to understand the situation of their HEI, their management and how effective they are in developing the knowledge, skills, and abilities of their human capital. Lastly, organizations (regional and international) wishing to form alliances with Angolan HEI may benefit from understanding their strategic human resource management initiatives. Education administrators should implemented outcome oriented performance evaluation systems and they should also encourage the participation of teachers in decision making processes which can increase their knowledge and skills. To this extent, the HEI need to establish performance assessment and compensation systems in order to show clearly defined causality between compensation and performance of academic staff. A good and well-functioning performance evaluation system would help the educational managers to make their mark in the organizational setting of their faculty. As implications to education managers, it is suggested a closer cooperation between institute and the human resource department in order to establish more unified and adequate evaluation processes. Moreover, it is recommended to the management, particularly to HRM, a greater participation and involvement of the teachers in the institutional decision, especially in the decision making related to the teaching, so that this involvement, stimulates a greater satisfaction and consequently, to promote a better performance in the teaching. A greater commitment of the management bodies and the intermediate directors. Thus, the study gives rich and important findings to the scope of strategic human resource management in the HEI. As HEI include better strategic human resource management practices and initiatives, they will be better prepared to handle with a quickly changing environment and external competition.

As with all studies, this study has some limitations. The main limitation of the study is related to the sample size. Although the collection of data has not proved easy, it is intended that future research may involve larger samples, extended to other professional categories and institutions, comparing professional satisfaction between teachers and non-teachers, national and Countries.

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The Use of Unregistered Services by Dependent Seniors in the Czech Republic As Seen by Their Family Members

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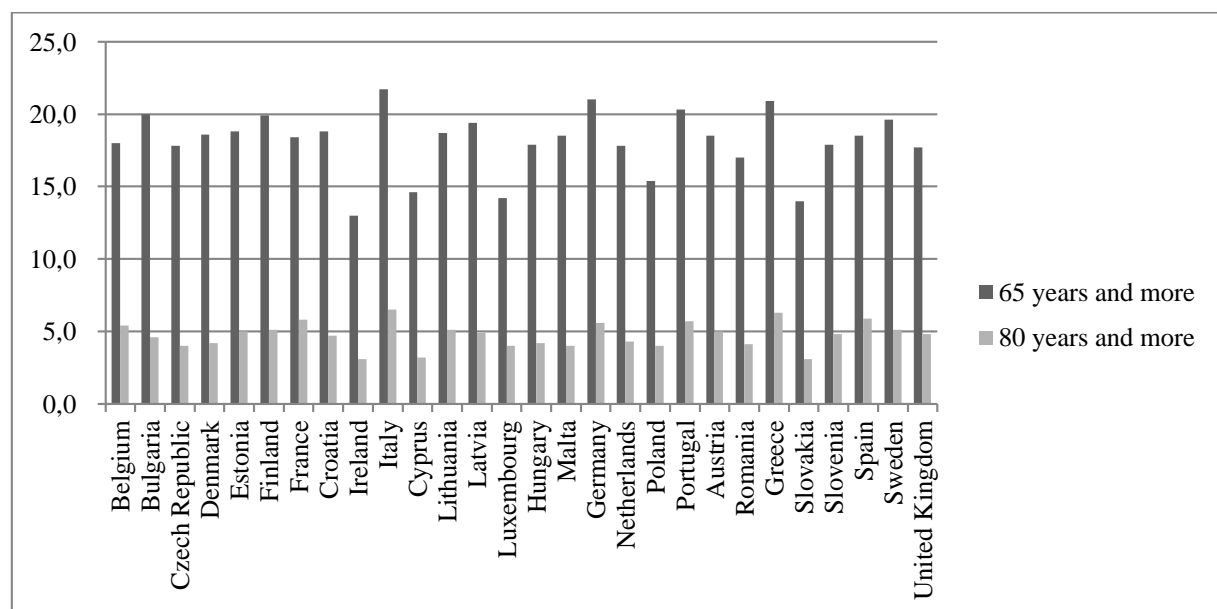
ABSTRACT

This qualitative study focuses on unregistered services provided to the target group of seniors in the Czech Republic. The aim of the research carried out through semi-structured interviews was to identify the reasons leading the seniors, or their family members, to make use of services that are not properly registered in accordance with the current legislation (Act no. 108/2006 Sb. on Social Services). A partial goal was to discover the reasons for not using the registered social services. The data showed that the main reason for not using duly registered social services is their current unavailability in difficult social situations (primarily associated with the worse health condition of the seniors or the persons taking care of them) that the seniors are unable to deal with using their networks of social relations. Another reason is the insufficient time availability of the registered providers of social services, e.g. at night or at weekends. The research showed that the existing social services are not fully capable to meet the current needs of the seniors and their families.

INTRODUCTION

At present, the demographic aging of the population is affecting all countries and is becoming a global social challenge (Loužek, 2014; Sokačová, 2014; Sak, Kolesárová, 2012; Jeníček, Foltýn, 2010; Tomeš, 2005; United Nations, 2002). According to the available statistics (Czech Statistical Office, hereinafter ČSÚ, 2017), people aged 65+ constituted 18.9% of the European population and persons over 80 5.3%. In the Czech Republic, on the given date there were 1,932,412 persons over 65, which accounted for 17.8% of the population. People over 80 accounted for 4% of the Czech population. The percentage representation of the elderly in the countries of the European Union is shown in detail in Chart 1.

Chart 1: The percentage of 65+ and 80+ population in the EU population in 2015



The source: ČSÚ, 2017, modified by the authors

It is clear from the chart above that Ireland has the lowest percentage of the population aged 65+ (13%), and on the contrary, Italy has the highest percentage (21.7%). The share of the people aged 80+ is the lowest in Ireland and Slovakia (3.1% in both countries) and the highest in Italy (6.5%). The Czech Republic is just below the European average in both categories. Demographic aging is becoming an important socio-economic and political issue. The developed countries have an increase in the proportion of the older people in the population and a decline in birth rates, which is one of the main reasons for the aging process of the population. National strategic documents declare preparation for the aging of the population (see the National Action Plan to Promote Positive Aging for the Period of 2013-2017; the 2014 Report on the Implementation of the National Action Plan to Promote Positive Aging for the Period of 2013-2017) as do the international ones (see the 2002 Madrid International Action Plan on the Issue of Aging). In the field of social work with the elderly and in particular in the field of social services for the target group of seniors, measures are and will be taken to promote the dissemination of forms and ways of providing services. In the European countries, the basic elements of care for the elderly include field social services which enable the client to be able to solve the situation according to his or her individual needs in order to stay as long as possible in his or her natural social environment (Musil, Hubíková, Kubalčíková, 2003).

Due to the fact that in the Czech Republic in the last decade we have seen the trend of the so-called unregistered social services for the target group of seniors, i.e. such services that are provided without due authorization (see, for example, Vávrová, Dořičáková, 2016; Janebová, Celá, 2015; Klímová Chaloupková, 2013), we decided in the following study to find out the reasons why the families of the seniors still use them. The clients of these services do not have a regular contract with the provider, their provision is negotiated on the basis of an oral agreement that does not guarantee a stable price or the quality of the services provided. The provider can be anyone regardless of his/her education or practice achieved, without the position of a social worker as a quality guarantor. At this point, it should be noted that in the Czech Republic social services can be provided only on the basis of registration pursuant to Act No. 108/2006 Coll., On Social Services (hereinafter "the Act") and in compliance with other implementing regulations (Decree No. 505/2006 Coll., which implements some provisions of the Act on Social Services). This situation is caused by the demand for services for the elderly. It exceeds the offer of registered social services, which opens a space for "business". In the open market, the competitive offer of unregistered services could theoretically lead to an increase in quality, but in fact quality is not taken into account as it is not guaranteed, let alone "enforceable" by law. Within the market changes, there appears a sort of marketization of services, which, according to Malík Holas (2014), can, on the one hand, be a positive contribution, in particular to making the system services more effective, and to increasing its flexibility, transparency, or bringing operational savings. On the other hand, according to Šimíková (2015) this may also have a negative impact, especially on low-income clients who will not be able to afford services for financial reasons, which can lead to the exclusion of certain target groups for whom social services are difficult to provide.

THE STUDY

The breakdown of traditional family links, the later retirement, the uncertainty of permanent employment, and many other aspects are frequent reasons that do not allow the families to look after their loved ones in their senior age. The care of the aging family member has gradually moved from the family to the state or private providers of social services where the State has no longer the principal position. If an individual is not able to take care of himself/herself, the family often faces a decision whether to take care of them by themselves or to use any of the registered services (field, outpatient, residential) that are subsidized by the State through care allowances and other forms of support. However, there is often a situation where the family is unable to secure the service, for one or another reason. This is especially true in the case of overloaded registered social services, a long distance from the seat of the service provider, or the absence of social services in the given location. In such a case, the family gets into a helpless situation facing the decision whether to make use of unregistered services taking on the risk associated with the absence of their license to provide services.

The aim of the research of the presented study was **to uncover the reasons for the seniors, or their family members, to decide to make use of services that are not properly registered in accordance with the valid legislation.** For our research, the use of constructivist paradigm (Lincoln et al., 2014) seemed to be the most appropriate, as we wanted to understand the perception of the persons and their interpretations. The main research question we asked was: **What are the reasons for using unregistered outpatient and field services for the elderly?** For the research question a **qualitative research strategy** has been chosen, as the abductive way of exploration enables insight into as many dimensions of the given social problem as possible. The main components of the conducted qualitative research were data from interviews, observation and legislative documents, and analytical and interpretative procedures through which we came, in accordance with Strauss, Corbin (1997), to certain conclusions and theories. The data collection was carried out using **semi-structured interviews** with family members and those close to clients who are using unregistered services for seniors. Family members and close persons were chosen as the research object because the clients using the services

without registration are most often the recipients of care allowances in the 4th degree and their state of health in most cases did not allow participation in the research, i.e. providing relevant information in an interview. The interviews were recorded, and the recordings were literally transcribed (Moorse, 2009). **The criterion of selecting the informants** for the research was the fact that they **knew about the absence of registration of the service provided to the senior**. We gained the informants by a deliberate choice using the snowball sampling technique. At the beginning, on the basis of informal relationships, we approached four family members about whom we knew that their relative was making use of an unregistered service. The advantage of getting the informants was that one of the interviewees had previously worked in field social services in the given region, so she knew some of the family members of the users of unregistered services. These subsequently referred us to other users of unregistered services. In total, we received statements from 25 people. In the research we complied with all ethical principles (voluntariness, confidentiality, anonymity, neutrality, authorization of the received statements and consent to their disclosure; at the same time, we had no interest in data that could identify the unregistered service providers). The interviews were conducted in a secure environment to allow the informants to be open. Everyone was then made aware that he/she could anytime interrupt or end their participation in the research. The socio-demographic characteristics of the informants are shown in Table 1.

Table 1: The socio-demographic characteristics of the informants: family members

The informant code	The relationship of the informant and the client of the unregistered service	The sex of the client of the unregistered service	The age of the client of the unregistered service	The type of the service used	The type of agreement with the unregistered service provider	The length of the used service in months
R1	daughter	man	90	field	none	36
R2	son	woman	90	field	none	24
R3	wife	man	82	field	none	12
R4	wife	man	83	field	none	24
R5	daughter-in-law	man	84	field	none	12
R6	father-in-law	man	87	field	contract	48
R7	son	woman	88	outpatient	close person	36
R8	son	woman	85	field	none	24
R9	daughter	man	75	field	contract	12
R10	son	woman	82	field	none	18
R11	son	man	84	field	none	3
R12	close person	woman	82	field	none	15
R13	son	woman	90	field	none	6
R14	son	woman	87	outpatient	none	30
R15	son	woman	94	outpatient	none	48
R16	daughter	woman	85	field	none	2
R17	son	woman	83	field	none	3
R18	daughter	woman	91	field	none	28
R19	son	man	87	field	none	14
R20	daughter	woman	94	field	none	18
R21	granddaughter	woman	81	field	none	5
R22	daughter	woman	89	outpatient	none	38
R23	daughter	woman	87	field	none	13
R24	daughter	woman	82	field	none	7
R25	son	woman	84	field	none	8

The data source: the authors' own survey, 2016-2017

Table 1 also shows the age of the people using unregistered services. Except for one client, they were 80-year-olds whose average age was 86.

THE DATA ANALYSIS AND FINDINGS

To meet the set goal a qualitative method of an established theory, or a well-grounded theory (a grounded theory method, hereinafter GTM), was used, and on the basis of that theory the data were analysed (Padgett, 2017). The goal of the grounded theory is to create a theory that explains the subject of the area under study. GTM strives to

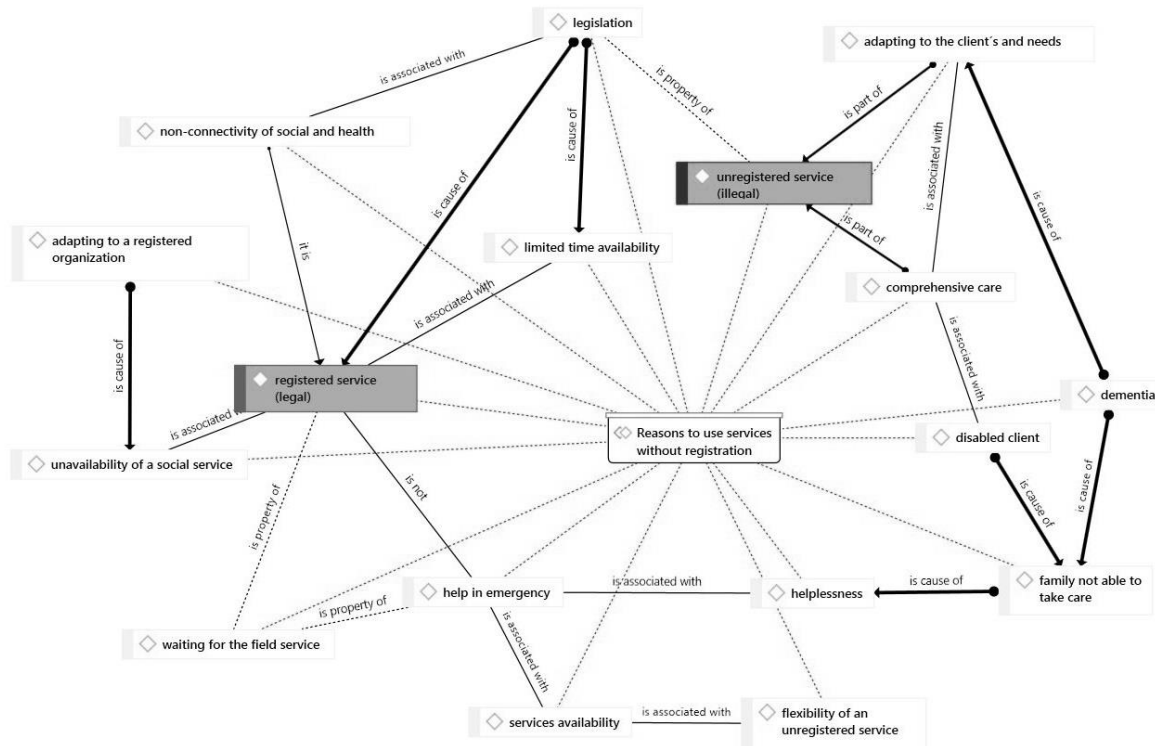
create a theory based on established data, which makes it different from other theories that are created intuitively (Glaser, Strauss, 1973). The acquired transcripts were repeatedly read and analysed using the open encoding procedures and notes containing ad hoc interpretations and conceptualizations (Howard, Berg, 2016). The transcribed material was thus analysed in accordance with the approach known as the generic inductive qualitative model (Hood, 2014) or as a general coding paradigm (Maxwell, 2005). The established theory used to analyse the data copies the Charmaz approach drawing on an interpretative paradigm and constructivist principles (Hubik, 2006). The data were analysed in the ATLAS.ti8 program which allows to reveal the complex hidden data structure and their mutual meanings.

The 98 codes found were grouped by content relationship into five significant groups:

1. **Reasons to use services without registration**
2. Advantages of the service without registration
3. Disadvantages of the service without registration
4. Benefits of the registered service
5. Disadvantages of the registered service

Taking into account the set main goal, we present an analysis within the first group of reasons for making use of services without registration.

Figure1: Reasons for making use of unregistered services



The data source: the authors' own survey, 2016-2017

The main reasons for making use of unregistered services, given by the family members of the clients using them, include **current unavailability in the event of a sudden difficult social situation** (mainly associated with a **deterioration in the state of health of the elderly or the caregiver**) which the senior is unable to deal with while making use of the network of the existing social services and his/her relationships. The statements of people giving the **unavailability of a field service** as the reason: *I needed someone to do it and I did not manage to secure the service (R1). We needed to take care of Mother who we moved to our home. With horror, we found out that there was no service to take care of her. We got a contact to a lady providing these services. She immediately came to our place and assigned us a lady who now takes cares of Mother on a daily basis (R17).*

In many cases, however, the reason was the **lack of time of a registered social service** linked to the limited time of their operation, i.e. non-availability in the afternoons, on weekends and holidays: *We do not have enough employees, we do not work on Saturdays, we do not work on Sundays, we do not work in the afternoons, well, I think these were always excuses, I think they did not want to work, because we demanded the care in the*

morning and also in the afternoon, differently according to our needs, when there was no family member at home, and on Saturdays and holidays (R8). We make use of the care service people who come to us, but on important days, like Christmas and holidays, we are turning to a lady with whom we have good experience and about who we know that she can bring delight and joy to life. Those care service people do not have time for that. They do what's needed and dash on... (R12). Well, there was no other option, the charity did not offer service in the evenings, and I do the shifts (R20). Family members and close persons also experienced the **local inaccessibility** of the care service that did not operate in remote areas: *the Charity could not provide service to us because they are so far away, so we were looking for anyone to help us (R18)*. Those who were refused by the care service because of **insufficient capacity** got in a situation when they would **have to wait** for the service: *the Charity and the Diaconia did not have capacities and put us on the waiting list and we could not wait (R9)*. *The Charity refused me claiming they had no staff (R13)*. *A lady comes to my mum and also provides service because the Charity has a waiting list and could not help us. Mom was taken from the hospital so we were looking for help (R16)*. *Father could no longer be in the hospital and no one in the family could take care of him. I did not manage to get the nursing service because they did not have any available staff (R19)*. Another frequently mentioned reason was the **lack of staff**: *The charity could not help us saying they did not have enough staff (R23)*. *The hospital did not help us, either. The lady phoned to all the service providers and nobody had free staff. So we managed to secure a certain lady (R24)*. *The Charity refused me saying they had no staff and I failed to make an agreement with a lady... She could not hear properly and did not work on Saturdays and Sundays. I go abroad and I need someone to take care of my mother every day, so I turned to a lady who goes to help the elderly people in the neighbourhood and she agreed to help me (R18)*.

The lack of staff was often combined with other aspects - flexibility and the clients' preferring to be cared of in their natural social environment. *Because we did not manage to get anyone, as the Charity has a waiting list. I have small twins and my mom does shift work. So a lady comes to our place according to mom's shifts and we did not have to place our grandmother in a nursing home. She would not have forgiven us that (R21)*. *Our children go to work and we did not want to place her in a nursing home (R22)*.

The informants also justified their making use of **field unregistered services** by mentioning the **lack of willingness of registered services in the case of users with specific needs**. These were often **disabled clients**: *Grandmother, she could not make it at all, at her age, because she is 85, so she was out of question, and when Grandfather came from the hospital he was disabled (R1)*, or clients with **dementia** ... *because my father-in-law was demented, so it was very hard to deal with him, he had to be helped with getting dressed, with hygiene, he had to be fed, all the things they had to do (R6)*, which was linked with the fact that the family was unable to **adapt to the conditions of the registered service**: *We refused the Charity because they wanted Father to behave decently. We could not guarantee that because he had a dementia. So we turned to a lady who was experienced and we had confidence in her (R11)*. Another reason was **inflexibility of a registered service provider**: *The existing services were not able to deal with our situation, they could not provide services to the required extent (R6)*.

One of the reasons was also the **non-connectivity of social and health care services** when the client needed a **comprehensive care**: *She gave him the medication and washed him a little (R3) ... she did not loathe anything, he was in such a terrible state and she was ready to help him ... he spilt his urine-bag, it was terrible, like, I just could not deal with him by myself because I was not able to hold him and so on, and she handled that perfectly, she knew how to hold him and not to break his hand, for example, because he had very thin bones and she did not flinch, so she just took him under arms, and she knew how to handle him (R5)*. *There is a problem that there (in the Charity), when we wanted to give him medication, it had to be given by a nurse, and if we wanted our father-in-law to be cleaned and fed, so there had to be another person, oh, and there must be a paper for everything (R6)*.

The reason for making use of a **field unregistered service** was in two cases the **unavailability** (lack of capacity) **of registered residential social services** in the given region. *I had no other option, I had to go to work, and the nursing home would not accept her until in half a year (R14)*. *I was glad she agreed to take care of my mom, I had no other option, and there was no place in the nursing home (R15)*. In two cases a field unregistered service became a suitable **alternative to family care** which its members could not provide by themselves. *Because I have a certainty that she will really take care of my Mom, like, in all respects, well, I do not know, any kind of washing, food, just services as such, including the intimate ones, simply what she provides is just benefits that were not in the retirement home where Mom was, there was not all like that (R7)*. *You know what, I'm having trouble with my back, I'm going to rehabs and hospitals. The children go to work and we did not want to give her to a nursing home. So she's in a house with other women and we come to visit her. We can also take her out whenever we wish (R22)*.

As we have already mentioned, **all the informants were aware of the fact that the service was not registered, and at the same time that it was not in accordance with the valid legislation**. They commented on these facts as follows: *Well, the unregistered one, really O.K., like, she also gave him a massage, and other things, actually, she rubbed an ointment on his body one more time in the evening, like the whole body, so it was, it was not so*

rushed, actually (R1). Actually, there was no difference between a nursing service and a private individual (R2) ... we did not have experience with a registered one, either (R5). So I can see the benefits of a service without registration in the fact that they have fully adapted to our conditions (R6). I did not make use of registered services, they did not have capacity, so I contacted an unregistered service (R8). ... but the users of registered services have problems, too (R9). With horror, we found out that there was no such service to take care of our relative. We got a contact to a lady providing these services (R17). ... we were looking for anyone to help us ... (R18). That's how we managed to secure it through one lady (R24).

From the statements of the informants we compiled a comparison of advantages and disadvantages of social services, i.e. those with valid registration and those without registration, for the target group of seniors (see Figure 2).

Figure 2: Advantages and disadvantages of services with registration and without registration

SERVICE	UNREGISTERED	REGISTERED (i.e. social service)
ADVANTAGES	quick help, carelessness, accessibility, flexibility, relaxed provision of care, comprehensive care, quality service, lying client, human approach, non-loathing anything, giving medication, adaptation to the client's conditions and needs, the family has an unlimited contact with the client, satisfaction, reliability, finding the client's needs, experience	the future of services, hygiene, uniform conditions, legislation, identical acts, diet, cleaning, substitutability, multi-source financing
DISADVANTAGES	price, one employee, costly care, low quality service, no car, dissatisfaction, profit-only service, bad behaviour, charging without giving bills, oral agreement, no substitutability, no record of provided hours of service and acts, no sympathy	helplessness, bureaucracy, waiting for the field service, legislation, many clients with a registered service, costly care, unavailability of social services, non-comprehensive services, non-connection of social and health care services, inadequate service, being rejected by a registered service provider, limited time availability, preferential treatment, adapting to the registered service provider, termination of a registered service

The data source: the authors' own survey, 2016-2017

THE CONCLUSION

The results of a qualitative research study showed that the main reason for not making use of properly registered field social services is their **unavailability in the event of a difficult social situation**, which is most often associated with a **deterioration of the health state of the senior or the caregiver**, and which the senior is unable to cope with, not even with the assistance of his/her family or with the help of a network of his/her social relationships. In addition, these are often clients with reduced cognitive functions, such as dementia, and with specific needs. The lack of capacity was often combined with **insufficient flexibility of registered social services**, and with preferences of being cared of in the client's natural social environment. The insufficient flexibility and availability of properly registered social services was mainly associated with their non-provision of services in after-work hours and in the evenings. Another reason was **non-connectivity of social and health care services** in the person of a registered service provider. In the Czech Republic, social services are coordinated by the Ministry of Labour and Social Affairs and the clients pay for them by themselves using care allowances. These services can only be provided by registered service providers. The health care is then managed by the Ministry of Health and is paid for by the health insurance companies directly to the health service providers. That is, if the client needs both social (e.g. hygienic care) and medical (e.g. medication) care, he/she must apply for both services. He/she can find the social service by themselves, but the medical care can only be prescribed by a doctor or a healthcare facility. This system, which is not interconnected, is demanding for the client, but also costly for the state budget. The research results clearly show that the existing social services cannot meet the current social health needs of seniors, due to the complexity of the existing legislation and the conditions established by it. The research also revealed that all clients (except for one) who made use of unregistered services were over 80. This group of elderly people is often the most vulnerable due to their reduced self-sufficiency and poor health. In connection with the demographic development, it may be expected that the number of citizens aged 80+ will not only increase in the Czech Republic but also elsewhere in the world, also due to the advanced health care system and generally better living conditions. Therefore, it is necessary to start

to look at how the State will guarantee the provision of the necessary social and health care for the target group. It is obvious that the registered social services are not able to meet sufficiently the current demand and respond flexibly to extraordinary difficult life situations, which is one of the reasons for the institutionalization of unregistered services.

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The Use of Wikis to Enhance Collaborative Reading and Writing skills in a Pre-Service EFL Teacher Training Program in an Ecuadorian Academic Context

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ABSTRACT

This study was aimed to analyze the benefits of wikis to enhance the skills of collaborative reading and writing on the training of pre-service teachers of English as a Foreign Language (EFL). The research was conducted in an Ecuadorian academic context during a six-month period in which 30 pre-intermediate students participated; furthermore, 4 EFL professors of an English major were involved. A mixed-method approach was used starting with the application of a diagnostic survey aimed at identifying the technological skills of students and their experience in the use of wikis. Students worked in pairs in a collaborative way using PBWorks to carry out reading and writing activities that started with the analysis of texts in which they identified main ideas, supporting details and conclusions. At the end of the intervention, a survey was conducted to know the students' perceptions about the use of the tool. The results showed that PBWorks had a positive impact for enhancing reading and writing skills because it allowed students to benefit from collaborative learning and feedback given by both, peers and teachers.

Keywords: English as a Foreign Language, reading and writing, wikis, collaborative work, feedback.

INTRODUCTION

The development of new technologies offers different ways for language teachers to promote and enhance collaboration in foreign language education (Aydin and Yildiz, 2014). Furthermore, the emergence of Information and Communication Technologies (ICTs) has extended new opportunities in assisting language learning at all levels of education, especially through the use of Web 2.0, which implies that information is meant to be shared and provides the necessary tools for its creation and distribution (Pelet, 2014). Additionally, "Web 2.0 is highly relevant because it represents the Web shifting from being a medium in which information was transmitted and consumed, into being a platform, where content is created, shared, repurposed and passed along" (Dowes, 2006, p. 4 as cited in Payne, 2009, p. 9). This new Web provides the tools and technologies that can help teachers in creating collaborative learning atmospheres in their online classrooms (Lightner, Bober, and Willi, 2007 as cited in West and West, 2009, p. 2). In fact, according to West and West (2009, p. 1), "Web 2.0 tools, such as blogs, wikis, social networking software, media sharing, and others, have been instrumental in shifting the Web to its new identity as a collaborative work space, or digital commons, where we can all meet to read and write".

In this study, wikis were the most suitable tools to work with the skills of reading and writing; for this purpose, the Web service PBworks was selected because it offers a broad set of collaboration to work more efficiently and effectively; additionally, it encourages student-centered learning and real-time creative collaborative editing. Furthermore, this tool enables teachers and students to co-construct knowledge through

the generation of interlinked pages, and allows the implementation of constructivism when designing classroom activities (Zheng, Niiya & Warschauer, 2015). In this regard, the study followed a constructivist approach where the students acted out as constructors in a way that new information was linked to the prior knowledge they had. Regarding this approach, Vygotsky (1978) mentions that learning is a socio-cultural construction and meaning negotiation achieved through language. For this reason, all the learning activities used to enhance reading and writing skills involved a social negotiation of knowledge.

Traditionally, in foreign language learning, two of the skills that deserve to be researched are reading and writing because, even in the native language, they are challenging for any learner. In this respect, Alfassi (2004, p. 171) considers that “reading is a complex cognitive activity that is indispensable for adequate functioning in society” and for obtaining information. In the same way, “writing is a complex process that requires learner’s skills and ability to successfully combine different components of language” (Pysarchyk and Yamshynska, 2015, p. 78).

Given the importance of teaching reading and writing skills in the digital era, wikis were used in this study as a powerful tool to provide more opportunities for students to strengthen these skills collaboratively. Thus, this paper will shed light on the effectiveness of integrating collaborative work and technology to successfully enhance EFL students’ reading and writing skills.

LITERATURE REVIEW

Collaborative Reading and Writing

Reading is one of the essential skills for the successful acquisition of language and knowledge. In this regard, Silberstein (1994, p. 12) states that “reading is a complex information processing skill in which the reader interacts with text in order to (re)create meaningful discourse”. In addition, Nation (2009, p. 49) states that “reading is a source of learning and a source of enjoyment”; furthermore, he considers reading as a goal and also as a path to get other goals. In the same way, writing is often considered an indispensable skill that enables students to develop an appropriate level of linguistic competence (Cabrera et al., 2014). Therefore, “being able to write is a vital skill for speakers of a foreign language as much as for everyone using their own first language. Training students to write thus demands the care and attention of language teachers” (Harmer, 2004, p. 3-4).

The reading and writing skills in EFL have a strong relationship with each other. Reading is connected to writing, and reading and writing work in synergy (Tierney, 1992). Numerous researchers have shown the worthiness of connecting reading and writing. Moreover, Tierney and Pearson (1983, p. 568) argue that reading and writing are both “essentially similar processes of meaning construction. Both are acts of composing”. For ESL learners, Krashen (1982) believes that reading materials are an important source for the development of writing. Tierney and Shanahan (1991) also demonstrate from their research that good readers are good writers, and found a correlation between these two skills. Carson and Leki (1993, p. 1) point out that “reading can be, and in academic settings nearly always is, the basis for writing”.

Learning a language implies developing reading and writing skills which can be better achieved when they are learned in collaborative environments. Regarding collaborative learning, Smith and MacGregor (1992, p. 11) state that “it is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together”; additionally, they highlight that collaborative learning involves students working in groups in order to search for mutual understanding, look for solutions, decode meaning, and create a product.

Storch (2005, p. 154) points out that in order to develop writing skills students should work collaboratively; thus, learners have joint responsibility over the production of a text. This might generate a sense of co-ownership and encourage students to contribute to the decision making of all aspects of writing such as content, structure, and language. Additionally, Ghaith (2003) asserts that through social work, EFL students' reading performance and academic self-esteem improve and their feeling of school alienation decreases.

Wikis in the EFL Classroom

Solomon and Schrum (2010, p. 135) define wikis as “Web pages that students can use to write, edit, and add elements, such as images and video, or to create collaborative projects”. In addition, Wheeler and Wheeler (2007, p. 2) define them as “one of the most useful tools available for collaborative online writing on the Web since teachers are discovering that they provide a dynamic new set of tools to facilitate collaborative learning”. These tools offer a shared environment where students can actively participate in the integration and co-construction of knowledge (West and West, 2009). In fact, “within a wiki, learners possessing little or no knowledge of HTML can collaboratively use, create, and modify Web content” (West and West, 2009, p. 2); these three interesting possibilities favor the creation of a dynamic learning and teaching online environment in EFL classrooms. Moreover, wikis allow teachers and students to keep track of everyone's individual entries since they retain previous versions that writers can revert. As noted, the built-in features of wikis are very useful for fostering collaborative learning of both reading and writing skills in the EFL classroom, as with any instructional technology, the use of wiki tools alone does not guarantee successful collaborative learning outcomes unless there is good planning, design and pedagogical support from a well-addressed constructivist approach.

With the advent of wikis, numerous studies have been conducted on their use to promote writing skills in EFL contexts; however, a few of them have focused their attention on combining both reading and writing skills. For example, Aydin and Yildiz (2014) investigated the use of wikis in collaborative writing projects in foreign language learning classrooms with 34 intermediate university students. They were asked to work in groups of four to accomplish three different wiki-based collaborative writing tasks, (argumentative, informative and decision-making). The results revealed that the argumentative task promoted more peer-corrections than the informative and decision-making tasks. In addition, the informative tasks yielded more self-corrections than the argumentative and decision-making ones. The results also suggest that students paid more attention to meaning rather than form regardless of the task type and they had positive experiences using wikis in foreign language writing.

In another study, De paiva (2008) investigated on a creative way of enabling learners to benefit from writing by using peer-correction through wikis. Learners were empowered with technological tools as a means of promoting a student-centered approach, which contributed to their being less dependent on the teacher, fostering autonomous learning. Data was collected and analyzed by means of qualitative and quantitative methods to determine whether students' writing skill would be improved if collaborative learning strategies were applied through the use of wikis. Findings reveal that an increasing interest in belonging to an online community emerges from students altogether with higher degrees of motivation. Apart from maximizing opportunities related to writing, learners accurately developed their social skills in the sense that they cooperated instead of competing. The results also suggested that wikis provide learners with many benefits in developing their writing skills.

Wichadee (2010) examined and compared students' English summary writing ability before and after they were taught through wiki. The participants were 35 students enrolled in a fundamental English course at Bangkok University. The study included a group of students who were administered a pre and post-test. Students designed a wikispace and worked together during eight weeks in order to produce five pieces of

summary written work that included the edition and revision of information on Web pages until getting and submitting a final paper to the teacher for evaluation. The instruments included: summary writing tests, a questionnaire surveying students' attitudes toward this instruction, and a reflection on cooperative learning through wikis. Findings demonstrated that after being part of this learning experience, students' English summary writing mean score of the posttest was higher than the one of the pretest and their attitude towards the use of wikis was positive, even though, it was a new experience for them.

Coniam and Lee (2008) conducted research to explore how wikis may be used in a group writing task. This study was conducted in a post-secondary institution in Hong Kong where groups of ESL students produced a report based on survey data they had collected during a month. The results evidenced that the project was successful because learners felt engaged in such a collaborative writing project and enjoyed working on the computer rather than in a pen-and-paper format. Even though this study took place in a post-secondary institute, the authors suggest that the use of wikis has major implications for being applied at different educational levels.

STUDY

Method and Participants

The total number of participants involved 30 EFL pre-service teachers enrolled in two Reading and Writing pre-intermediate courses in an Ecuadorian university, and 4 teachers. The students were Spanish native speakers who ranged in age from 17 to 20 years old. Both groups were quite heterogeneous as far as their English proficiency level is concerned. When it comes to reading and writing, some students had a better command of the language while others needed more support.

Procedure

In this study, a mixed-method approach was used to determine the participants' perceptions about the use of wikis to enhance collaborative reading and writing on the training of pre-service EFL teachers. The main focus of this approach is that combining qualitative and quantitative methods grants a more complete understanding of a research problem than using them separately (Creswell, 2014). This process comprised the following steps.

1. A diagnostic survey was applied at the beginning of the academic term in order to get an overview of students' technological skills as well as to identify their previous experience on the use of collaborative tools to learn reading and writing skills.
2. The participants were organized in pairs considering their strengths and weaknesses in reading and writing skills.
3. Students worked collaboratively by using PBworks to develop reading and writing tasks in a computer lab. The reading tasks consisted on identifying topic sentences, supporting details and concluding ideas. On the other hand, the writing activities dealt with using the correct grammar, punctuation and structure of paragraphs.
4. Students carried out different collaborative writing activities which were performed during the six-month period. Activities started from writing paragraphs that varied in length (100-300 words) to writing different types of essays; students were also asked to read different sorts of passages in which they had to identify topic sentences, supporting details, and concluding sentences. For each one of the activities, students provided feedback to their peers, and then got suggestions from their teachers.
5. At the end of the intervention, all the participants were administered a survey to identify their perceptions about the effectiveness of using PBworks to learn reading and writing collaboratively.

RESULTS AND DISCUSSION

The results of the diagnostic survey evidenced students' perceptions in relation to the use of technological tools and previous experiences in activities involving collaborative work. Regarding the use of the computer, 74 % of participants mentioned that its use was easy and 23% had a neutral perception. In relation to students' previous difficulties on the use of collaborative tools in academic activities, 52% mentioned that the main barrier they had faced was time constraint. Concerning the use of collaborative tools in academic activities, 90% of the students affirmed that they have used them for learning reading and writing, being social networks, wikis, forums and blogs the most popular ones. With respect to reading comprehension in English, 77% asserted that they are good at this skill. With reference to writing, 68% qualified themselves as good writers. As for the activities that strengthen students' reading and writing, 45% said that the use of technology favors collaboration and prepares them for their future professional roles.

After an intervention period of six months, a survey was conducted to determine the benefits of using wikis to enhance the skills of collaborative reading and writing. The results revealed that 74% of students considered PBworks easy to access and 77% evaluated it as an easy-to-use tool. The types of material students shared through the wiki included images, Internet links, videos, text, and photographs as illustrated in Figure 1. These results could be explained by the fact that wikis often allow users to store versions after each edit and compare different text drafts. This build-in version control protects against unintentional errors or deletion of content (West and West, 2009).

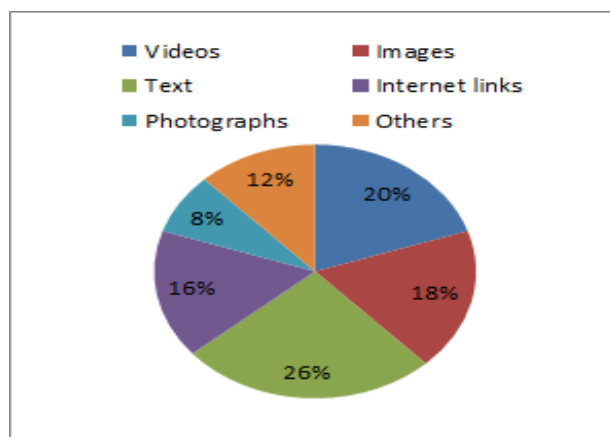


Figure 1: Type of material students shared through wiki

With respect to the interaction and collaboration activities promoted through PBworks, all the participants qualified them as beneficial. Regarding the most helpful activity for strengthening reading skills through the wiki, 61% of the students mentioned that working in pairs to develop reading comprehension tasks helped them reach this objective; other significant activities involved collaborative reading and peer feedback. Dealing with pair work activities that promote students' collaborative writing, slight differences were evident among the participants' perceptions; the results showed that 29% correspond to activities in which students express opinions about specific topics, 32% refer to reading comprehension tasks, 23% belong to collaborative writing, and 16% to peer feedback.

After the intervention, 93% of students highlighted that the use of the wiki promotes collaborative learning, while only 7% of them expressed that it does not promote that kind of learning. Likewise, teachers confirmed

this result because they observed that PBworks enhanced students' interaction and co-construction of knowledge; thus, improving reading and writing skills.

All the students mentioned that the feedback they received from their peers in relation to their contribution in the reading and writing collaborative activities was beneficial, as shown in Table 1. According to the teachers, the use of PBworks allowed them to give timely feedback and contributed to involve students actively and consciously in the learning process. This finding is aligned with Lin and Yang (2011) who affirm that wiki learning communities allow meaningful interaction and provide an effective environment for peer feedback.

Table 1: Students perceptions when receiving classmates' feedback by means of PBworks

At the end of the intervention, 77% of the participants asserted that they would recommend the use of wikis in order to improve reading and writing skills because they promote collaborative work when there is commitment, contribution, motivation and empathy; while, 23% would not recommend its use because they prefer traditional instruction in which the textbook is exclusively used. It is important to highlight that both students and teachers believed that time constraint, finding an agreement among classmates, and the type of activities planned by the teacher were challenging aspects in this research.

CONCLUSIONS

The use of wikis allowed pre-service EFL teachers to enhance the skills of collaborative reading and writing because they promote social interaction and create opportunities for constructivist learning. The use of these tools was favorable because students felt more motivated and engaged when carrying out activities collaboratively, which had a positive impact on students' academic performance.

The use of technology enhanced students' participation and interaction in doing reading and writing collaborative tasks due to the fact that more skillful learners supported weak students and worked together to construct the final working in pairs to comprehension collaborative feedback were and positively students for reading and writing skills through the wiki.

Students' perceptions	<i>f</i>	%
Very motivated	7	23%
Motivated	20	67%
Scarcely motivated	3	10%
Nonmotivated	0	0%
Total	30	100%

products. In fact, develop reading activities, reading, and peer extremely helpful welcomed by strengthening

Wikis offer enormous advantages and facilities for enhancing writing skills since they allow both teachers and students to edit, re-write, write and comment on each others' works more effectively than doing that by using pen-and-paper format.

Although it was challenging for teachers to monitor students' progress in reading and writing skills, the use of PBworks allowed them to give timely feedback according to the specific students' needs. This helpful tool thus contributed to make students reflect on their own learning outcomes and progress.

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The Views of Preservice Teachers Studying at Undergraduate Programs and Receiving Pedagogical Formation Program Towards the Inclusion

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ABSTRACT

Since the acceptance of teaching as a profession, teacher education has been a debatable issue. Especially recently, it has been expected from preservice teachers to have high level of competency of special education in addition to their own discipline. Within this context, it is considered that the preservice teachers studying at different departments should have a common and basic competencies regarding their attitudes towards the students with special educational needs. The aim of this study was to investigate the views of preservice teachers studying at undergraduate programs or receiving pedagogical formation regarding the students with special educational needs and the inclusion. In this study, descriptive screening model was used. The participants were composed of a total of 383 preservice teachers studying at two faculty of education or receiving pedagogical formation education at two state university in Turkey during the 2016-2017 academic year. “My Thoughts on Inclusion Scale”, which was developed by Stoiber, Gettinger, and Goetz (1998) and adapted into Turkish by Dalğar (2011), was used as the data collection tool. The data obtained from the scale were analyzed using SPSS 18.0 software. As a result of the analyses, it was found that participants studying at undergraduate programs had positive opinions regarding the inclusive education while the participants receiving pedagogical formation education had negative opinions. Moreover, participants scores didn’t differ significantly in terms of gender, grade level, and having a handicapped person in the family ($p>.05$); however, it differed significantly in terms of the program and having received a special education course ($p<.05$). Finally, it was determined that participants’ scores differed significantly in terms of the department.

Key words: Preservice Teachers, Inclusion, Pedagogical Formation Students.

INTRODUCTION

The main goal of special education is to ensure the individuals with special educational needs to live as independently as possible and integrate with the society. This goal depends mostly on providing qualified educational opportunities to these students. Today, it is accepted that the students with special education needs should be educated in inclusive classrooms, which is the least restricting education environment. Inclusion can be defined as including exceptional students into regular classes with providing support services to exceptional children and/or regular teachers when necessary (Kırcaali-İftar, 1992). With the growing body of research and the domination of humanistic psychology, it is accepted by most that these exceptional students shouldn’t be separated and should be included in environments with their normal peers (Gottlieb, 1978). As a result of this view, exceptional children were begun to be included in regular classrooms. With the notion of social state, the inclusive education is implemented in every educational steps. Although the inclusive education is ensured with the law, some problems related to inclusive education are observed (ERG, 2011:7). When the literature is reviewed, it can be seen that the teacher is the most important element in the success of inclusive education (Temel, 2000, Lindsay, 2007). Within this context, the attitudes of teachers towards exceptional children with special educational needs are considered to directly affect the quality and success of inclusive education. The studies in the literature about inclusion, teachers have generally negative views regarding the inclusive activities (Altun and Gülben, 2009; Ceylan, 2015, Güner, 2010; Metin, 2013; Vural and Yıkıms, 2008). In these studies, the common problems asserted by teachers are presented as:

- The teachers aren't equipped with the required skills for the education of exceptional children (Altun and Gülben, 2009),
- They have troubles with implementing the curriculum in accordance with the needs of exceptional children (Vuran and Yıkıms, 2008),
- They are inadequate in terms of classroom management (Ceylan, 2015, Güner, 2010).

The source of these problems encountered in each step and each branch is considered to be teachers' attitudes towards inclusion. Although there are a number of factors affecting the teachers' attitudes towards inclusion, it is considered that the quality of the courses related to special education during the teacher education process, the program that was graduated, and how the formation education was received have an effect on the attitudes towards inclusive education. When the teacher training models of today are reviewed, it is seen that two models are dominantly used (Yüksel, 2011):

1. Traditional Model: it involves the four-year undergraduate education given in education faculties.
2. Professional Model: it was developed by the educators who thought that the content knowledge should be emphasized in teaching.

Both models are based on two main components, pedagogical knowledge and content knowledge. Therefore, whichever model they graduate, the teachers should have common basic competencies. When these basic competencies are examined, it is seen that one of the competencies of a good teacher is related to their approaches to inclusive education and the students with special educational needs. In order to meet this need, Higher Education Council made it obligatory to receive the course of special education in all branches of teaching and in pedagogical formation education (Çelikten, Şanal, and Yeni, 2005). Among the competencies determined by MONE (2008), those related to special education and individuals with special educational needs are presented as:

- They prepare suitable environments for students with special educational needs by determining learning goals.
- They know about the laws and regulations related to handicapped individuals' learning and education, and behaves accordingly.
- They make effort to take the measures foreseen in current law and regulations about handicapped students.
- They take the individual differences into consideration while preparing lesson plans.
- They know about the legal bases about those with special problems.
- They make individual learning plans.
- They diversify the measurement and evaluation techniques by taking the individual difference into consideration.

Within this context, when it is considered that not only the graduates of education faculties but also the graduates of other faculties can become teachers after receiving the pedagogical formation education and that these teachers may have students with special educational needs in their classrooms, it is important to examine the attitudes of preservice teachers studying at education faculty and receiving pedagogical formation. When the literature was reviewed, it was observed that although many studies focused on preservice teachers' views regarding the inclusive education (Altun and Gülben, 2009; Ceylan, 2015, Güner, 2010; Metin, 2013; Vural and Yıkıms, 2008), no study was observed to focus on views of preservice teachers receiving pedagogical formation. Many of those studies were observed to be conducted using particular attitude scales or interviews. Another way of determining the individuals' attitudes and perceptions of a topic or concept is to use metaphors. The metaphor concept can be defined as explaining a concept with a better known concept or to take qualities from one level to another one (Mutlu, 1998: 106). In other words, metaphors are the strong mental devices used to understand and explain a highly abstract and complicated phenomenon by comparing it with more concrete phenomenon (Saban, Koçbeker, and Saban, 2006). When considered in terms of education and teaching, metaphor is defined as making decisions about one phenomenon's characteristics with reference to other phenomenon's known characteristics by comparing these two phenomena. These definitions show that metaphor is a simple and effective way of determining the attitudes which constitute the bases of behaviors. Therefore, both "My Thoughts on Inclusion Scale", which was developed by Stoiber, Gettinger, and Goetz (1998) and adapted into Turkish by Dalğar (2011), and metaphors were used in this study to reveal preservice teachers attitudes towards inclusive children.

The aim of this study is to investigate the views of preservice teachers studying at undergraduate programs or receiving pedagogical formation education regarding the students with special educational needs and inclusive education. The following research questions were formulated:

1. What are the views of preservice teachers studying at undergraduate programs or receiving pedagogical formation education regarding the inclusive education?
2. Do their views regarding the inclusive education differ significantly in terms of some variables (gender, program, grade level, having received special education course, having a handicapped person in the family, and department)?

METHOD

In this study, descriptive screening model was used in order to determine the views of preservice teachers studying at undergraduate programs or receiving pedagogical formation education regarding the inclusive education. Screening models aim at describing a past or present situation as it is. It is tried to describe the research object or individual in its own conditions and as it is (Karasar, 2002).

The participants of this study were composed of 383 preservice teachers studying at undergraduate programs or receiving pedagogical formation education in two state universities during 2016-2017 academic year. Purposive sampling technique was used in the selection of participants because they were selected based on their programs. 278 of the participants were female and 105 were male. 180 participants were studying at an undergraduate program while 203 were receiving pedagogical formation education. Other characteristics of participants can be seen in Table 1.

Table 1. Demographics of Preservice Teachers

Characteristics		N	%
Preservice teachers	Female	278	72.6
	Male	105	27.4
Program	Undergraduate	180	38.9
	Pedagogical formation	203	61.1
Special Education Course	Received	169	44.10
	Not received	214	55.90
Field	Science	73	19.20
	Social	181	48.00
	Equally weighted	127	32.80
Handicapped person in family	Yes	22	5.7
	No	361	94.3

Moreover, the metaphors regarding the inclusion were asked to be created by the same participants in the study. A total of 213 participant took part in this phase, 144 of whom were female and 69 were male. 102 of them were studying at an undergraduate program while 111 were receiving pedagogical formation education.

“My Thinking About Inclusion Scale”, which was developed by Stoiber, Gettinger, and Goetz (1998) and adapted into Turkish by Dalğar (2011), was used as the data collection tool. In the adaptation study, the Cronbach’s alpha coefficient was estimated to be .73. According to Özdamar (2004), a Cronbach’s alpha coefficient between $0.60 < \alpha < 0.80$ indicates a highly reliable scale. Therefore, it can be stated that My Thinking About Inclusion Scale was a reliable tool. Moreover, it was found to be .69 in this study. The scale is composed of 20 items. The highest score that can be obtained from the scale is 100 while the lowest score is 20. The lowers scores indicate positive views while higher scores indicate negative views.

The descriptive screening model was used in the study and the data were analyzed by two authors using statistical analysis methods. The responses of preservice teachers studying at an undergraduate program or receiving pedagogical formation to the My Thinking About Inclusion Scale were entered into SPSS 18.0 software. The items 2, 6, 8, 11, 14, 17, 18, 19, and 20 were reverse items. Therefore, the scores obtained from these items were reversed and preservice teachers’ total scores were obtained. In order to decide which analysis to perform, the normality of the data was checked. The analysis result showed that the data wasn’t normally distributed. The results of Kolmogorov- Smirnov test can be viewed in Table 2.

Table 2. Test of Normality

Kolmogorov-Smirnov

Views regarding inclusion	Statistic	sd	p
	.13	383	.02

According to the results of Kolmogorov-Smirnov test in Table 2, non-parametric tests were used to respond the research questions.

FINDINGS AND CONCLUSIONS

When the responses given to the My Thinking About Inclusion Scale by the preservice teachers were analyzed descriptively, the mean scores can be seen in Table 3.

Table 3. The Mean Scores of the Items of My Thinking About Inclusion Scale

	My Thinking About Inclusion Scale	n	Ort.	sd
1	Students with special needs have the right to be educated in the same classroom as typically developing students.	383	2.20	1.12
2	It is difficult to maintain order in a classroom that contains a mix of children with exceptional education needs and children with average abilities.	383	2.34	1.21
3	Children with exceptional education needs should be given every opportunity to function in an integrated classroom.	383	1.52	1.36
4	Inclusion can be beneficial for parents of children with exceptional education needs.	383	1.80	1.10
5	Parents of children with exceptional needs prefer to have their child placed in an inclusive classroom setting.	383	2.27	1.13
6	The individual needs of children with disabilities CANNOT be addressed adequately by a regular education teacher.	383	3.44	1.1
7	Most children with exceptional needs are well behaved in integrated education classrooms.	383	2.55	1.15
8	We must learn more about the effects of inclusive classrooms before inclusive classrooms take place on a large scale basis.	383	1.55	1.21
9	It is feasible to teach children with average abilities and exceptional needs in the same classroom.	383	2.54	1.30
10	Inclusion is socially advantageous for children with special needs.	383	1.80	1.20
11	Children with special needs will probably develop academic skills more rapidly in a special, separate classroom than in an integrated classroom.	383	3.36	1.12
12	The presence of children with exceptional education needs promotes acceptance of individual differences on the part of typically developing students.	383	2.14	1.11
13	Inclusion promotes social independence among children with special needs.	383	2.27	1.13
14	Children with exceptional needs are likely to be isolated by typically developing students in inclusive classrooms.	383	2.49	1.10
15	Inclusion promotes self-esteem among children with special needs.	383	2.16	1.10
16	Children with special needs in inclusive classrooms develop a better self-concept than in a self-contained classroom.	383	2.20	1.21
17	Children with exceptional needs monopolize teachers' time.	383	3.20	1.12
18	The behaviors of students with special needs require significantly more teacher-directed attention than those of typically developing children.	383	1.77	1.06
19	Parents of children with exceptional education needs require more supportive services from teachers than parents of typically developing children.	383	1.74	1.09
20	A good approach to managing inclusive classrooms is to have a special education teacher be responsible for instructing the children with special needs.	383	1.95	1.11

According to the findings presented in Table 3, it can be seen that the attitudes of preservice teachers studying at an undergraduate program or receiving pedagogical formation education ($X = 2.26$) are at medium level. These

findings are consistent with the studies reporting that the teachers have medium or negative attitudes towards inclusion (Diken, 2006; Güven ve Önder, 1995; Okyay, 2006; Temel, 2000).

The variables investigated in this study were gender, program, grade level, having received special education course, having a handicapped person in the family, and department. In order to determine whether the participants' scores differed significantly in terms of gender, program, grade level, having received special education course, and having a handicapped person in the family, Mann-Whitney U Test was performed. As for the department variable, Kruskal- Wallis Test was conducted. The results of Mann-Whitney U test is presented in Table 4.

Table 4: Mann-Whitney U Test results regarding gender, program, grade level, having received special education course, and having a handicapped person in the family

	n	Mean Rank	\bar{X}	Sd	p
Gender					
Female	180	203.53	58.54	6.93	.06
Male	201	179.78	56.60	7.37	
Program					
Undergraduate	203	228.33	60.30	6.72	.00
Pedagogical Formation	180	159.79	55.99	6.82	
Grade Level					
Third Year	22	228.50	59.45	6.08	.16
Fourth Year	360	189.24	57.94	7.16	
Special Educ. Cour.					
Yes	169	174.20	55.68	6.91	.00
No	214	206.05	59.85	6.71	
Handicapped in Family					
Yes	22	186.57	58.13	7.93	.81
No	361	192.33	58.01	7.05	

When the findings in Table 4 is examined, it can be observed that preservice teachers' views regarding inclusion didn't significantly differ in terms of gender, grade level, and having a handicapped person in the family ($p > .05$). This finding is consistent with the results of some studies (Artan and Uyanık-Balat, 2003, Varlier, 2004; Altun and Gülben, 2009; Gök, 2009; Şahbaz and Kalay, 2010; Özdemir, 2010; Okyay, 2006); whoever, it contradicts with the results of studies which concluded that individuals having a handicapped person in the family obtained more positive attitudes (Ceylan, 2004; Çulhaoğlu-İmrak, 2009; Gözün ve Yıkılmış, 2004; Orel, Töret ve Zerey, 2004; Seçer vd., 2010, Sünbül ve Sargın, 2002). According to reslts in Table 4 showed that participants who received a special education course had more positive attitudes towards inclusion ($p < .01$). This finding is consistent with the studies which found that preservice teachers who received special education course had more positive attitudes towards inclusion (Gözün ve Yıkılmış, 2004; Kayılı, Koçyiğit, Yıldırım Doğru ve Çiftçi, 2010; Orel, Töret ve Zerey, 2004); however, it contradicts with the results of studies which found that special education course had no effect on the attitudes towards inclusion (Fazlıoğlu ve Doğan, 2013; Kayılı vd., 2010). Moreover, participants studying at an undergraduate program had more positive attitudes than the participants receiving pedagogical formation education. This finding is considered to be of great importance for the literature about the pedagogical formation.

Another variable was the department. It was composed of three groups, which were science, social, and equally weighted. In order to reveal whether the participants' scores significantly differed in terms of department, Kruskal-Wallis Test was performed. The results are presented in Table 5.

Table 5. Kruskal Wallis Test Results Regarding The Department

	Views towards Inclusion	n	Mean Rank	sd	X^2	p
Departments	Science	73	186.54	2	37.93	.00
	Social	181	224.33			
	Equally weighted	127	146.06			

When the findings in Table 5 is examined, it can be observed that the participants' scores significantly differed in terms of their departments ($X^2=37.93$, $p<.01$). According to this data the scores of the equally weighted students have more positive attitudes than the others towards the inclusion. These findings are consistent with study (Öztürk et al, 2014) reporting that attitudes towards inclusion differ according the field of the teachers.

To sum up the findings, the participants studying at an undergraduate program had positive attitudes towards inclusion while those receiving pedagogical formation education had negative attitudes. The participants' scores didn't significantly differ in terms of gender and having a handicapped person in the family ($p>.05$); on the other hand, they differed significantly in terms of having received a special education course and the program ($p<.05$). Moreover, the participants' scores differed significantly in terms of their departments.

In future studies, it is recommended for researchers to focus on the reasons and solutions ways of pedagogical formation students' negative attitudes towards inclusion. Moreover, the needs of teachers having received pedagogical formation and their attitudes towards inclusion are recommended to be investigated.

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The Visual Perception of Phrasing in A Tai Chi Routine Enhanced By Music As Perceived By Inexperienced Viewers

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ABSTRACT

Phrasing is one of the most important features shared by music and a movement-oriented subject such as dance, or any sports routine that involves a choreography. As a pilot study to investigate the perception of inexperienced viewers, this study investigates whether an increased level of congruence between music and movement will enhance the visual perception of phrasing in a Tai Chi routine. A Tai Chi practitioner, who was expert in the exercises and a medallist in numerous reputed competitive events, was engaged. A competitive sword routine with the original music accompaniment used by the practitioner was selected in this experiment and the performance of the routines was recorded. A new accompaniment was composed for the same routine where the congruence between music and movement was increased from a musical perspective. Thirty viewers (N=30) without any background in music, sports or dance were invited to participate in the survey, and asked to rate the level of phrasing quality of the two videos, one with the original accompaniment and the other with the new composition. Although the survey did not show a significant difference between the perceived phrasing in the two videos, the video with the new accompaniment still recorded a higher rating on overall phrasing and sword movements. This correlates with the previous report (Loo & Loo, 2015) from the same project where viewers with a musical background significantly rated the video with new accompaniment as having a better quality of phrasing.

INTRODUCTION

The synchronization, parallels and congruence between music and movement has been examined where the combination of the two entities have brought significant insight into different fields such as in sports (Karageorghis & Terry, 2009 ; Loizou, Karageorghis, & Bishop, 2014); instrument playing (Davidson, 1993; Davidson, 2001; Broughton & Stevens, 2009); dance (Hodgins, 1992; Mason, 2012) and multimedia (Lipscomb, 2005; Eitan & Granot, 2006). Of the many parallels such as rhythm, tempo, accent, dynamics and more, phrasing appears to be a key aspect to be addressed as it provides a sense of direction and structure. Phrasing was chosen to be highlighted in this paper as not only is it shared by music and movement sequence, but it also serves as a fundamental unit in language that has been much studied (Speas, 1990; Selkirk, 2000) and shared by the majority. Phrasing has also been studied scientifically and the perception of phrase boundaries in music detected in the human brain (Knösche, Neuhaus, Haueisen, Alter, Maess, Witte & Friederici, 2005). As explained in the perception of phrase boundaries that are marked by specific acoustic cues (Riemann, 1900), this is closely associated with sequences of movement, particularly those which are structured or have a choreography such as dance.

In the field of sports, while music is used in many repetitive movement exercises to enhance ergogenic effects, sports routine is another category for which music is compulsory in competitive events such as rhythmic gymnastics, synchronized swimming, figure skating, martial arts and so forth. These routines have a close similarity to dance, since they are all choreographed with designated movements. Often, there is a tendency for the general public or even experts to consider music as only a background supplement to the actual acrobatic movement of the athletes. However, many studies and regulations emphasize that the music should not be considered as merely background accompaniment but should harmonize with the choreography or movements (Harman, Garbato, Forberg, 2009; Loo & Loo, 2012a). This reinforces the importance of music in sports routines as it does more than provide a 'flow' to the movement. In addition, each aspect of the music (audio) and movement (visual) affects the perception of the viewers, as studied in cross-modal relation of different shared parameters. This article reports one of the experiments on the level of congruence in music and movement affecting the phrasing quality of a tai chi routine. Unlike a previous study (Loo & Loo 2015), respondents in this report had no background or training in dance, sports or music. Another difference is that the video used in the

current study was a live performance of the practitioner both with the original music and with the new accompaniment. This differs from the previous video where both sets of music were edited to the video track to avoid background noise, thus maintaining the actual intention of the composer but resulting in live performances using the new music not being tested. The article reports a pilot study based on a survey to examine if the increased phrasing can be perceived by inexperienced viewers.

PHRASING IN SPORTS, MOVEMENT AND MUSIC

Discussing the parallel between music and sports, Karageorghis and Terry (2009, p.15) define synchronous music as ‘rhythmic and temporal aspects of music used as a type of metronome that regulates movement patterns’ while asynchronous music is ‘played in the background to make the environment more pleasurable and where there is no conscious synchronization between movement patterns and musical tempo’. It is noteworthy that a prominent parallel that relates very closely to both music and sports is tempo and rhythm as pace or speed is the ultimate goal for many sports, especially those with repetitive action. The effect of tempo has been studied widely (Edworthy, & Waring, 2006; Karageorghis, Jones, & Stuart, 2008); for example, it was found faster music provided better endurance, motivation and training (Waterhouse, Hudson & Edwards, 2010).

Looking at another aspect, in a sports activity that involves choreography and ‘planned’ movement the phrasing that contributes to the flow and structure of the entire routine requires much attention. As sports routine is closely related to dance, in which music is used extensively, one of the important parameters that is established in Hodgins’ (1992) choreomusical analysis is phrasing. Under the fourth group of the intrinsic category, phrase/period was established as a subunit under ‘structural’ which serves as a correspondence of a structure (Hodgins, 1992, p.27). The fundamental relationship between phrasing of movement and music can be found in the gestures of an instrumentalist. In the study of phrasing judgement, it was found that participants could identify the underlying phrasing of the performer from a ‘visual-only’ stimulus (Wanderly and Vines 2006, p.183). Movement also increases together with the ratings of phrasing, dynamic, rubato and overall performance in the movement of instrumentalists (Juchniewicz, 2008, p.424). In an experiment analysing the gestures of pianists, it was found that the motion profiles demonstrated the underlying phrasing structure of all pianists (MacRitchie, Buck & Baily, 2013). These studies demonstrate that phrasing can be perceived from an instrumentalist’s physical movement which indirectly conveys other aspects of interpretation.

TAI CHI AND PHRASING

The many forms of tai chi which involve choreography are, as in rhythmic gymnastics, also closely associated with dance. The concept and philosophy in the movements generated in this exercise in relation to music was studied (Loo & Loo, 2012b; Loo & Loo, 2013a). The attainment of continuity in generating circular movement in the concept of *li duan yi bu duan* (力断意不断) ‘a halt in force but not in the intention’ is applicable to the phrasing continuity and connecting phrasing in music (Loo & Loo, 2013a). Identification of music interpretation within a routine was also analysed, where it was found that the perception of athlete and music was rather different (Loo & Loo, 2013b). A further study showed that the increased matching of music and movement in a tai chi routine also increased the ratings for congruence in phrasing for both entities from the perception of viewers who had a musical background (Loo & Loo, 2015). Although not detailed in musical terms, the importance of matching music and movement was mentioned in the Rules of International Wushu Taolu Competition (2005), the guidelines for judging various competitive routines in Wushu. It was stated that that ‘superior’ marks would be given for ‘accord between movement and accompanying music’ (Rules of International Wushu Taolu Competition, 2005, p.32).

METHOD

Routine Selections and Video Stimuli

A routine of *taijijian* (tai chi sword) was performed by a tai chi expert who has been practising for more than ten years and is a medallist from numerous international competitions. The familiarity of the routine with the music used was confirmed as the practitioner had performed it in numerous competitive events. The performance of this routine was recorded a few times and the best video was used in this experiment. The original music of the routine was edited with a new accompaniment to enhance the level of congruence, focusing on the aspects of phrasing, accent, tempo, rhythm, articulation and so forth. Two videos were prepared for the survey, one where the practitioner performed with the original music and the other with the new accompaniment.

Participants

Thirty respondents (N=30) who were postgraduate students at a university were involved in this study. Aged from 23-27, they were all inexperienced in music, dance and sports. These respondents were chosen because one of the purposes of the study is to examine the perception of viewers who have no expertise in any of the three subjects.

Procedure and Questionnaire

Respondents were presented with the two videos, one with the original music (V1) and the other with the new accompaniment (V2). Fifteen respondents viewed V1 followed by V2 and another fifteen respondents viewed V2 first to avoid any irrational primacy effect. After watching each video the respondents were asked to rate the synchronization between movement and music by answering three questions: a) how well does the music in this video provide a clear phrasing for the sword movement? b) how well does the music in this video provides clear phrasing for the steps in this routine? and c) what is the overall level of congruence (match) between the phrasing of the music and each movement/element? A five-point Likert scale was used in the ratings, where 1 = poor and 5 = excellent. The difference between the ratings for both videos was analysed using paired sample T-test with a significant level of $p < 0.05$.

RESULT AND DISCUSSION

With reference to table 1, although the mean for all three aspects was rated higher in V2 it was statistically not significant in the T-Test. For the first question, rating the level of congruence in phrasing between the music and sword movement, the mean score for V2 ($M=4.07$, $SD=0.868$) is higher than V1 ($M=3.83$, $SD=0.986$); but yielded a non-significant level at $t = -1.070$, $p = .293$. This applies similarly to the perceived phrasing between music and step movement with a mean score of V1 ($M=3.70$, $SD=0.988$) and V2 ($M=4.03$, $SD=0.809$) but was statistically not significant at $t = -1.439$, $p = .161$. The mean score for the perceived phrasing of music and overall movement recorded a higher rating in V2 ($M=4.20$, $SD=0.714$) than V1 ($M=3.93$, $SD=0.828$) but again, did not reach a significant level at $t = -1.490$, $p = .147$.

Table 1 Phrasing perception between both videos (V1 and V2) using paired sample *t*-test

Video	Mean	SD	<i>t</i>	sig- <i>t</i>
<i>Music and Sword Movement</i>				
V1	<u>3.83</u>	<u>0.986</u>	<u>-1.070</u>	<u>.293</u>
V2	<u>4.07</u>	<u>0.868</u>		
<i>Music and Steps Movement</i>				
V1	<u>3.70</u>	<u>0.988</u>	<u>-1.439</u>	<u>.161</u>
V2	<u>4.03</u>	<u>0.809</u>		
<i>Music and Overall Movement</i>				
V1	<u>3.93</u>	<u>0.828</u>	<u>-1.490</u>	<u>.147</u>
V2	<u>4.20</u>	<u>0.714</u>		

In general, although the results were not significant, the higher means in V2 thus suggest a positive outcome similar to other surveys in the same project where the increased congruence between music and movement in video 2 was perceived to have better phrasing (Loo & Loo 2015). However, the differences between these surveys should be noted. Although the music stimuli for both video 1 and 2 were the same throughout all surveys, in the current survey both videos are live recordings of the practitioner performing with different music. Unlike previous models, the intended congruence between music and movement in Video 2 projected a more accurate version as the music accompaniment was edited towards the routine, in which there was more control in terms of the composer's intention. In this survey, although the practitioner performed live with the music, the intended congruence was not perfectly delivered as the practitioner was more familiar with the original music.

This survey also varies in terms of the respondents' background as novices in music, dance and sports. Since the core subject in this audio-visual stimulus is a sports routine, the intention of the project is to identify the perception of different individuals with various backgrounds in the given experiment. This issue similarly applies in related studies. In phrasing, it was found that experts in dance could recognize structured or unstructured movement better than novice dancers (Starkes, Deakin, Lindley, Crisp, 1987). It was also found that general traits and characteristics in a dance were perceived both by professional and novice dancers but details were only noticed by the professionals (Brownlow, Dixon, Egbert & Radcliffe, 1997). In analysing perceived tension in music, Fredrickson (2000) discusses that, based on their experience, musicians could perceive a higher level of detail than non-musicians. The research of Grainot and Eitan (2011) revealed that dynamics influenced

both types of participant regardless of their training, while register affects non-musicians and pitch contour affects musicians. Again, it was stated that detail of musical elements, such as pitch in comparison to register, was better perceived by musicians may be due to their training and ‘wider exposure to diverse expressive possibilities in art music’ (*ibid.*, p.240). To evaluate the perceived musical parameters in a listening experiment, Friberg, Schoonderwaldt, & Hedblad, (2011), also suggested that a less consistent result would be expected from non-expert listeners, but looking at the ‘intermediate perception level’ (*ibid.*, p.237) the more naïve listening by laymen should be taken account of due to their experience of sound and music.

CONCLUSION

This article reports a pilot study on the congruence in phrasing between movement and music in a tai chi routine as perceived by novice viewers who were inexperienced in music, dance and tai chi. The current survey closely relates to a previous study in the same project, but this survey examined a different level of audio-visual aspect as the practitioner recorded a live performance using both the original music and the enhanced music accompaniment with increased congruence. Limitation occurred due to the familiarity of the practitioner with the original music although a time frame was given for understanding and interpreting the new accompaniment. The importance of the actual employment of the new accompaniment by the practitioner was also taken into consideration. While the mean scores of the survey was higher for the video with intended increase of congruence in phrasing between audio-visual elements, it was not statistically significant. It is hoped that an increased sample size in a future experiment will prompt a positive result.

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Theory With Practice Binding Instructional Group Activity Gains in The Eyes of Teacher Candidates

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ABSTRACT

There is no doubt that one of the most targets of teacher education is that teacher candidates gain experience by implementing their theoretical knowledge they gained related to their fields and thus prepare themselves for the teacher's profession. It is important for the professional equipment of teacher candidates that they conduct instructional implementation activities in courses suitable for developing this purpose. In this context is Instructional Group Activities Design (IGAD) developed regarding the professional development of teacher candidates is applied and their opinions with regards to the gains of these applications are obtained at the study. The Instructional Group Activities (IGA), conducted within the scope of the study, is performed during the implementation hours of the course 'Special Teaching Methods I'. With these attributes, it can be said that the research is a qualitative study conducted with 56 teacher candidates. The opinions of the teacher candidates related to the gains of instructional group activities are obtained by a questionnaire form with open and closed end questions and face-to-face interviews. The teacher candidates have stated that they had more gains in the implementation part of the course compared with its theoretical part and noted that the application activities they performed during the course was beneficial with regards to the professional qualification and development. The participants to the study have expressed that they enjoyed the Instructional Group Activity applications and assessed their instructional experiences related to the applications in question as 'quite good'. In addition, the candidates, who stated that these activities indicated that they gained diverse skills like using the research stages, cooperative learning, creativity, undertaking responsibility and expressing oneself, lead by critical, thinking through the Instructional Group Activities Design. Setting off from these results, the usability of instructional group activities design for teacher's education is discussed and some suggestions are made.

Keywords: instructional group activities; teacher education; instructional design; teacher candidates

INTRODUCTION

According to the Council of Higher Education (CoHE) [YÖK] (2007), to which teacher training is affiliated in Turkey, teacher training curricula aim to raise teachers who solve problems and teach to learn, and not technician teachers who do what they are told to do (CoHE, 2007). Obviously, it is necessary for teacher candidates to gain experience by applying the theoretical knowledge they have obtained in relation to their fields, learn to learn and therefore get ready for the teaching profession in order to realize this purpose. In addition to this, according to Lockhorst (2004), who states that teaching training curricula have entered a transition process towards the social constructivist approach, a strong bond should be formed between theory and practice. Active and authentic learning takes place in this way. According to Ruys, Van Keer and Aelterman (2010), who put forth a similar approach, active learning and cooperation with peers, are the main qualities in the new paradigm. One of the four main standards emphasized by the National Science Education Standards (National Research Council [NRC], 1996:58-70) on professional development programs is 'to help teachers integrate the content knowledge with pedagogic knowledge', and the other is 'to lead the teachers to life-long learning'. The way to ensure these two standards is to develop and use the educational designs that combine theory and practice and develop life-long learning skills. Such educational experiences should support active learning and be arranged in the form of group works to ensure the cooperation with peers. The IGAD (Instructional Group Activities Design), which aims to ensure this, was developed in this study and it was assessed from the point-of-view of teacher candidates.

We should better understand how we will develop curriculum, teaching and evaluation approaches that students will consider as a model when entering the teaching profession (Kluth and Straut, 2003). To this end, it will be

suitable to try new educational models and activities that will increase their professional development and evaluate its results. Nevertheless, teacher training programmes should allow teacher candidates to receive training in being a teacher with the skills required by the modern time, and develop their own teaching curriculum. According to Yanpar Yelken (2009), teacher candidates must possess the high living and thinking skills required by the modern day, such as communication, creative and critical thinking, problem solving and innovation. According to the author, these skills may only be developed with practical training. The practical training in question is called student-centered lesson designs.

Student-centered lesson designs will contribute to rising more adaptive, self-controlling (planning one's own works) students who are better at managing informal and real learning situations (Lizzio, Wilson and Simons, 2002). The outputs of these lesson designs are interested in what students can do among the expected qualifications at the end of the program or teaching design applied. Therefore, this approach is also generally called the achievement-centered approach. In this context, the achievements of teacher candidates, especially on the IGAD, applied in the study were questioned. Various programmes and teaching designs that attribute more importance to practices and student-centered teaching than theory were developed and used. The DAIP (Developmentally Appropriate Instructional Practice) is a programme developed by the NAEYC (National Association for the Education of Young Children). The programme emphasizes the importance of the teaching approaches centered around the student, and not on the teacher. According to Alford, Rollins, Padro'n and Waxman (2016) conducting studies on the outputs of this programme, while students who are taught by teachers who frequently use the DAIP instruction are more prone to kinesthetic works, their probability to answer the questions asked by the teacher and learn by discovering freely is also higher. The Group Learning Activities (GLAs) design that is addressed as an important component of the lesson designs in higher education was developed by De Hei, Strijbos, Sjoer and Admiraal (2016). The authors created a general framework by combining different group learning studies and stated that the framework they created is aimed at guiding teachers in higher education to designing, applying and assessing different group learning activities.

In their studies, De Hei, Sjoer, Admiraal and Strijbos (2016) developed and used the Group Learning Activities Teaching Design (GLAID). The authors compared the group learning activities they used in their classes with the GLAID framework and analyzed it. According to the results of this study, teachers stated that they used all the components of the framework, but they faced difficulties in the structuring of group learning activities. The authors say that the design they have developed as a result of the study may be beneficial as a guide in teacher training for those educators who want to design, apply and assess their own group teaching activities. De Hei, Admiraal, Sjoer and Strijbos (2017) investigated the relationship between primary school teacher candidates and group learning activities and perceived learning outcomes. According to the results of the studies of the authors, to what extent learning outcomes contribute to positive learning perceptions is mostly related to how students assess the design components applied, and group learning activities can be used in higher education to improve the learning outcomes.

Instructional Group Activities Design (IGAD)

The IGAD means the activities, which aim to increase learning skills, and professional development, in which a learning-centered teaching process is adopted, and students work together in small groups to achieve learning targets. The IGAD framework consists of six design components: (1) learning targets and their results, (2) task features, (3) the process when the theory is connected to practice, (4) guidance, (5) group structuring and interaction, (6) assessment and feedback.

In the 'learning targets and results' component that aims to achieve the content achievements of the lesson and develop the teaching skills, it is expected to take the IGAD to the desired learning results. The achievements of the lesson dimension include the acquisition of skills such as interaction, communication, taking responsibility, expressing one's thoughts and critical thinking that group studies bring about with the acquisition of phenomenal, procedural and metacognitive information. The tasks given by the teaching staff to ensure that students achieve the learning targets make up the 'task features' component. These tasks may include the tasks at different levels from creating a simple scenario to developing a comprehensive project. The 'connecting theory to practice' component qualifies the application process in which the processes take place in the general sense. It

includes the operational procedure and application of the activities. Furthermore, cooperating in application activities was accepted as the first central concept, while the operational procedure of the IGA to be applied in practices was accepted as the second central concept. What is meant by the operational procedure is that possible activities necessitate both the field knowledge, i. e. theoretical information, and includes its practical application/applications. The guidance, coaching and support provided to students by the teaching staff in the whole design process explain the ‘guidance’ component. This component includes the ability to use the right search engines on the internet regarding any subject when necessary together with verbal guidance, or the hardware guidance such as providing the materials of any laboratory experiment. The component that includes the group composition in addition to group size and in the cooperation process when students try to achieve the learning targets is the ‘group structuring and interaction’ process. With interaction, a multi-dimensional interaction is in question, these being the interaction with the group friends of students, the interaction with other group members in the classroom, and the interaction of students with the teaching staff. The measurement procedures used for assessing the achievement of learning targets and the feedback given on the group activities that connect theory with practice make up the ‘assessment and feedback’ component. In this component that not only includes focusing on the product but also the process, there is also peer assessment feedback.

After explaining all the components, it is definitely necessary to indicate that the decisions taken in the design of each of six components are related to the design of other components, and the compliance of all steps in the design with one another is important. For example, the component of connecting theory to practice includes asking questions to students on the process of cooperation. This is related to the component of group structuring and interaction. Again, in the process of connecting theory to practice component, the teaching staff provides support in stimulating students' inquisitive attitudes and creating ideas on the content, and this is also closely related to the guidance component. Many examples can be given showing that the components that make up the IGAD are correlated.

The main problem of the study was expressed as ‘What are the assessments of teacher candidates on the achievements of the IGA, which is prepared based on the IGAD and applied in the Special Education Methods-I course?’. The sub-problems related to these problems are as follows: (1) What are the assessments of teacher candidates on the achievements of the theoretical and application parts of the course?, (2) What are the assessments of teacher candidates on the learning of the IGA?, (3) What are the assessments of teacher candidates on liking the IGA?, (4) What are the assessments of teacher candidates on the educational experiences related to the IGA?, (5) What are the assessments of teacher candidates on the effects of the IGA on their professional development?, (6) What are the assessments of teacher candidates on the effects of the IGA on their skill development?

METHOD

The study is a qualitative study. As it is known, the meaning attributed by people to incidents, situations, phenomena, etc., i. e. how they qualify them, gains importance. This study is also qualitative in that it investigates the assessments of teacher candidates on the achievements of the IGAD implemented.

Participants

56 science teacher candidates participated in the study. The candidates study in the 3rd grade of a middle sized university in the Aegean Region of Turkey. 30 of the participants are female, and 26 are male. A purposeful sample was used in the study that is based on volunteering because the main objective is to obtain in-depth information on the thoughts and assessments of teacher candidates, which make up the subject of the study, on the achievements of the IGA. According to Fraenkel and Wallen (2009), the purposeful sample is to select rich situations in terms of giving information and allow in-depth research according to the aim of the study. Moreover, one of the main criteria that are important for the researcher in this sampling method is to reach the individuals who are experienced in the subject to be investigated. Therefore, this sampling method was used based on volunteering as the participants must have taken part in the practices in question. The participants who were interviewed face-to-face are also 8 teacher candidates who have gained the IGA experience, once again selected among these 56 individuals based on volunteering. 4 of them are male, while 4 of them are female.

Data collection

The first tool used for data collection in the study is the opinion form that consists of open-ended and closed-ended questions. The form was applied to 56 individuals in total. Expert opinion was used together with the national and international literature in the process of developing the questions in the opinion form, and the questions were put into final form after making the necessary corrections and additions in line with their suggestions. Furthermore, the opinions on the questions asked by 3 teaching staff (science teaching) in this process that aims to increase the content validity were assessed as necessary, not necessary and should be changed. According to Lizzio, Wilson and Simons (2002), the perceptions of university students of the learning outcomes (in this study, achievements) are not only about the satisfaction of students but also the development of their skills and different components of educational designs. Therefore, questions aimed at determining the satisfaction of teacher candidates (questions on the state of liking-not liking and their educational experiences) as well as skill achievements (the question on the contribution of activities to skill achievements) and professional development achievements (questions on the contributions of activities to their learning and their contributions to their professional development) were focused on in taking the opinions of teacher candidates on the achievements of the design. Interviews were used in the study as another data collection tool. According to Crano and Brewer (2008), the interview is a data collection tool that allows for determining the behaviors, thoughts or emotions of participants by means of answering the questions posed by the interviewer. The interviews were also used in the study as the thoughts and assessments of teacher candidates who participated in the IGA practice on the acquisitions of the practice.

Data analysis

The content analysis among qualitative analysis techniques was used in the analysis of the opinion form questions applied to teacher candidates. The repeating frequency of the codes from the analyses was used, and the themes were achieved by determining their common points. The results were expressed and tabulated as frequency and percentage frequency values. Voice recorder was used in the recording of the interview data. Then, the records were assessed by being transcribed by the researcher. The data in the study were coded twice every other month. Then, the consistency between these two coding was calculated. The percentage of compliance was investigated by comparing the number of repetitions of the codes for each question (Miles and Huberman, 1994). No difference was found, and full compliance was observed in closed-ended questions due to their structure. As for open-ended questions, the percentage of compliance was found to be 0.91 as the average of all questions. When the coding of the researcher was compared, the concepts gathered under specific themes were revised in terms of the fitness for that theme. At this stage, very few concepts were placed under another theme that was considered as suitable, and the last assessment was made. There are not previously determined structures for the codes or themes; they were all created following the analyses made according to the expressions of the students. In face-to-face interviews, the participants were asked the questions in the opinion form because the interviews in the study were used to support the data obtained from the opinion form and to present a realistic picture by defining the important findings. Therefore, the descriptive analysis of the interview questions was assessed with the analysis of the interview form questions, and these findings were mostly used by providing examples from student answers. The real names of 8 students who were interviewed were not used. Instead, the students were coded as 'Student A', 'Student B', 'Student C'....

Procedures

When developing the IGAD applied in the study; certain main factors to which CoHE (2007), responsible for raising teachers in Turkey, attaches importance in relation to raising teachers, program development designs in the literature about the application and content structure of the lesson, and teacher training policies were based on. While many studies were investigated in the study, it can be expressed that the studies of De Hei, Sjoer, Admiraal and Strijbos (2016) and De Hei, Strijbos, Sjoer and Admiraal (2016) on group learning activities were used, and these studies were accepted as guides.

The process of application can be summarized as follows: (1) giving teacher candidates information on how the application will be made, (2) separation of teacher candidates into groups of 5-6 people, (3) the tasks given by the teaching staff, i. e., group activities in a suitable way for the theoretical lesson content (while educational group activities last for 10 weeks, the applications of the design together with other activities such as information

giving, mid-term exams and course book examination lasted for 14 weeks in total), (4) taking the assessment of teacher candidates using the data collection tools of the IGAD. In order to explain the performance of group activities with an example; if the teaching staff taught the mind maps the previous week, teacher candidates presented the activities they prepared in accordance with the activity preparation guide and task shared with them at the beginning of the term by the teaching staff based on mind maps in the practice hour of that week. The group activity task given to teacher candidates in the week in question is that they prepare a hierarchic, a spider and a chain mind map that fit the subject and achievements selected from 5th, 6th, 7th and 8th-grade levels. While teacher candidates presented these in the practice course hour, the teaching staff taught the concept cartoons, which are the subject of the next week, in the theoretical lesson. The process continued like this for 10 weeks. The presentations were made by a different student each week on behalf of the group, but the student who would make the presentation was determined by the teaching staff right before that lesson. The aim of this is to support group works by ensuring that teacher candidates fulfill their responsibilities effectively each week. Hence, each group member represented the activities of their groups 3 or 4 times by the end of the term. To give a few more examples for educational group activity tasks; teacher candidates were asked to prepare scenarios in the problem-based learning week, while they were expected to develop a project in the project-based learning week. While they were asked to prepare a V diagram example in the V diagrams week, they shared the results they obtained by using the method (drawing, interview, etc.) for determining the pre-information and misconceptions to their choice in certain science subjects chose. Furthermore, it is necessary to indicate that self, peer and teaching staff assessments were made after each IGA application, and feedback was given.

FINDINGS

Teacher candidates were primarily asked the question ‘From which part of the lesson did you benefit more? The theoretical part or practice part? Why?’ Hence, it was primarily tried to determine their general perceptions of the IGAD.

The assessments of teacher candidates on which part of the lesson, whether the theoretical and practice part, they benefit most are given in Table 1.

Table 1. Assessments of teacher candidates on the achievements of the theoretical and application parts of the lesson

Theme/Category		Codes	f*	%*
Theoretical	Practice	Since we prepare/do our activities ourselves	8	16.7
		Since practices ensure permanence	8	16.7
		Since we use what we have learnt in theory	6	12.6
		Since it consolidates what we have learnt in theory	5	10.4
		Of course, practice (n=2)	3	6.4
		Definitely, practice (n=2)	2	4.1
		Since we learn more quickly by doing/applying	2	4.1
		Since it provides the recognition of my profession	2	4.1
		Since we see our shortcomings	2	4.1
		Since there are feedbacks after practices	2	4.1
Both	Theoretical (n=2)	Since the examples given in the lesson are permanent/informative	2	4.1
	Both (n=11)	Since I realize what I learn in theory in practice	6	12.6
	Both theoretical and practical (n=3)	Since I rehearse the theory while practicing	2	4.1

n: means the number of teacher candidates. All numbers shown in letter “n” mean the number of individuals in the study.

f: The frequency of the assessment made by teacher candidates. I. e., while a student may have stated more than one opinion, some students may not have made any explanation on the “why” despite having answered the

question. Therefore, the sum of the frequencies in question means the frequency of the assessment and not the number of the students. This also applies to tables' no. 2, 5 and 6 in the study.

% is the frequency of the assessment made by teacher candidates. This also applies to tables' no. 2, 5 and 6 in the study.

As it is seen in Table 1, the majority of teacher candidates (71.4%, n=40) stated that they obtained more achievements in the practice part of the lesson. Candidates stated that they applied the practices themselves and practices ensured permanence at a frequency of 16.7% (f=8) as the reason for this. Furthermore, when the assessments of teacher candidates were examined, the other two reasons for their obtaining more achievements from the practice part were stated as using what they learnt in theory in practice and that the practices reinforced what they learnt in theory. Similar answers were also received in the interviews held. Student E stated his/her opinion on the subject by saying *'Of course, in practice. We made what we had learnt permanent by applying and doing what we had learnt with the practices. I believed that we obtained more achievements from the practice part as we designed and applied how the approaches should be applied and implemented.'* The answer given by another student to the question in the interview is: *'I believe that I get the necessary achievement from both, but I obtained more achievements from the practice part because learning by doing-living is possible through practices'* (Student A).

Only 2 of the teacher candidates stated that they obtained more achievements from the theoretical part of the lesson, and justified it by saying that the examples given in theoretical lessons increased permanence. One of the students interviewed stated his/her assessment on this as follows: *'The theoretical part was more effective because the examples in the theoretical lesson were informative'* (Student H).

At the same time, 25% of the science teacher candidates (n=14) stated that they obtained achievements in both parts of the lesson and stated that these were equal. They justified it by saying that they realized what they had learnt in theory in practice at a frequency of 12.6% (f=6). Similar results were also obtained from the interviews. Student C explained his/her thoughts by saying *'Both. I realized what I had learnt in theory in practice. I wouldn't be able to do practice without knowing the theory. But the theoretical information is insufficient without practice. Theory is a prerequisite for practice.'*

Another question asked to teacher candidates is: 'Did the instructional group activities you performed during the period contribute to your learning? Why? /How?' The assessments of science teacher candidates for this question are presented in Table 2.

Table 2. Assessments of teacher candidates in relation to the contributions of the IGA to their learning

Theme/Category	Codes	f	%
Positive	By practising/applying our theoretical knowledge	20	22.3
	By ensuring permanence	13	14.5
	By seeing/performing different activities/ideas/materials	7	7.8
	By learning through doing-living	7	7.8
	By teaching to search for information	6	6.7
	Yes (n=12)		
	By requiring to prepare well/do planning for the subject	5	5.6
	Yes, it contributed (n=12)		
	By ensuring that I realize/correct my mistakes	4	4.4
	It contributed (n=11)		
	By teaching to present the information/make presentation	3	3.3
	It did (n=6)		
	By gaining professional skills	3	3.3
	By teaching how to make the lesson attractive/interest taking	3	3.3
	By teaching how to use the alternative evaluation methods	2	2.2
	By developing my creativity/imagination	2	2.2

Very positive	Definitely contributed (n=7)			
	Yes, sure (n=2)	Being actively engaged in the activity of teaching	7	7.8
	Of course, it did (n=2)	By ensuring that I learn the subject/by reinforcing	4	4.4
	It contributed significantly (n=2)	By producing/driving to do unique works	2	2.2
Partially positive	Partially contributed (n=2)	By ensuring that I realize my deficiencies/misconceptions	2	2.2

As it is seen from Table 2, science teacher candidates included in the study express highly positive opinions on the contribution of the IGA to their learning. While 73% (n=41) of the candidates stated that the activities in question made a contribution, they emphasized that the contribution was made especially by practising the theory. Apart from this, there are opinions stating that the IGA contributes by ensuring permanence (f=13), performing differing activities and/or materials (f=7) and by learning by doing-living (f=7). One of the examples of the interviews that yield similar results is as follows: *'It contributed to my learning. We experienced the most effective learning experiences by doing, thinking and trying to produce something by ourselves with many practices performed'* (Student F).

Whereas some of the teacher candidates stated some certainty expressions in this respect and said that the IGA contributed to their learning, these answers were evaluated as a separate theme. Considering the assessments made in this direction, it is observed that 23% of the total participants (n=13) make emphasis by saying “definitely”, “for sure” and “of course”, and express this. Upon considering the assessments on how and by which means this happens, it is understood that the opinion of taking an active part in learning activities is especially presented (at a frequency of f=7). Among the students who were interviewed, Student G stated his/her opinion on this by saying *'It has contributed significantly. Since I have done practice in relation to the methods and techniques I have been taught, I can apply and give information about these methods and techniques not even opening my notebook. However, it is hard to say this about the lessons in which we haven't done such practice.'* At the same time, 2 of the teacher candidates in the study stated that the IGA made a partial contribution, and explained this by saying that the IGA made them realize their deficits and misconceptions in relation to the subjects.

Furthermore, the answers given by the teacher candidates to the ‘why’ part of this question of the opinion part, but not included in the table because they were repeated only once are as follows: *'By developing our skills', 'By associating the subjects with daily life', 'By teaching how making experiment will be evaluated', 'By teaching the ways of ensuring student success', 'By developing my critical thinking skills', 'By developing my social skills', 'By giving cooperative learning opportunities', 'By developing my skills of self-expression', 'By providing feedback'*. As can be understood from the answers given, these students also think that the IGA contributes to their learning.

Another point that is investigated in the study apart from the contributions on the learning of teacher candidates who had IGA experience is to determine their opinions on this experience in affective terms. The proposition that makes up one of the closed-ended questions asked to the teacher candidates to this end is as follows: *'I liked these practices performed in the special teaching methods course.'* The assessments of the teacher candidates on their state of liking the IGA regarding this proposition are presented in Table 3.

Table 3. Assessments of teacher candidates on their state of liking the IGA

Codes	n	%
Totally agree	24	42.9
Agree	25	44.6
Partially agree	7	12.5
Neither agree nor disagree	0	0.0
Disagree	0	0.0
Partially disagree	0	0.0
Totally disagree	0	0.0

As can be understood from Table 3, it is observed that science teacher candidates who participated in the IGA liked this application very much. 87.5% (n=49) of the candidates in total answered this question as ‘totally agree’ and ‘agree’. There is no teacher candidate who expressed negative opinions.

Thereafter, the candidates were asked to specify how they assess their educational experiences in relation to the IGA. Another question that makes up another closed-ended question posed to the candidates is as follows: ‘Could you assess your educational experience in this lesson in general?’ The assessments of teacher candidates on the IGA regarding this question are presented in Table 4.

Table 4. Assessments of teacher candidates on their educational experiences regarding the IGA

Codes	n	%
Perfect	4	7.1
Quite good	32	57.2
Good	18	32.1
Limited	2	3.6
Low	0	0.0

Upon examining Table 4, it is observed that more than half of the teacher candidates (57.2%, n=32) put the educational practices in question in the ‘quite good’ category. In general, it is observed that there are positive assessments and only 2 teacher candidates are of the opinion that they have gained ‘limited’ experience.

The open-ended question asked to teacher candidates in the next step is ‘Did the practice activities in this lesson contribute to your professional development? Why? /How?’

50 (89.3%) individuals in total answered the first part of this question with answers such as ‘yes (n=36)’, ‘it did (n=8)’, ‘it contributed (n=5)’ and ‘it made a contribution (n=1)’. While 10.7% of the teacher candidates gave answers as follows by adding certainty to their positive assessments: ‘Definitely it did (n=4)’, ‘definitely, yes (n=1)’ and ‘it did for sure (n=1)’, none of the science teacher candidates in the study gave an answer to this question that can be considered as negative.

The assessments of the science teacher candidates on the questions ‘Why? /How?’ in terms of the contribution of the IGA to their professional development are presented in Table 5.

Table 5. Assessments of teacher candidates on the contributions of the IGA to their professional development

Theme/Category	Codes	f	%
Methodological gain	By learning the learning methods we will use in our professional life in practice	19	16.5
	By teaching alternative measurement/evaluation	10	8.8
	By learning how the subjects can be taught permanently/effectively	5	4.4
	By making me adopt the methods I will use when I become a teacher	4	3.5
	By teaching how to make the subjects interesting	3	2.6
	By teaching how I will present/teach the subjects when I become a teacher	3	2.6
	By teaching how to assess students	3	2.6
	By showing how to teach the experiments	3	2.6
	By showing how the subjects can be taught using different methods	2	1.7
	By giving an idea of how to approach the student	2	1.7
	By teaching different/new teaching methods	2	1.7
Skill gain	By teaching to criticize/being open for criticisms	6	5.2
	By developing our application skills	5	4.4
	By learning how to design/apply an activity	5	4.4
	By teaching how to make a presentation	4	3.5
	By learning how to prepare/present a material	3	2.6
	By increasing my creativity/allowing me to use creative ideas	3	2.6
Developmental gain	By ensuring experience	5	4.4
	By giving the opportunity to try/teaching how to use the information	5	4.4
	By urging to develop myself/developing myself	4	3.5
	By giving the opportunity to learn by doing-living	3	2.6
	By showing our deficiencies	2	1.7
	By teaching how to practice teaching	2	1.7
	By making me planned/teaching to make a lesson plan	2	1.7
Affective gain	By developing my sense of responsibility	3	2.6
	By ensuring that I repress my excitement when making a presentation/activity	3	2.6
	By developing my self-confidence/by learning to trust in myself	2	1.7
	Making me feel like a teacher	2	1.7

As can be understood from Table 5, science teacher candidates said that the IGA has significant effects on their professional development from various ways. Certain themes were achieved by examining the codes of the answers given by the candidates to this question. The theme with the most repeated opinions among these is the “methodical achievement” theme. The most repeated codes under this theme are “By learning the learning methods we will use in our professional life in practice” with a frequency of 16.5% (f=19), and “By learning alternative measurement/evaluation” with a frequency of 8.8% (f=10). As for the skills achievement theme, teacher candidates especially emphasized the achievement of making criticism and being open to criticisms (f=6), the skill of doing practice (f=5) and designing and/or applying activities (f=5). The teacher candidates in the study provided developmental achievement examples with such answers as ensuring experience (f=5) and giving the opportunity to try on the use of the information (f=5). Apart from this, the answer that is repeated most by teacher candidates in the affective achievement theme is the achievements of contribution to the development of the sense of responsibility (f=3) and coping with one’s excitement while making a presentation and/or activity (f=3). Similar assessments were also received from the interviews held. Student E stated his/her opinion on this subject by saying ‘*Yes, it did. Thanks to this, we have learnt to design and apply the learning approaches and activities we will use in our professional life.*’ The answer given by another student to the question in the interview is as follows: ‘*Yes, it did. I have learnt that teaching is not only talking and going*

away. Material preparation, being patient, being open for criticisms, self-confidence and many more benefits.’ (Student F). Student C emphasizes the use of alternative evaluation methods in the IGA and expresses his/her opinion on this subject as follows: *‘I believe that it contributes to my professional development. I have learnt how students will be assessed... It was a great opportunity for me to develop myself.’*

Furthermore, the answers given by the teacher candidates to the ‘why/how?’ part of the opinion form but not included in the table since they were repeated only once are as follows: *‘By making me understand the education system better’, ‘By teaching the seriousness of teaching’, ‘By learning to be patient’, ‘By learning how to teach’, ‘By teaching how it is to teach efficiently’, ‘By teaching how I will get prepared for the subjects when I become a teacher’, ‘By requiring communication with group members’, ‘By developing verbal and written expression skills’ and ‘By making me feel like a teacher’.*

The last question asked to the teacher candidates on their IGA experiences is ‘Do you think the practice activities carried out in this lesson have contributed to the development of your skills? If yes, which one/ones? Why?’

Regarding this question, 2 science candidate teachers left this question blank while 54 of the science candidate teachers stated that it contributed (with answers such as yes, it did, etc.). Moreover, their assessment on the development of which skills is contributed to be presented in Table 6.

Table 6. Assessments of teacher candidates regarding the contribution of the IGA to their skill developments

Codes	f	%
To their critical thinking skills	24	12.5
To psychomotor skills	22	11.4
To the skills of searching/conducting research/using the research stages	18	9.4
To cooperative working/learning skills	17	8.8
To creativity/critical thinking skill	16	8.3
To cognitive skills	13	6.7
To the skill of taking responsibility	6	3.1
To the skill of expressing oneself verbally and/or in writing	6	3.1
To manual skills	5	2.6
To the skill of productive thinking	5	2.6
To the development of imagination	4	2.1
To application skills	4	2.1
To material designing/development skill	4	2.1
To the development of professional competence	4	2.1
To the skills of self-assessment/self-criticism	4	2.1
To affective skills	3	1.5
To the development of self-confidence	3	1.5
To social skills	3	1.5
To the skill of making/preparing a presentation	3	1.5
To the skill of unbiased thinking/acting objectively	3	1.5
To the skill of learning by doing-living	3	1.5
To the project development skill	3	1.5
To the development of work ethic	3	1.5
To peer assessment skill	2	1.0
To problem-solving skills	2	1.0
To the planning skill	2	1.0
To the skill of being patient	2	1.0
To the development of positive attitudes towards the profession/lesson	2	1.0
To the skill of examining the subject from different perspectives	2	1.0
To the skill of transferring theory to practice	2	1.0
To the skill of using the technology	2	1.0
To scientific process skills	2	1.0

As it is seen in Table 6, the participants of the study made the assessment that the IGA have positive effects on many skills, and it contributes to the development of these skills. According to the candidates, the biggest contribution is made to the critical thinking skills (at a frequency of 12.5%, $f=24$) and psychomotor skills (at a frequency of 11.4, $f=22$). Furthermore, science teacher candidates are of the opinion that the IGA especially contributes to researching skills and cooperative learning skills. Student D, among the candidates who were interviewed, stated his/her opinion on this subject by saying *'It contributed to my critical thinking skill, because we constantly criticized the ideas that we thought about and found, and we chose the best ones. It contributed to the development of my critical thinking skills as we tried to find things that were never tried and existed before when designing materials.'* Another student expressed his/her opinions by saying *'My productive thinking, critical thinking skills increased. It contributed to my self-confidence. They were activities that ensured development in problem-solving. My attitude towards my profession changed. My sense of responsibility increased. I believed that I must develop myself'* (Student B).

Moreover, the assessments made by the teacher candidates to this question of the opinion form but not included in the table since they were repeated only once are as follows: *'To the assessment making skill', 'To the development of the interest in the lesson', 'To the development of the desire for the lesson', 'To the poster preparation skill', 'To the socialization skill', 'To the skill of making association between science-technology-society-environment' and 'The skill of learning by discussion'.*

The 'why?' part of this question of the present study was not tabulated individually. The reason for this is that teacher candidates almost gave identical opinions with the 'why?' or 'how?' parts of the previous questions and generally said that 'performing the practices themselves' and 'developing different activities/materials' contributed to the development of the skills in question.

CONCLUSION AND DISCUSSION

In this study, the IGAD, which was developed to increase the vocational and learning skills of teacher candidates, was applied in the Special Teaching Methods-I course, and the achievements of teacher candidates from these practices were taken. When the results achieved in this study conducted with science teacher candidates are evaluated in a general sense, it may be concluded that the IGAD is effective to a great extent especially in connecting theory to practice, and it provides significant contributions in respect of the personal skill achievement.

A great majority of teacher candidates stated that they obtained more achievements from the practice part of the IGAD, and it contributed to their learning. They attributed this especially to having prepared activities themselves, the fact that the applications ensured permanence, they used what they learnt in theory in practice, and reinforcing their knowledge in this way. When we look at this result as a whole, it is understood that teacher candidates experienced learning by doing-living. This correlates highly with the learning philosophy that they are expected to show in their classes when they become teachers. In this context, it can be expressed that the IGA that is performed in the study gives candidates an important professional achievement.

The facts that the majority of the science teacher candidates who took part in the study stated that they liked the IGA very much, and there is no teacher candidate who expressed a negative opinion in this respect are quite an important and interesting result because the success of any program or design may not be only evaluated with the achievements of the cognitive area, which includes academic success. Another aspect that is at least as important as this is affective achievements. It can be easily said that the positive attitudes and emotions for any situation, phenomenon, incident or lesson bring about success.

In the question the candidates were asked, in which they were expected to make their assessment on the effects of design on their professional development, it is observed that they obtain important achievements especially for developing self-confidence and the sense of responsibility under the theme of affective achievement. Consequently, the fact that the candidates like these activities shows the power of design in terms of affective achievements, too. The fact that more than half of the teacher candidates define their educational experiences on

these experiences as “very good” also supports this result. Furthermore, it is believed that experience-based learning, in which a connection is made between theory and practice, makes students like the curriculum more.

In the study, the contribution that is most emphasized by teacher candidates in their assessments in relation to the contributions of the IGA to their professional development is learning the learning-teaching methods they will use in their professional life in practice, which is followed by their assessments stating that they have learnt the alternative measurement assessment methods. This achievement is quite important because one of the important points mainly emphasized as a result of important program changes (2005-2006) and revisions (2013) in science programs in Turkey is the changes in the assessment approach. According to these changes, the assessment went beyond traditional pen-paper tests, and the multiple assessment approach that focuses on assessing the process rather than the result, which also includes self and peer assessment, was adopted. In parallel to this, the self-development of teacher candidates in assessment methods with the IGA means that they understand this compulsion that is closely related to their professional development. It is believed that it is effective to provide the examples of alternative measurement methods in group activities by teaching in theoretical lessons and ensuring that the candidates make self and peer assessment after each application.

It is important that there is a relationship between the skills that science teacher candidates are expected to gain and the skills that they are expected to give to students in the classroom environment when they become a teacher, i. e. the skills of the curriculum. The skills that teacher candidates are expected to give to students when they start to perform their profession are determined by the MoNE in Turkey. For science candidate teachers, these skills were emphasized especially in the context of science literacy, and it was explained as the ability to raise individuals who conduct research-interrogate, can take effective decisions, solve problems, are self-confident, open for cooperation, can communicate effectively and learn life-long (MoNE, 2013). The fact that science teacher candidates in the study especially emphasize these skills in their IGAD assessments shows its contribution to their professional competences and increases the correlation between teacher training programs and the programs of National Education. This also overlaps with the aim of CoHE (2007) of “correlating the lesson subjects with the curricula MoNE prepared for the relevant level” and shows the importance of these achievements. In this case, it can be said that the IGAD applied in the study ensures the fulfillment of the targets of both CoHE and MoNE, and a bridge can be built between the two.

Questioning, critical thinking and being knowledgeable are defined as the first framework by the AASL (American Association of School Librarians) as the 21st-century learner standards (AASL, 2007). Again, according to this report published; making conclusions, making informed decisions, applying the information to new situations and creating new information are other framework learners’ features. Considering that teacher candidates especially emphasize their critical thinking skills and researching skills for IGAD achievements together with their thought that it contributes to their transfer of theoretical knowledge to practice, i. e., applying the information to new situations regarding the contributions to their learning, it can be stated that the IGA helps teacher candidates at the point of providing and developing the skills of the 21st century. Considering the research results that show a positive correlation between the 21st century learner skills and 21st century teacher skills and emphasize that teacher candidates at the faculties of education should also develop their learner skills in the processes of introducing teaching skills (Orhan Göksün and Kurt, 2017), it can be interpreted as the fact that the skills gained by candidates can be used in the classroom environment when they become teachers.

One of the skills that are emphasized most by teacher candidates on their IGA achievements is the skill of expressing themselves verbally and/or in writing. While this skill is very important since it is among the main teaching skills, it also gains importance for its relationship with effective communication among life skills. According to the new millennium learners’ characteristics report of the OECD (The Organization for Economic Co-operation and Development), communication plays an important part in preparing students to become a member of a larger community with the sense of responsibility for others by not only remaining as a life-long learner (Ananiadou and Claro, 2009). When these results are correlated, it can be said that the IGA contributes to the achievement of the skills that support life-long learning.

Another skill emphasized by teacher candidates in their assessments of the effect of the IGA on their skill development is the skill of creativity/creative thinking. The efforts to ensure that teacher candidates conduct interactive group works in their IGA practices and the activities can be correlated with originality and daily life as they are also stated in the task features among the basic components of the design are considered to be the most important reasons for this. Similarly, according to the result of the study conducted by Yanpar Yelken (2009) in which creativity-based materials and individually prepared materials were compared, teacher candidates conducted more creative and unique studies when teacher candidates worked together.

Considering all the results of the study, it can be suggested to integrate the IGAD, which helps teacher candidates to gain various skills such as using researching skills, cooperative learning, creativity, taking responsibility and expressing oneself, and especially critical thinking, to the lessons of the teacher training programs that are especially based on practice. Furthermore, teacher candidates can be suggested to associate the IGAD with lessons such as teaching practices and school experience and make and conduct long-term longitudinal studies aimed at determining its results. The assessment of certain design components or the whole educational design using qualitative and quantitative measures such as test scores may focus on the activity on learning outputs, and experimental models can be used for this. Furthermore, similar instructional designs can be developed and evaluated in terms of their usefulness, and they can be compared to past designs in the context of their outputs in raising teachers.

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Thinking Process of Visual-Spatial Intelligence of 15-Year-old Students in Solving Pisa Standard Problems

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ABSTRACT

Visual-spatial intelligence is one of the basic intelligences needed in mathematics learning. Visual-spatial intelligence consisted of 4 characteristics, namely imagination, conceptualization, problem solving and pattern determining. This research aims to describe the visual-spatial intelligence of 15-year-old students in solving PISA standard problems. The type of this research was descriptive research with qualitative approach. The research participants consisted of 67 students aged 15 years. The used data collection methods were tests and interviews. The research indicators were based on 4 characteristics of visual-spatial intelligence, and each characteristic was stated in each question number. Data analysis was done by looking at the indicator achievement of each characteristic of visual-spatial intelligence from each research participant. Based on the data analysis of test and interview, it obtained the tendency on each characteristic as follows: a) imagination, students were included in the high level category with the tendency of being able to meet all indicators except the fourth indicator; b) conceptualization, students were included in the high level category with the tendency of being able to meet all the indicators provided; c) problem solving, students were included in the moderate level category with the tendency of being able only to meet the first and second indicators of the 4 indicators provided; d) pattern determining, students were included in the high level category with tendency of being able to meet 4 indicator provided.

Keywords: Thinking process, visual-spatial intelligence, PISA standard problems

INTRODUCTION

Programme for International Students Assessment (PISA) is a study of the international level assessment of 15-year-old students related to the knowledge and the skills of students divided into 3 main assessments that are science, reading and math (OECD, 2014). The PISA study aims to provide an evaluation to the education system in a country around the world by testing students in abilities and skills of science, reading and math. Based on PISA results in 2015, it was known that Indonesian students were ranked 63 out of 70 countries in term of math skill and ability with the percentage of female students more dominant than male students (OECD, 2016).

Furthermore, the ability of students in Indonesia in solving cognitive problems of PISA standard is low that is not able to reflect by providing another solution (Kurniati & Annizar, 2017). It shows that students' mathematical literacy ability and skill in Indonesia are still very low. Whereas the ability of mathematical literacy is very important for students in developing their thinking ability when solving a daily problem that is the ability to design, plan, diagnose, evaluate, summarize, generalize, and give suggestion (Goksu & Gulcu, 2016).

Intelligence is a natural talent that God gave to humans. Each individual has a unique and various levels of intelligence. The intelligence of each child is classified into 8 types of intelligence categories known as Multiple Intelligence Theory (Smith, 2002, 2008). The 8 intelligences include 1) Verbal / Linguistic Intelligence, (2) Logical-Mathematical Intelligence, (3) Visual Spatial Intelligence, (4) Bodily-Kinesthetic Intelligence, (5) Musical Intelligence, (6) Interpersonal Intelligence, (7) Intrapersonal Intelligence, (8) Naturalist Intelligence. The concentration in this research was the visual-spatial intelligence of students in solving the problems of PISA content of shape and space that was translated into Indonesian and had been adapted to social and cultural conditions in Jember Regency.

Visual-spatial intelligence is a personal ability to create a mindset about the spatial world; using and manipulating this mindset in solving every problem related to the spatial world (Gardner, 2006). Visual-spatial intelligence is closely related to the learning of geometry (Kelly, 2017). The cause of low understanding and ability of students in solving geometry problems is generally caused by the object of geometry that is quite abstract and the students' visual-spatial ability is still low. Therefore, it is very important to improve students' visual-spatial ability in order to increase the percentage of students' understanding in geometry learning. The suitable implementation of learning strategies with the character of students can develop students' visual-spatial ability maximally. This research aimed to describe students' visual-spatial intelligence by looking at the tendency of each characteristic of student's visual-spatial intelligence. The research results were expected to help educators to know the characteristics of students' visual-spatial intelligence and become the first benchmark in formulating the appropriate strategy and method of learning geometry and can be applied especially in schools that became research place or all equal schools.

The instruments used in this research were PISA standardized problems and interview guideline. PISA standardized problems were PISA problems that had been translated into Bahasa Indonesia and had been adapted to local social and cultural conditions. Problem PISA is divided into some contents that are Change and Relationship, Space and Shape, Quantity, Uncertainty of Data. In this research, the content of PISA problem used was Space and Shape content where each question represented each characteristic of visual-spatial intelligence. PISA standardized problems were expected to really measure the students' visual-spatial intelligence because in solving the problem of PISA, it was not only needed the concept understanding but also required high order thinking skill and skills in applying mathematical concepts.

Visual-spatial intelligence has 4 main characteristics: imagination, conceptualization, problem solving and pattern-seeking. Characteristics of visual-spatial intelligence are divided into 4 which can be prepared the indicators used in research (Hass, 2003). The characteristic of imagination is the personal ability to understand the visual explanation rather than the audio explanation. From the definition, it can be formulated the indicators as follows: 1) Students are able to write down what is known and asked; 2) Students are able to pour a picture and information about PISA standardized problems of geometry material in their mind into image form; 3) Students are able to write down the steps correctly; 4) Students are able to write the final answer correctly. The characteristic of conceptualization is the personal ability to link information in the problems with mathematical concepts. From the definition, it can be formulated indicators as follows: 1) Students are able to write down what is known and asked; 2) Students are able to connect between known data and the concept they have; 3) Students are able to write down the steps correctly; 4) Students are able to write the final answer correctly. The characteristic of problem solving is the personal ability to solve problems properly and be able to formulate divergent problem solution strategies. From the definition, it can be formulated the indicators as follows: 1) Students are able to write down what is known and asked; 2) Students are able to have divergent strategies in solving problems related to problems of PISA standardized of geometry material; 3) Students are able to write down the steps of work correctly 4) Students are able to write the final answer correctly. The characteristic of pattern-seeking is the personal ability to find various patterns related to geometry problems. From the definition, it can be formulated the indicators as follows 1) Students are able to write down what is known and asked; 2) Students are able to have divergent strategies in solving problems related to PISA standardized problems of geometry material; 3) Students are able to write down the steps correctly; 4) Students are able to write the final answer correctly. Those indicators were used to analyze students' test answers and map the students' visual-spatial intelligence level. The 12 leveling categories of visual-spatial intelligence are described in Table 1.

Table 1. Leveling of Visual-Spatial Intelligence for Each Characteristic

Description	Level
Students are able to mention all steps correctly as well as the correct final answer.	1
Students are able to mention all steps correctly but the final answer is incorrect.	2
Students are able to mention all steps correctly but no final answer.	3
Students are unable to mention all steps correctly, but they are able to give the final answer correctly.	4
Students are unable to mention all steps correctly, and they are unable to give the final answer correctly.	5
Students are unable to mention all steps correctly, and no final answer.	6
Students mention all steps incorrectly, but they are able to give the final answer correctly.	7
All steps are incorrect, and the final answer is incorrect.	8
All steps are incorrect and no final answer.	9
Steps of work are not mentioned, but they are able to give the final answer correctly.	10
Steps of work are not mentioned, and the final answer is incorrect.	11
Steps of work are not mentioned, and no final answer	12

Leveling categories were then divided into 3 categories namely high, medium and low categories. The high category consisted of students at level 1 to 4; the medium category consisted of students at level 5 to 8; the low category consisted of students at level 9 to 12. The students' spatial intelligence analysis in solving the PISA problem was based on each category of high, medium, and low.

METHOD

This research was a descriptive research using qualitative approach. This research aimed to analyze and describe the visual-spatial intelligence of 15-year-old students in solving PISA standardized problems. The taking of research participants was done at schools in Jember regency. The research participants consisted of 67 students born in 2001 with detail of 27 male students and 40 female students.

The used data collection methods in this research were test and interview; so that, the used research instrument was PISA standardized problem test and interview guideline. The interview was aimed to dig deeper information and obtain data that was not obtained from the test result related to students' visual-spatial intelligence.

At first, the research participants were given PISA standardized problem test. Based on test results, students would be mapped into several categories of visual-spatial intelligence. The research participants who had taken the test would be selected randomly to attend the interview. The taking of interview participants was done by paying attention to student's gender and data saturation level. The data from test result and interview would be analyzed by using Snowball Throwing method by paying attention to data saturation. The overall data was said to be saturated if the level of students' visual-spatial intelligence after the test and the interview did not change. Furthermore, to increase data validity, the researcher conducted triangulation of test result data with interview result data. The used triangulation was method triangulation. The result data of triangulation were analyzed by looking at the achievement of indicator from each characteristic of visual-spatial intelligence.

RESULT AND DISCUSSION

Based on the result of test data analysis, it was obtained achievement data of research participant indicator from each characteristic of visual-spatial intelligence as follows.

Table 2. The Indicators of Achievement from Each Characteristic of Visual-Spatial Intelligence

The Indicators of Achievement	Indicators of Visual-Spatial Intelligence															
	<i>Imagining</i>				<i>Conceptualizing</i>				<i>Problem-Solving</i>				<i>Pattern-Seeking</i>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Satisfied	49	61	8	20	56	51	44	45	58	5	29	27	59	65	54	66
Unsatisfied	18	6	59	47	11	16	23	22	9	62	38	40	8	2	13	1

Based on Table 2 above, the research participants can be categorized into high, medium and low categories as in Table 3 and Table 4 below.

Table 3. Leveling Category of Male Students' Visual-Spatial Intelligence after Test

Characteristic Category	Imagining	Conceptualizing	Problem Solving	Patern Seeking
High	S03, S04, S12, S16, S18, S19, S21, S23, S30, S31	S01, S02, S03, S06, S14, S15, S17, S18, S19, S22, S26, S27, S28, S29, S30, S31, S32	S02, S05, S12, S15, S17, S18, S22, S25, S30, S32	S01, S03, S04, S05, S06, S13, S16, S17, S18, S19, S20, S21, S22, S24, S25, S26, S27, S29, S30, S32
Medium	S02, S05, S08, S13, S14, S15, S20, S22, S25, S26, S27, S28, S29, S32	S05, S12, S16, S20, S21, S23, S24, S25,	S01, S03, S04, S13, S14, S16, S19, S20, S21, S23, S24, S26, S27, S29, S31	
Low	S01, S17, S24	S04, S13	S06, S28	S02, S12, S14, S15, S23, S28, S31

Table 4. Leveling Category of Female Students' Visual-Spatial Intelligence after Test

Characteristic Category	Imagining	Conceptualizing	Problem Solving	Patern Seeking
High	S07, S08, S38, S39, S52, S53, S55, S56, S57, S61, S62	S07, S08, S09, S34, S36, S38, S39, S40, S41, S42, S43, S45, S46, S47, S49, S50, S51, S52, S53, S54, S55, S56, S57, S58, S59, S61, S62, S63, S64, S66, S67	S08, S33, S38, S42, S43, S45, S49, S50, S51, S52, S53, S54, S56, S57, S58, S59, S61, S62, S63, S64 S66, S67	S07, S09, S10, S11, S33, S34, S35, S36, S37, S38, S39, S41, S42, S43, S44, S45, S46, S47, S48, S49, S50, S51, S52, S53, S54, S55, S56, S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67
Medium	S09, S10, S11, S33, S35, S37, S41, S43, S45, S46, S47, S48, S49, S50, S51, S54, S58, S59, S60, S63, S64, S65, S66, S67	S10, S33, S35, S37, S60, S65,	S07, S09, S10, S11, S34, S35, S36, S37, S39, S40, S41, S44, S46, S47, S48, S55, S60, S65	
Low	S34, S36, S40, S42, S44	S11, S44, S48		S08, S40

After analyzing the results of the test data, then the researchers conducted interview to randomly selected students by paying attention on data saturation level. The total of students who followed the interview was 11 people with detail of 6 male students 5 female students. Based on the analysis of interview data, it was known that there was a level change on the research participants after interviewed. For example, the research participant of S05, after conducting test for characteristic of imagining, conceptualization, and problem solving, he was only on medium level, whereas for pattern seeking characteristic, he was on high level category, so the overall visual-spatial intelligence of research participant S05 was on medium level category. However, after the interview, there was a level change category on the characteristic of imagining and problem solving into high level category. It caused the category of visual-spatial level of research participant S05 became high level category.

Generally, this level change was due to several reasons including students did not write down the steps or not all steps are mentioned correctly in doing test but students were able to mention all the steps correctly in interview. Students were less thorough in writing the final answer but students were able to mention step correctly in interview. The students ran out of time; so that, the students did not write down the steps of work and final answer in doing the test, but students were able to mention the steps correctly in interview.

In imagining characteristic, the research participants tended to be in medium level category with the tendency of students at level 5. It happened because at this characteristic, students tended to be able to write what is known and asked, and able to pour information on problems into the form of image. Students did not write the steps of work during the test, but in the interview, students were able to mention the steps of work correctly. In addition, students tended to be less thorough in writing the final answer. Change levels before and after the interview was quite a lot happened. Of the 11 students interviewed, 6 students experienced a level change that was S01, S02, S03, S05, S08 and S09. Generally, the change was caused students did not write down the steps in doing test, but students were able to mention correctly in interview. Nevertheless, there were still some students who were difficult to understand the problem given; so that, students were not able to relate problems with mathematical concept. It caused the students unable to pour information on problems into the form of image. Based on table 3 and table 4, it was known that male students were more dominant than female students in term of imagining characteristic. It was in accordance with the research results which stated that there are significant differences in visual-spatial intelligence between men and women (Yenilmez & Kakmaci, 2015). Women's success rate was lower than that of men in solving problems.

In the conceptualizing characteristic, research participants tended to be on the high level category with the tendency of students at level 1. It happened because on this characteristic, students tended to be able to write what is known and asked, able to relate information in the problem with the mathematical concept, also able to write step of work and final answer correctly. Based on the data analysis results of test and interview, it could be seen that the conceptualizing ability of male and female students tended to be relatively the same. It was in line with the results of other researchers which suggested that there is no overly large difference between men and women associated with visual-spatial intelligence in solving a geometric problem (Seng & Chan, 2000). The level changes occurred on the conceptualizing characteristics was relatively less when compared with the imagining characteristic. It happened because the students' answers during tests and interviews remained consistent. The level change only occurred in 2 students out of 11 students who were interviewed e.g. S04 and S08 students. In the S04 student, the level change occurred because at the time of the test, the student ran out of time, so he did not do the given problem. However, at the time of the interview when the student was asked to mention the concept used and the step of accomplishing the problem, he was able to mention the steps of the work correctly. While the student S08, level change occurred because in the test, student was less thorough; so that, he did not write the final answer. However, in interview, the student was able to mention the final answer correctly. In this characteristic, it was also still found some students who were not able or wrong in relating problems with the mathematical concept.

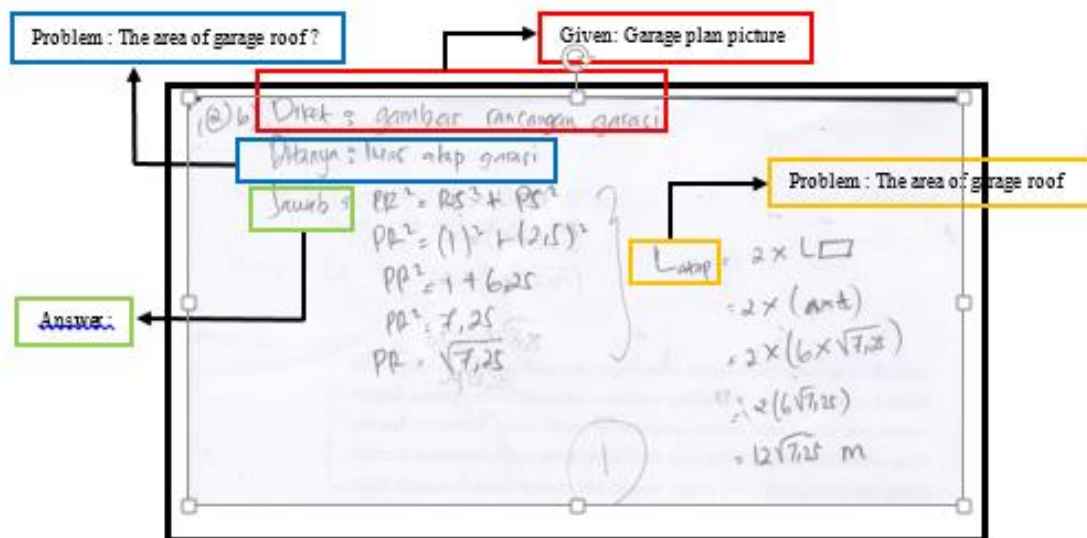
On the problem solving characteristic, research subjects tended to be on the medium level category with the tendency of students at level 5. It happened because on this characteristic, students tended only to be able to write what is known and asked, but students were unable to write the steps of work and the final answer correctly. In addition, students tended only to able to formulate one problem-solving strategy. Based on the data analysis results of test and interview, it could be seen that the problem solving ability of female students was more dominant than male students. This is suitable with the PISA results which stated that in term of problem solving, women were more dominant than men (OECD, 2016). Almost the same as the conceptualizing characteristics, the level change on problem solving characteristic was relatively few that only occurred in S05 students. The student's level change occurred due to in the test the student was less thorough in writing the final answer, so the final answer was incorrect, but in interview when the student was asked to mention the final answer, the student was able to mention the final answer correctly. On this characteristic, only a few students were able to meet all indicators given especially the second indicator. Based on the results of test and interview, it could be seen that students' mistake in accomplishing the problems caused by several reasons that was students were not able to relate the problem with the concept, so they were not able to formulate a problem-solving strategy correctly or the students were less thorough in writing the steps and final answer; so that, the step or final answer was incorrect.

On the pattern-seeking characteristic, research participants tended to be on the high level category with the tendency of students at level 1. It happened because on this characteristic, students tended to be able to write what is known and asked, and able to find the patterns contained in the problem. In addition, students were also able to write down the steps of work and the final answer correctly. Based on the data analysis results of test and

interview, it could be seen that the ability of male students to solve relatively the same as female students. Level change in pattern-seeking characteristic was relatively less that only occurred in 2 students, e.g S02 and S08 students. Similarly with the level change in the two previous characteristics, on the pattern seeking characteristic, change level occurred because the two students did not write the steps of work at the test, but able to mention the steps of work correctly during the interview. Based on the results of the test and interview, it could be seen that in accomplishing the problems related to the pattern seeking characteristic, students tended not to have trouble. It was seen from the number of students who were on high level category.

Based on the tendency description of each characteristic above, it could be concluded that gender did not give too much influence in term of students' visual-spatial intelligence. Other factors were more influential on students' visual-spatial intelligence such as students' high-order thinking skill and problem-solving skill. This conclusion was not suitable with the results of previous researches which suggested that male students are more dominant than women in terms of visual-spatial intelligence (Yenilmez & Kakmaci, 2015), but in line with other researches which suggested that gender does not have a significant effect on Students' visual-spatial intelligence (Seng & Chan, 2000). Both male and female students showed not too many different results when they were asked to solve the problems related to geometry problems.

High level category was a level category for students who tended to be at level 1 to 4 for each characteristic of visual-spatial intelligence. Here is an excerpt of an answer from one of the students who was in a high level category.

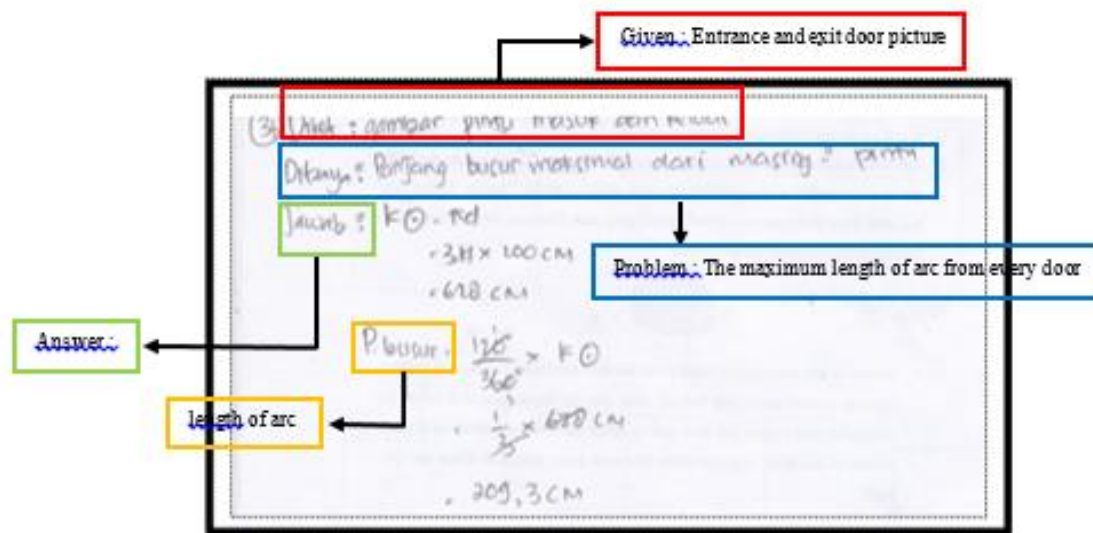


Picture 1. The example of student's answer on high category

Based on the data analysis results of test and interview, it could be seen that on the imagining characteristic, students on high-level category tended to be able to write down what is known and asked completely and correctly. Students were also able to pour information on the problem into the image form. In addition, students were also able to write down the steps of work and the final answer correctly. There were still some students on high-level who were less thorough in writing the final answer; so that, the final answers were written incorrectly. For the conceptualizing characteristic, students on high level category tended to write down what is known and asked completely and correctly. Students were also able to relate problems with mathematical concepts. In addition, students were able to write down the steps of work and the final answer correctly. In the conceptualizing characteristic, students tended to be at level 1, only some students who were not at level 1. It happened because students were wrong in relating problems with mathematical concept; so that, the steps of work were incorrectly written, but they were able to write the final answer correctly. In the problem-solving characteristic, students on high-level category tended to be able to write down what is known and asked completely and correctly. Students were also able to relate the problems with mathematical concepts, so able to write the steps of work and the final answer correctly. However, generally, students on high level category tended only to be able to formulate one strategy to solve the problem. From 32 high-level students, only 5 students were able to formulate a divergent solution strategy. In addition, there were also some students on high level category less thorough in writing the final answer; so that, the final answer was incorrect. In pattern search characteristics, high level category students tended to be able to write down what is known and asked. Students were also able to find the patterns in the problem, so they were able to write the steps of work and the final

answer correctly. In pattern seeking characteristic, high level category students did not seem to have difficulties in solving problems related to pattern seeking characteristic. It was seen from the number of high level category students who were at level 1.

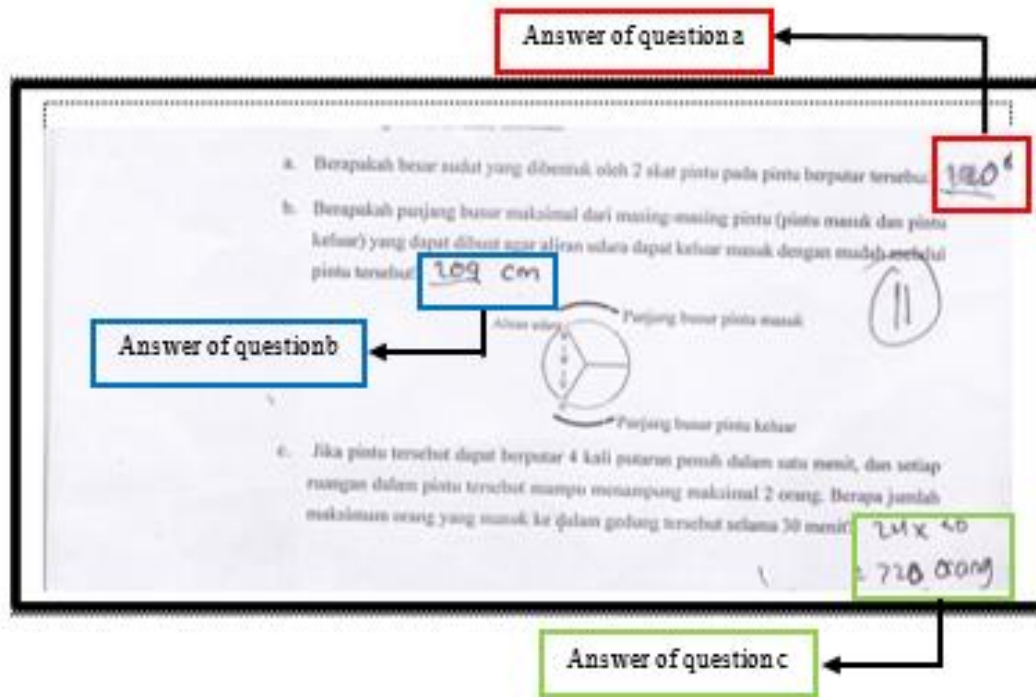
Medium level category was a level category for students who tended to be at levels 5 to 8 for each characteristic of visual-spatial intelligence. Picture 2 was an example of an answer belonged to one of the students who was in medium level category.



Picture 2. The example of student's answer on medium category

Based on the data analysis results of test and interview, it could be seen that on the imagining characteristic, medium level students tended to write down what is known and asked. In addition, students were also able to pour information on the problem into the image form. However, students tended not to write down the steps of work and less thorough in writing the final answer; so that, the final answer was incorrect. In imagining characteristic, students generally were at level 5. It happened due to students did not write the steps of work and the final answer correctly. Nevertheless, some students were at level 8 due to the inability of students in pouring the information contained in the problem into the image form; so that, all steps written along with the final answer were not true. For the conceptual characteristic, the students on medium level category tended to write down what is known and asked completely and correctly. The students were also able to relate the problem with the mathematical concept. However, students were not able to write down the steps of work and the final answer correctly. In the conceptualizing characteristic, students tended to be at level 5, and some students were at level 7 or level 8. Students who were at level 7 and 8 tended not able to relate problems with the correct mathematical concepts, so it caused that all steps of work were incorrect. Nevertheless, few students who were able to write the final answer even though the concept and steps of work were incorrect. In the problem-solving characteristic, the students on medium level category tended to be able to write down what is known and asked completely and correctly. Students also tended to be able to relate the problem with the mathematical concept, but not all the steps were written correctly, so the final answer was incorrect. Students on medium level tended to be able to formulate only one strategy to solve the problem. Generally, students' mistakes on this category were due to the students were less thorough and fooled, so there was as unmentioned step of work; so that, the final answer was incorrect. In addition, some medium level students were not able to relate problems with mathematical concept; so that, students had difficulties to formulate the strategies to be used. It caused all the steps of work and the final answers were incorrect. In pattern seeking characteristic, none of the research participants were in the medium level category. Nevertheless, the tendency of medium level students could be determined based on the achievement of indicators from level 5 to level 8. Students in medium level category tended to be able to write down what is known and asked. Students were also able to find the patterns in the problem but all the steps of work and the final answers were incorrect.

Low level category was a level category for students who tended to be at levels 9 to 12 for each characteristic of visual-spatial intelligence. Picture 3 was an example of an answer belonged to one of the students in a low level category.



Picture 3. The example of student's answer on low category

Based on the data analysis results of test and interview, it could be seen that on the imagining characteristic, the low level category students tended not to write down what is known and asked. In addition, students were also not able to pour information on the problem into the image form, so students tended not to write down the steps and the final answer correctly. On this characteristic, students were generally at level 10 and 11. It happened because students had difficulty in pouring information on the problem into the image form; so that, students were not able to relate the problem with the concept and strategy that would be used. It caused that there were no students' steps of work, and the final answer was incorrect. For the conceptualizing characteristic, the low level category students tended not to write down what is known and asked. Students were also unable to relate problems with mathematical concepts. It caused that the students did not write the steps of work at all and the final answer was incorrect. In the conceptualizing characteristic, students tended to be at level 11 and some students were at level 12. Students at level 11 and 12 tended to be unable to relate the problem with the correct mathematical concepts; so that, there was no steps of work. Students argued that they had forgotten the material contained in the problem related to the conceptualizing characteristic. In the problem-solving characteristic, low level category students tended not to write down what is known and asked. Students also tended not able to relate the problems with mathematical concept; so that, the correct steps of work were not written. It caused the students on this level were unable to write the final answer correctly. Low level category students tended to be unable to formulate a strategy at all to solve the problem. Generally, students claimed that they had forgotten the material contained in the problems based on the problem solving characteristics. In pattern-seeking characteristic, there were only 9 students included in low level category. Low level category students tended not to write down what is known and asked. Students were also able to find the patterns in the problem. However, there were no the steps of work, but the students were able to write the final answer correctly. On this characteristic, students tended to be at level 10. Students admitted difficulty to write the steps of work because the students only imagine the steps of work. Nevertheless, one student was at level 11 because the student was not able to find the patterns of problems; so that, there were no steps of work, and the final answer was incorrect.

CONCLUSIONS

Based on the data analysys result of test and interview, it can be concluded as follows

1. High category of visual-spatial intelligence tended to be able to write down what is known and asked, able to pour the information on the problem into images, able to relate the information with mathematical concepts, unable to formulate divergent solution strategies, able to find patterns, and able to write the steps of work and the final answer correctly.
2. Medium category of visual-spatial intelligence tended to be able to write down what is known and asked, able to pour the information on the problem into images, able to relate the information with mathematical

concepts, unable to formulate divergent solution strategies, able to find patterns, and unable to write the steps of work and the final answer correctly.

3. Low category of visual-spatial intelligence tended to be able to write down what is known and asked, unable to pour the information on the problem into images, unable to relate the information with mathematical concepts, unable to formulate divergent solution strategies, able to find patterns, there were no the steps of work, and unable to write the final answer correctly.

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Time on Task and Finnish Classroom Teaching Models for Developing Pre-Service Teachers Academic Writing Skills

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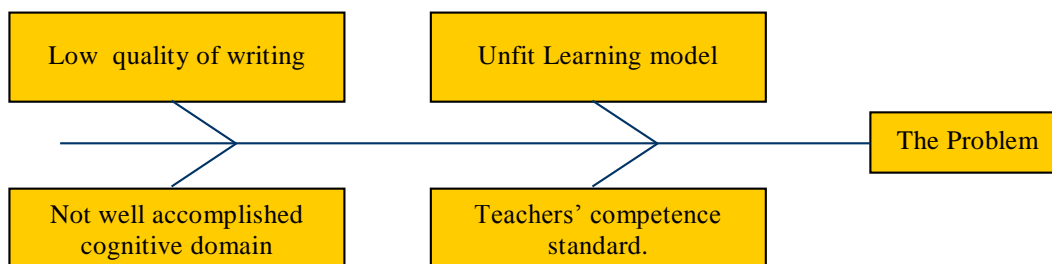
ABSTRACT

The study aims to develop pre-service teachers academic writing skills and were guided to produce a research proposal through combining time on task and Finnish classroom model focusing on pre service teacher of music and fine art. It is important for pre service teachers to develop their academic, writing skills which influence their competence as university students and future teachers. The one year mixed methods design was developed with 80 pre service teachers of music and art study programs in their final year. The results show the internal consistency reliability ranged 0,60 to 0,80 and significantly correlated which have the value off $p > 0,05$. The qualitative data on students' ability shows that the Time on Task and Finnish Classroom Models finding indicate that art pre service teachers academic writing skills on developing the writing structure, fluency on problem statement, literature review and to produce a research proposal.

Key Words: Academic writing, pre-service teacher, research proposal

INTRODUCTION

A discussion about interest in time as an educational variable is scarcely new but a discussion about having teacher think of how their activities will contribute in learning within study time might be another to explore. Paradigm of art education in Indonesia emphasizes only on psychomotor aspect and ignores cognitive domain. Studies by students of art have unfortunately merely discussed about meanings and aesthetical values, and separated texts and contexts within a work of art. A teacher is an agent of change. This can be considered from the scientific writing assignment and thesis, students are working on despite the fact that they are prospective teachers of junior and senior high school. A teacher must have a good writing competence. Why can Finnish education rank the first? It has been evident that a study of the impact of time has been ignored so far. The Finnish education has in fact applied Time on Task and Finnish Classroom Model Teaching as a key to success in education. Students' competence in writing the discussion part of the report during thesis examination has not been well accomplished. The discussion does not address the research questions. The data is not valid to support the discussion, so is the literacy which remains less updated particularly on the triangulation of the interview with experts. The questions to the experts are irrelevant with the research questions. This is in line with the result of study by PISA (*Programme Internationale for Student Assessment*) (*Indonesia PISA Centre, 2013*), and EGRA (*Early Grade Reading Assessment*) which are conducted by USAID addressing the relationship between Indonesian students' literacy and teachers' or prospective teachers' competence. Based on the above mentioned background, the problem can be drawn in the following mapping.



Carroll (1963) was the first to develop a model of school learning in which students' involvement played a central role. He suggested that learning will be optimum when students spend as much time as they need to learn. It is supported by Further Bloom (1974) in his study on Human Characteristics and School

Learning on Mastery of Learning, and by Stallings (1975) in his study on varied study time as much as 1 hour and 30 minutes during school day. Findings revealed that the length of period taking place in class of secondary schools was not related to students' academic achievement; instead, the achievement depends on how the available time is best used as supported by H. Janet Caldwell, Hitt and Glaebar (1982), in his study on academic learning time indicating students' involvement

Doyle (1984) differed time on activity and time on task in his generalization. The activities are not related to the learning goals achievement. Many early researchers referred to time, an important thing to point out an indicator called student involvement in learning, as a result in task accomplishment. Many researches were interested in the effects of Time on Task (Educational Time Factors) e.g. (Borg, 1980), (Quartarola, 1984), (Rosenshine, 1978), (Sanford and Evertson, 1983), (Seifert and Beck, 1984), (Stallings, 1980) and (Strother, 1984) who studied about activities identifying feed back, focusing on questions, thinking of discussion, reading and practice. (Marzano, 2007) noted in his study the impact of teacher effectiveness on student achievement, and the way teachers creates their students' activities. Marzano Setting Classroom consists of 4 steps, namely: 1) explaining, 2) modelling, 3) guided practice, 4) independent practice. Finnish Classroom according to (Hammond, 2010) suggested teachers' thinking about how the students' activities contribute the learning. In a typical classroom, the teacher decides and sets on the topic and target by having students gather information from small groups through questioning, having a discussion, writing articles, and improving their own work. (Paul Sahlberg, 2007) noted that a typical classroom, based on teacher professionalism by means of high stakes testing and determined learning standards, has not been part of Finnish education. The Finnish is intended to promote student achievement that best helps them reach the general goals of schooling. (Marianne Matilainen, 2017) pointed out that the application of Finnish Model requires quality teachers and autonomy in learning activities. Hence, students must be involved and have a real learning experience, do discussion and write articles. Academic writing skills, 1) develop students' abilities to compose essays (Chin, 2017), 2) drive students to go through the process of ensuring data and literature in their essays, 3) require more complex writing demands research. (Xiarong, Shao & G. Purpur, 2016) result show effect of information literacy skills on students' writing. Similarly, (A Cumming, Conttia Lai and Hye Yeon Cho, 2016) suggested that students develop strategies for writing from sources. Some differences may appear between L1 and L2, therefore, the writing instruction can help students improve their using the sources in writing. (Elbow P, 2012) developed writing competence through speaking, whilst (Toraskar & Lee, 2016) developed academic writing through brain storming, searching for relevant information, consulting the teacher. A study by (Lea R. & V. Street, 2006) addresses academic literacy's framework which can take account of the conflicting and contested nature of writing practices.

THE STUDY

Based on the theories above, this study addresses the impact of teacher effectiveness on student achievement. Hence, it designs the learning instruction and activities based on available and required time. The one- year mixed methods design by combining both qualitative and quantitative methods was developed, involving 80 art pre service teachers, and applying writing assessment using a rating scale. The researcher used 6 scales namely, journal review, fieldwork, group cohesiveness, discussion, article writing and research proposal writing. Classroom observations were conducted during discussion and fieldwork by completing independent assignment, being directed to read articles, books and journals. All students provide written paper in the reflective journal followed with researcher's guiding the practice. Having had the seminar and completed the activities, students complete writing article and writing research proposal with portfolio assessment. Combining Time On Task and Finnish Classroom aims to generate professional teachers who are able to design a learning instructions. (Marzano, 2017) settings classroom to promote time on task are 1) explaining: Teachers give topics and assignment, and divide the students into groups. The teaching activity covers 100 minutes, explains differences between articles and journals, and more complex writing such as research proposal. 2) Modeling activities like examples as follows: Teacher uses audio visual media to give a detailed learning experience. Students are given a topic about voice learning for the blind; They have an argument about having Suzuki method applied in learning music instead of voice; They consider that Kodaly method is better applied in learning voice in spite of its using hand as

signal. Will this method be likely to be used for the blind? The students are asked to give answers and find literature. 3) Guided practice by participants of the study who are senior students of prospective teachers, and who are about to compose their thesis. The researcher conducts a reflection to develop students' engagement in academic writing skills. Students' activities cover reading searched journals, reading literature in library and from experts for data collection. In addition, they must sign in an education seminar with article writing assignment. 4) An independent practice: students are given independent practice fieldwork assignment, journal reviewing, article writing, followed with discussion session. Having completed these activities, the students improve their own work. Guided practice and independent practice will make students accustomed to writing which is initiated with writing an article. This learning activity applies cognitive L3, whilst more complex writing activity applies cognitive L4, and all of these will further produce a research proposal which applies cognitive L5.

RESULT

Reliability of the places with internal consistency by using Cronbach shows that the instrument is reliable with all alpha reliability.

Table 1: Internal Consistency

Scale	Alpha Reliability	Mean	Standard Deviation
Review journal	0.60	3.00	0.78
Fieldwork dan seminar	0.80	3.50	0.80
Group cohesiveness	0.71	3.70	0.37
Discussion	0.70	3.50	0.50
Writing articles	0.80	3.70	0.78
Writing research proposal	0.78	3.50	0.80

Table 1 shows the Cronbach alpha reliability figures ranged from 0,60 to 0,80. This also promotes students' positive learning experiences through fieldwork. This is shown from the high mean scores ranging between 3.00 for the scale of writing article to 3.00 review journal. Field work group cohesiveness, discussion, writing articles, writing research proposal are shown by the mean ≥ 3.50 . Review journal and writing articles has been read low as implied by the mean score < 3.50 . The correlation could be interpreted by examining the significant value P less than 0.05. Those who initially dislike reading books and journals, begin to be interested in reading. The fieldwork has equipped students with learning resources off school and this activity also teaches students to be responsible and independent in learning. The students must attend one-time education seminar and assigned to make a report. The teacher divides the students in group in which they are responsible for the quality of the writing and have standard. The group standard is indicated with the result of paper. The results show that most of the scales have positive and significant correlations. Pearson's correlation is used to find a correlation between at least two continuous variables.

Table 2: Inter Scale Correlation

	RJ	FW	GC	D	A	RP
RJ	1	0.70	0.80	0.70	0.78	0.80
FW		1	0.70	0.80	0.78	0.50
GC			1	0.80	0.78	0.50
D				1	0.80	0.80
A					1	0.80
RP						1

Then the inter scale correction is significantly correlated with review journal and writing article which have the value of $P > 0.05$. Correlation is significant at 0.05 level. When the positive value shows positive

correlation, the inter scale correlation is significantly correlated. To be competent in writing article, students have to be able to review journals. The fieldwork that students conducted have derived valid data from the resources and this learning activity leads to a small research. The students were asked to explain the reasons made from natural data of scientific writing. They had to directly search for online journals from google scholar and science, do literature review by reading, and understand the questions to answer by reviewing all of the resources. In the group cohesiveness, the group tries to meet the standard they have set up. Data of aspect correlation shows that journal review is correlated with quality of the article.

FINDINGS

It is found in the preliminary research that the article written by the students is not supported by valid and updated literacy. The students unfortunately cannot differ definition and theory. Having combining time on task and Finnish classroom in this study, the students are progressing. They are able to support valid literacy in writing their article and enjoy their learning experiences which stimulate them to think critically. The fieldwork trains them to be independent learners and develop inquiry so that they will better bear what they have learned in mind. Learning spirit grown in the group is the spirit to investigate and result standard achievement. The discussion shows which groups of students can manage the questions and have valid literature since they have to argue based on valid resources. Writing instruction can help students improve their using the sources in the writing in order to create more complex writing so that it will build up the quality of their articles. These studies have shown that students need appropriate instructional learning completed with guided practice and independent practice. The students by writing skill practice will be able to understand the validation level obtained from results of study taken from reputable journals, theories, book reviews and expert evidence.

CONCLUSIONS

Academic writing skill is competence that pre service teachers have to master by means of learning activities between available and required time. Conducting journal review, fieldwork, group cohesiveness, discussion, and attending seminars will promote students competence in writing articles producing a research proposal. It can be concluded that combining time on task and Finnish classroom will help students 1) develop writing structure, 2) develop strategies for writing from sources, 3) use sources in their writing, 4) improve fluency on problem statement, 5) build up more complex writing, 6) conduct thesis research. Combining time on task and Finnish classroom helps students achieve their learning goals, complete their assignment, and promote their writing skill.

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To the Question of the Organization of a Learning Environment for Developers of Cross-Platform On-Board Software for Unmanned Aerial Vehicles

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ABSTRACT

The article deals with the organization of the learning environment for onboard software developers. At the same time, one of the approaches for the implementation of the onboard software execution environment is the implementation of the pseudo-parallelism principle, namely, the simulation of parallel execution of tasks by dividing their execution time. It is shown that the implementation of the pseudo-parallelism principle of executable tasks of application software can be uncovered using the UML (Unified Modeling Language) semantic constructs, for example, a sequence diagram. Implemented possibility of systematic execution of the UML sequence diagram with the help of the developed interpreter and visualization of the state of the system (the state of each thread of application software, the contents of memory) thanks to the virtual machine, which is also part of the learning environment, is described. The possibilities of the developed learning environment are presented. As an example in the implementation, which expresses the logic of constructing the UML-diagram of sequences of the model for interpreting the task of changing the coordinate (OZ) of an unmanned aerial vehicle.

INTRODUCTION

Development of models for interpreting applied problems, an integral part of the design of both software and on-board software in general. At the same time, such a principle is accompanied by cognitive activity, first of all, by the developer of on-board software. Training a developer to design, algorithmize and programming of application software is a complex and time-consuming process (Kovalev, Loginov & Zelenkov, 2015). In a narrow sense, programming is seen as writing algorithms in a given programming language. To write the optimal code, the programmer must understand to which changes in the system within which the application software is executed, each construction lead (Kovalev & Loginov, 2016).

Now, there is no environment that allows you to clearly observe the changes following the execution of specific designs, and tools that support the interpretation of UML (Unified Modeling Language) - diagrams of sequences, in general. In this direction, the educational process is based on a series of static schematic solutions that reflect the state of the system and are accompanied by a textual link, which does not allow us to present the picture of events in dynamics (Kovlev & Loginov, 2015). Interpret these processes in the dynamics possible using the interpreter sequence diagrams. Interpreter, which allows to suspend execution of the program at any time, and visualizing the state of the system (all its threads, data exchange and synchronization) is a powerful tool in the educational process, because it quickly and visually displays the results of each design, and allows you to evaluate the correctness and optimality of various structures that perform the same tasks. For the convenience of

perception, it is necessary to visualize the states of various components of the execution environment and the threads within it, which represent our application software that solves a specific problem and add some graphic abstractions. This task can be solved by writing a virtual machine that will have the necessary structure and visualization block.

RESULTS AND DISCUSSION

The task of designing of on-board software of unmanned aerial vehicles (UAV), is not trivial. At the same time, the task of forming an execution environment for software modules of application software responsible for the operation of a number of subsystems of UAV is no less important (Kovalev, Zelenkov, Losev, Ivleva & Saramud, 2016). Minimum requirements to organizing the functioning of such an environment are to comply with certain conditions. The presence of a scheduler that provides correct information threads and task management, a mechanism for message exchange, means for synchronizing competitive threads - semaphores, mutexes, critical sections; drivers that implement the interaction with hardware, as well as executable software modules - algorithms for implementing an application software of UAV subsystems.

One of the approaches to implementing the runtime environment of on-board software of unmanned aerial vehicles is the implementation of the principle of pseudo-parallelism, namely, the simulation of parallel execution of tasks by dividing their execution time. Such a functional principle is implemented by the RTOS (real-time operating system) – specifically one of the implementation options - FreeRTOS ported, i.e. adapted to execution on SoC (System On a Chip) which contributes to the possibility of testing the idea on the available tools. Thus, the main architectural principle of designing an onboard control complex in solving the problem of portability of on-board software with minimal costs - is multipartition for a number of computing platforms of the software operating environment - the real-time operating system.

The execution environment, primarily as a system software, requires a regulated, orderly interaction, both among its own structural components, and with peripheral modules of application software and hardware, executed through drivers.

Let us consider the architectural aspect of constructing the on-board software from the execution environment acting as a functional core of the on-board software (figure 1). The pseudo-parallelism principle, outlined above, corresponds to the task of regulated, ordered interaction of components. Thus, there is arises a need for the developer of the on-board software in linguistic support, with the aim of correctly documenting the project and modelling a number of procedures.

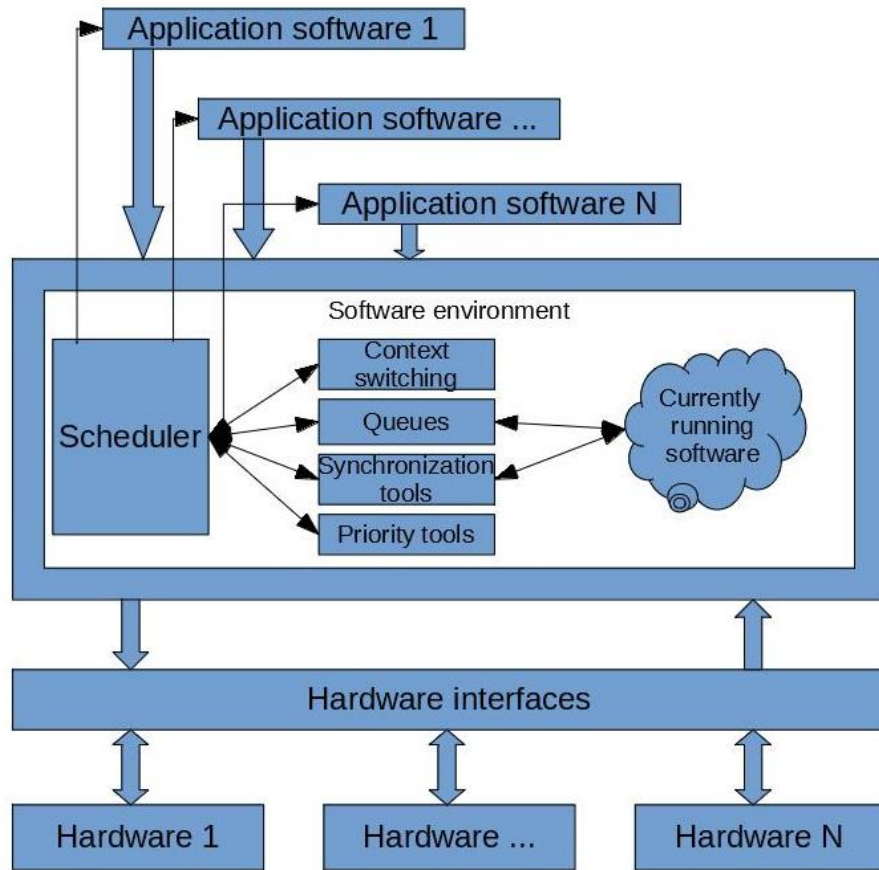


Figure 1 – The structure of the basic software of unmanned aerial vehicle.

Implementation of the principle of pseudo-parallelism of executable tasks of application software can be disclosed by using semantic constructions of UML, for example, a sequence diagram. Let us consider the implementation of the interpretation model for the problem of changing the coordinate (OZ) of an unmanned aerial vehicle in the representation of UML-diagram of sequences (Losev, 2009).

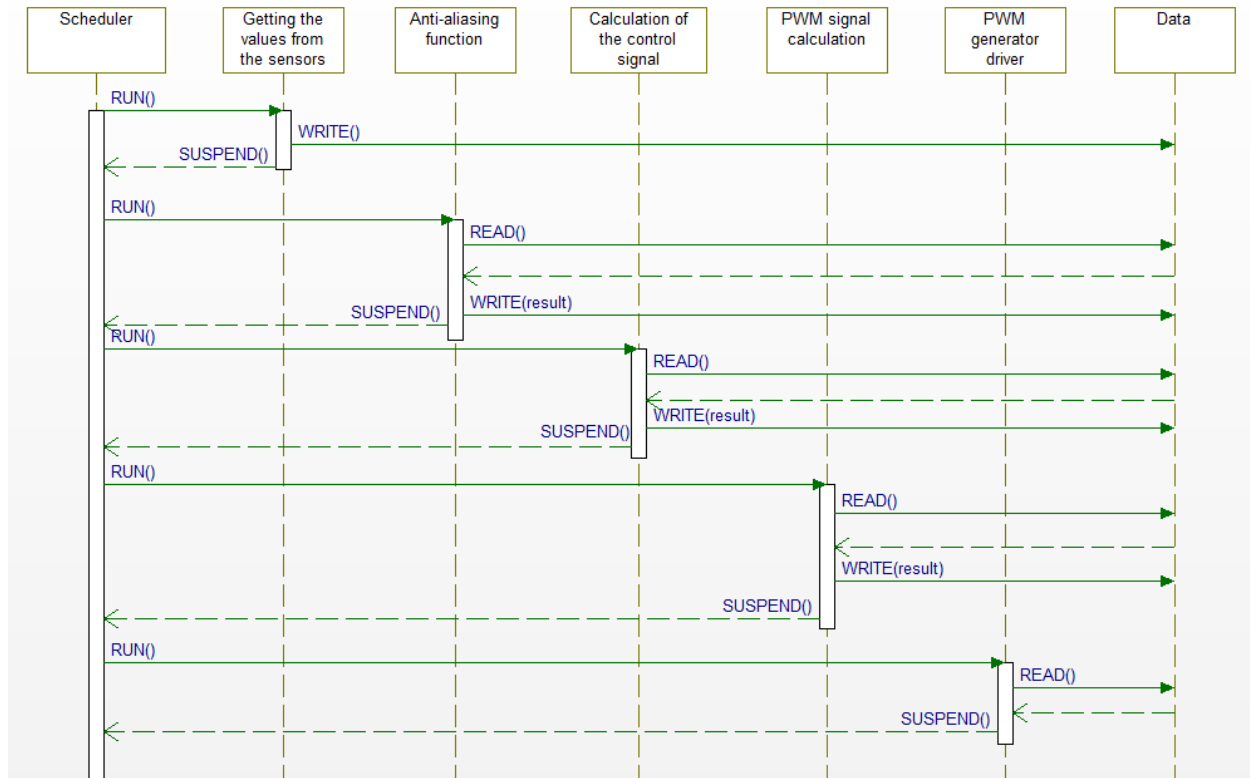


Figure 2 – Interpretation model of task of changing the coordinate (OZ) of an unmanned aerial vehicle in the representation of UML-diagram of sequences.

On the diagram (figure 2), we can observe the sequence of operations in solving the problem of compensating for the displacement of an UAV from a given position because of an external perturbing effect corresponding to a certain physical phenomenon or process (a gust of the wind, a change in the terrain, etc):

1. The scheduler starts the thread of reading the indications of the height sensors (barometer or range finder, looking vertically down), the results is written into memory, and the work of the stream is completed.
2. The scheduler launches anti-aliasing function, the thread reads the sensor readings from memory, performs anti-aliasing, and returns the final result (height) to memory, the thread ends.
3. The scheduler starts the thread of calculation of the control signal, it reads the current smoothed and set altitude from memory and, taking into account the system model, calculates a control signal, writes its value into memory, the thread ends.
4. The scheduler starts the calculation thread of pulse-width modulation (PWM), it reads the value of the control signal from memory, current PWM signal, recalculates it taking into account the control signal and returns a new value, the thread ends.
5. The scheduler starts the PWM-generator driver process, it reads the recalculated PWM parameters from memory and delivers them to the output of the generator, the thread ends, the task is performed.

Because different platforms have different hardware capabilities (presence or absence of a hardware implemented PWM-generator, different types of input and output ports, and so on), a logic of constructing a sequence of operations to achieve the same goal may slightly vary. For example, in the cases, where the appeal to hardware components (in which differences will be present) is used instead of the program logic, which is the same for all platforms. Therefore, when choosing a specific task, the proposed set of actors and links will also be different, if you need to address elements that differ from the target hardware platforms in order to solve the task. However, the general logic of solving the problem will be unified for all platforms, as will the structure of the execution environment, its main composite systems and the logic of functioning (scheduler, threads, tools for their interaction and synchronization).

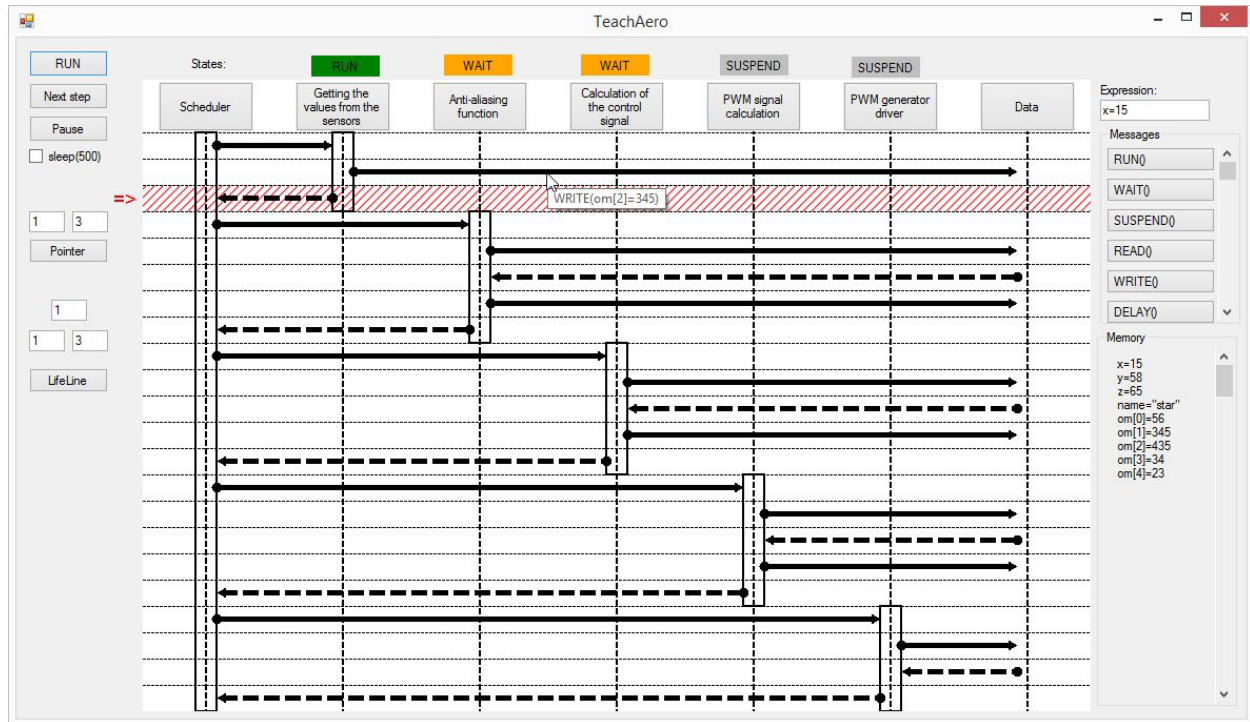


Figure 3 - The interface of the learning environment based on an implementation of interpretation model for the task of changing the coordinate (OZ) of an unmanned aerial vehicle in the representation of UML-diagram of sequences.

As an example of implementing a learning environment, let us consider an application that implements the designing logic of UML-diagram of sequences interpretation model for the task of changing the coordinate (OZ) of an unmanned aerial vehicle. The functional of this application makes it possible to implement interaction between actors, by creating links (messages) and content filling connections (computational load - variables). According to the modelling results there is the possibility of a step-by-step "run" - the execution of the model with the display of the states of the actors and the interpretation of the commands with the display of the values of variables when executing a particular message. As a result, we obtain a learning environment with elements of visual, step by step execution of commands with the ability to evaluate the program in dynamics.

CONCLUSION

With the further design of the integrated environment for the development of on-board software it is possible to implement a graphical programming module where the developer will apply the skills learned in the learning environment for implementing application software modules through the schematic construction of a sequence diagram, and the environment will generate the code for the target platform, since the program code of modules implementing the same functionality may differ due to the hardware features of the target platforms. Thus, multiplatform will be implemented, and the developer will have to think less about the specificity of various controllers and boards. In addition, portability of logical schemes of application software will be provided, due to the possibility of code generation (translation) based on them for different platforms.

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Tourism College Major and The Relationships Among Choosing Tourism As A Major, Major Satisfaction and Commitment, and Career Decision Self-Efficacy

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ABSTRACT

The human resource potential of college tourism students is the foundation for growth of the future tourism industry. The aim of this study is to analyze problems in human resource programs within tourism studies and to provide useful insights to tourism educational and training institutes. This study examined the characteristics of college students majoring in tourism studies and delved into the relationship among choosing tourism as a major, major satisfaction, major commitment, and career decision self-efficacy. Data were collected via a convenience sample, with self-administrated questionnaires given to college students participating in tourism classes. The 412 students sampled were enrolled in either 2-year, 3-year, or 4-year college programs. Frequency analysis, factor analysis, and regression analysis were used. Results from this research showed that tourism majors had positive inclination towards major satisfaction, major commitment and career decision self-efficacy. Impact of such findings may help to better understand the characteristics and conditions of college students majoring in tourism studies, and help them overcome a sense of failure or loss of will, which may potentially lead to school dropout, or selection of jobs that are irrelevant to their major. Moreover, this study provides some important insights on college student's growth and development to become tourism experts after graduating college.

INTRODUCTION

The disposable income and leisure time of Koreans are increasing. Consequently, the number of people who travel overseas is rapidly growing (Kim, 2005). The tourism industry has grown so much that it accounts for 4.1% of the OECD average GDP, 5.9% of employment, and 21.3% of service exports. It also plays an important role in promoting economic activity and increasing employment and export revenues of OECD countries. In the creation of value added to tourism-related exports, it accounts for 80%. In the long term, the number of international tourists will reach 1.8 billion by 2030 (Korea Culture & Tourism Institute, 2016). In this way, the scale of the domestic tourism industry is growing every year, which can lead to further job creation. Considering the fact that manufacturing creates jobs for 9.8 persons and the IT industry for 15, the tourism industry is an excellent market as it creates jobs for about 20 persons, almost twice manufacturing, applying to multiplier effects (Newswire, 2014.6.30). In short, the tourism industry is invigorating the job market and creating a variety of jobs. This in turn leads to the challenge of producing and providing human resources for the tourism industry. In response to this reality, many universities are providing majors in tourism studies, and a considerable number of students apply for tourism majors. They do so because they expect to find a job more easily as the domestic tourism industry is employing more people in response to this growth.

However, in a survey by the Daehaknaeil20's Lapin which 400 students studying at four-year universities were surveyed, 50.5% of them responded that they regretted having chosen their major when applying for jobs at companies (University News Network, 2013.4.30). In short, many of the students chose their major based on the recommendations of their teachers and parents or their school performance rather than their own interest or aptitude. It is also worth mentioning that the atmosphere of Korean society should be held partially responsible by placing importance only on the fame of universities. In particular, tourism studies are perceived to be a major with great familiarity and accessibility due to its characteristics as the quality of life has improved and the concept of leisure expanded. For these reasons, many students easily opted for the tourism major without sufficient basic information or in-depth knowledge when choosing their major. However, students may be dissatisfied with their choice afterwards, unable to focus on their major, or have trouble in deciding their career.

This study considers tourism major students to be potential human resources for the tourism industry and the foundation for further growth of the Korean tourism industry. This study examined the characteristics of college students majoring in tourism studies and delved into the relationships among choosing tourism as a major, major satisfaction, major commitment, and career decision self-efficacy.

LITERATURE REVIEWS

Choosing Tourism as a Major

In a 2013 survey conducted by the Korea Education and Research Information Service (KERIS), 32.3% of high school students and 34.4% of middle school students responded they had “no dream” for a future career. They further explained that they study in high school in order to later study at college, and only 10.6% of middle school students entered high school with a clear goal “to achieve their dream of a future career.” In choosing high school, 29.2% responded “with no special reason,” 19.2% “according to school performance,” and 15% “to enter a target college”(KERIS, 2013). Thus, the majority of students decided their major according to the “university entrance exam score” and entered college without realizing their dream. Further, students may change their major as they had not sufficiently explored their aptitudes and career after entering college, or else lose direction in their career after graduation.

Therefore, this study operationally defined “choosing a major” as “the acts of understanding one’s own interests or aptitudes that he considers important and deciding a major to study in order to develop his future career.” This study divided choosing a major into personal factors (occupations and values of parents, economic circumstances, and family circumstances) and prospective factors (prospects of the major, outlook of the study field, and salary and income after graduation). The factors were measured with ten questions modified and complemented for this study from previous studies by Shin (1997), Jo (1998), Lee (2007), and Son (2012).

Major Satisfaction

With respect to a chosen major, major satisfaction is related to values and beliefs, state of positive emotions, and attitudes toward the major generated through the process of interaction between personal characteristics and the environment associated with the major(Han, 2008). Derry and Brandenburg(1978) analyzed college students’ major satisfaction with three factors—general factors, learning factors, and teaching factors.

Therefore, this study operationally defined major satisfaction as when the student feels positive about the major he has chosen, does not regret the decision, and gives his career a decisive influence. Major satisfaction was measured with seven questions modified and complemented for this study from the course evaluation survey developed by Braskamp et al. (1979) and previous studies by Jang et al.(1987), Ha (2000), and Park(2010).

Major Commitment

Major commitment starts from the concept of organizational commitment. Porter, Steers, Mowday, and Boulian(1974) defined organizational commitment as the degree to which an individual identifies with and gets involved in a particular organization. In the association of commitment theory with the major, major commitment was defined as the psychological affection that the student has toward his major while at college(Jang et al., 2007; Nam, 2005).

Therefore, this study operationally defined major commitment as a state in which the student is fascinated by the major of his own choice and voluntarily takes actions for a variety of major-related activities with great interest and affection. It was measured with seven questions modified and complemented for this study from previous studies by Lee (2003), Kim (2007), and Jeong(2014).

Career Decision Self-Efficacy

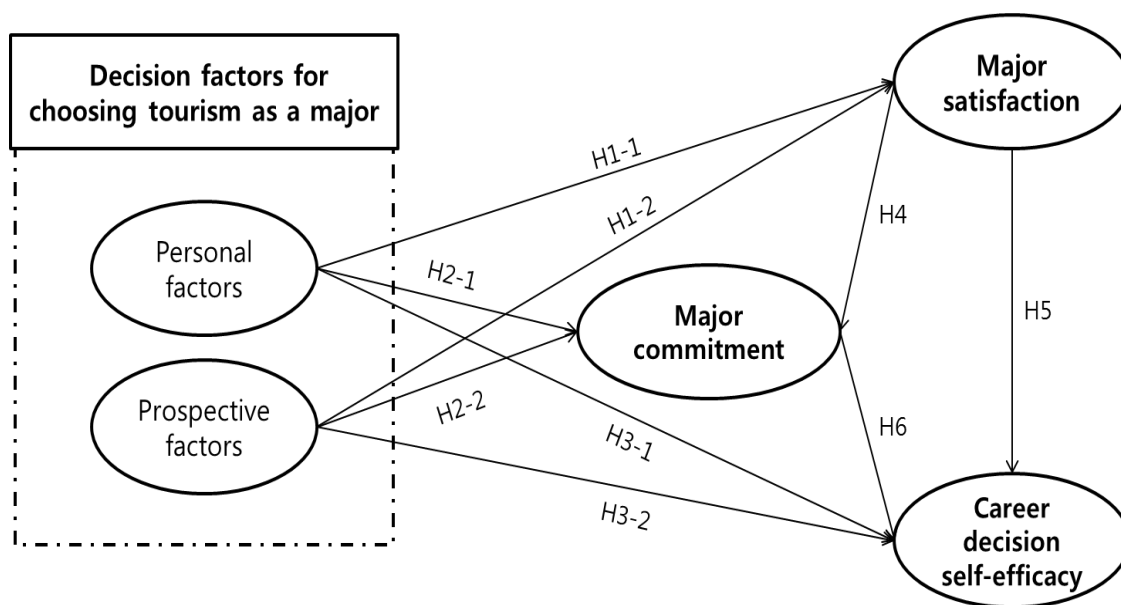
Before examining career decision self-efficacy, we must introduce the concept of self-efficacy, which is a superordinate concept. Self-efficacy is confidence for success and conviction in one’s personal potential in performing a given task or action. This quality influences a set of process, including choosing an action, performance, and continuity (Bandura, 1997). Hackett and Betz(1981) were the first to apply self-efficacy theory

to careers, based on the theory of Bandura. They argued that self-efficacy has a highly important cognitive influence on career decision and career achievement. They also suggested that self-efficacy helps individuals make decisions on achievement behavior, decisions related to study and career, and behaviors that render the chosen career successful.

Therefore, this study operationally defined career decision self-efficacy as the belief and conviction that one can solve and overcome problems or situations arising in deciding future careers on his own, and a positive confidence in and evaluation of the chosen career. It was measured with seven questions modified and complemented for this study from previous studies by Jeong(2006) and Seo(2010)

METHOD

The Model of the Study



<Figure 1> Study model

The Hypotheses of Study

- H1. Choosing tourism as a major influences major satisfaction*
- H2. Choosing tourism as a major influences major commitment*
- H3. Choosing tourism as a major influences career decision self-efficacy*
- H4. Major satisfaction influences major commitment*
- H5. Major satisfaction influences career decision self-efficacy*
- H6. Major commitment influences career decision self-efficacy*

FINDINGS

Respondent Demographic Characteristics

The following <Table 1> shows the results of a frequency analysis of the general characteristics of the subjects of this study.

<Table1> General characteristic of sample

Category	Sub-category	Number of persons	%	Category	Subcategory	Number of persons	%
Gender	Male student	146	35.4	Age	Younger than 20 years	109	26.5
	Female student	266	64.6		Between 21 and 23 years	131	31.8
Year	Freshman	177	43.0		Between 24 and 26 years	84	20.4
		41	10.0		27 years or older	88	21.4
	Sophomore	84	20.4	Edu-cation	2-year program	171	41.5
	Junior	110	26.7		3-year program	91	22.1
	Senior				4-year program	150	36.4
		412	100			412	100

Reliability and Validity Test

The varimax rotation method was applied to the ten survey questions on choosing tourism as a major and two factors with an eigenvalue of 1 or greater were drawn. Therefore, they were named prospective factors and personal factors. The explanatory power of the total cumulative variance of choosing tourism as a major was 63.03%, and the explanatory power of prospective factors was greater than that of personal factors. The KMO coefficient was .828, showing it was a suitable sample. Bartlett's sphericity between the measurement items was tested for factor analysis. The approximated- χ^2 value was 2314.088, degrees of freedom (*df*) 45, and significance level smaller than (*p*) .000, and thus it was considered suitable for factor analysis. Cronbach's α was calculated for an inter-item reliability test in order to test the internal consistency of factors. The reliability coefficient per factor ranged between .782~.883, and thus reliability was secured. The results are shown in Table 2.

<Table2> Factor analysis and reliability analysis for choosing tourism as a major

Table 2 Factor analysis and reliability analysis for choosing tourism as a major							
Factor	Measurement item	Mean (Standard deviation)	Factor loading	Eigen -value	Explanatory power of variance	Reliability coefficient	
Choosing tourism as a major	Prospects of major career	3.56(1.020)	.874	4.981	38.506	.883	
	Major with promising outlook	3.64(1.021)	.834				
	Outlook of study field	3.74(.944)	.829				
	Fame of the college with tourism major	3.66(.998)	.753				
	Social recognition of the college	3.73(.854)	.655				
	Life salary and income after graduation	3.88(.845)	.594				
	Personal factors	Interest (field of interest)	3.50(.953)	.824	1.322	24.527	.782
		Aptitude	3.46(1.033)	.754			
		Talent (aptitude)	3.88(.914)	.708			
		University entrance exam score	3.53(1.81)	.614			
KMO = .828	Explanatory power of total variance= 63.033		Approximated- χ^2 = 2314.088				

Major satisfaction was drawn as a single factor that does not have any item with loading 0.5 or lower. Its explanatory power of total variance was 60.296% and its KMO coefficient was .818, which suggests that it was a suitable sample. The approximated- χ^2 was 1802.807, degrees of freedom (df) were 21, and significance value (p) was smaller than .000. Cronbach's α was .889, and thus reliability was secured. Table 3 shows the results.

<Table3> Factor analysis and reliability analysis for major satisfaction

Factor	Measurement item	Mean (Standard deviation)	Factor loading	Eigen value	Explanatory powerof variance	Reliability coefficient
Major satisfaction	Passion for the major and objectives of the professor	3.59(.964)	.885	4.221	60.296	.889
	Professor-student communication	3.45(.999)	.832			
	Advice of the professor on study approach or content	3.50(.965)	.793			
	Job opportunity for major courses	3.60(.916)	.779			
	Helpfulness for professional lifeafter graduation	3.92(.892)	.773			
	Popularity of the major	3.66(.902)	.696			
	Interest in subject content	3.65(1.004)	.656			
KMO = .818 Explanatory power of total variance= 60.296 Approximated- χ^2 = 1802.807						

Major commitment was drawn as a single factor which does not have any item with loading 0.5 or lower. The explanatory power of total variance was 62.268% and the KMO coefficient was .839; thus, it was a suitable sample. The approximated- χ^2 value was 1785.884, degrees of freedom (df) were 21, and the significance level (p) was smaller than .000. Cronbach's α was .897, so reliability was secured. The results are shown in Table 4 below.

<Table4> Factor analysis and reliability analysis for major commitment

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Factor	Measurement item	Mean (Standard deviation)	Factor Loading	Eigen value	Explanatory powerof variance	Reliability coefficient
Major commitment	Major course participation rate	3.92(.833)	.820	4.359	62.268	.897
	Passion for major course assignments	3.80(.808)	.815			
	Will for major courses	3.87(.759)	.814			
	Curiosity for major course itself	3.69(.950)	.779			
	Attention and interest in major course	3.71(.888)	.777			
	Perception of the flow of timewhen participating in major courses	3.55(.961)	.752			
	Interest in the major	3.82(.861)	.743			
KMO = .839	Explanatory powerof total variance = 62.268		Approximated- $\chi^2 = 1785.884$			

Career decision self-efficacy was a single factor with no item having a load value 0.5 or lower. The explanatory power of the total variance was 52.043% and the KMO coefficient was .748, so it was a suitable sample. The approximated- χ^2 value was 1213.407, degrees of freedom (*df*) were 22, and significance level (*p*) was smaller than .000. Cronbach's α value was .748, and thus reliability was secured. The results are shown in Table 5.

<Table5> Factor analysis and reliability analysis for career decision self-efficacy

Factor	Measurement item	Mean (Standard deviation)	Factor loading	Eigenvalue	Explanatory powerof variance	Reliability coefficient
Career decision self-efficacy	Opportunity to meet experts from the major field	3.75(.879)	.854	3.643	52.043	.839
	Confidence in performing tasks of the major field	3.73(.864)	.796			
	Information on related organizations or tasks	3.94(.785)	.720			
	Belief in executing plans	3.71(.775)	.715			
	Challenging spirit for new things	3.62(.903)	.657			
	Plans for the nextfive years	3.61(1.042)	.645			
	Efforts for the major study or career	3.71(.867)	.635			
KMO = .748 Explanatory powerof variance = 52.043 Approximated- $\chi^2 = 1213.407$						

Hypothesis test

H1. Choosing tourism as a major influences major satisfaction

The multiple regression analysis results of H1 showed that the goodness of fit was Adj- $R^2 = .631$, and thus the

explanatory power of the dependent variable of major satisfaction for the factor choosing tourism as a major was 63.1%. The significance level was $F = 352.773(df=2)$ within 0.1%; thus, the regression model was fit. The tolerance was 0.1 or higher, and the VIF of all independent variables was 10 or lower. Therefore, it was concluded that there was no multicollinearity in which the areas of explanatory variables of the independent variables overlapped.

Among the factors for choosing tourism as a major in Hypothesis 1 (H1), the standardized coefficient (β) for the influence of prospective factors on major satisfaction was .194, with $t=5.320$ and $p<0.000$. Thus it was statistically significant within 0.1%. In other words, prospective factors had a significant positive influence on major satisfaction. The standardized coefficient (β) for the influence of the second factor, personal factors, on major satisfaction was .669, with $t=18.35$, and $p<0.000$, and thus it was statistically significant within the significance level 0.1%. Thus, personal factors had a significant positive influence on major satisfaction.

Therefore, H1 of this study, “Choosing tourism as a major influences major satisfaction” was adopted. The results are shown in Table 6.

<Table6> Analysis on the influence of choosing tourism as a major on major satisfaction

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Major satisfaction	Prospective factors	.189	.036	.194	5.320***	.675 (1.481)
	Personal factors	.635	.035	.669	18.353***	.675 (1.481)

$$R = .796, R^2 = .644, \text{Adj-}R^2 = .631, F = 352.773(df=2), \text{sig.} < .000$$

Footnote) *** $p < .001$

H2. Choosing tourism as a major influences major commitment

The multiple regression analysis results of H2 showed that the goodness of fit was $\text{Adj-}R^2 = .330$, and thus the explanatory power of the dependent variable of major commitment for the factor choosing tourism as a major was 33%. The significance level was $F = 102.003(df=2)$ within 0.1%; thus, the regression model was fit. The tolerance was 0.1 or higher, and the VIF of all independent variables was 10 or lower. Therefore, it was concluded that there was no multicollinearity in which the areas of explanatory variables of the independent variables overlapped.

Among the factors for choosing tourism as a major in Hypothesis 2 (H2), the standardized coefficient (β) for the influence of prospective factors on major satisfaction was .339, with $t=5.320$ and $p<0.000$. Thus it was statistically significant within 0.1%. In other words, prospective factors had a significant positive influence on major commitment. The standardized coefficient (β) for the influence of the second factor, personal factors, on major commitment was .274, with $t=6.339$, and $p<0.000$, and thus it was statistically significant within the significance level 0.1%. Thus, personal factors had a significant positive influence on major commitment.

Therefore, H2 of this study, “Choosing tourism as a major influences major commitment” was adopted. The results are shown in Table 7.

<Table7> Analysis on the influence of choosing tourism as a major on major commitment

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Major commitment	Prospective factors	.307	.044	.339	6.906***	.675 (1.481)
	Personal factors	.274	.043	.312	6.339***	.675 (1.481)
$R = .577, R^2 = .333, \text{Adj-}R^2 = .330, F = 102.003(df=2), sig. < .000$						

Footnote) *** $p < .001$

H3. Choosing tourism as a major influences career decision self-efficacy

The multiple regression analysis results of H3 showed that the goodness of fit was $\text{Adj-}R^2 = .212$, and thus the explanatory power of the dependent variable of career decision self-efficacy for the factor choosing tourism as a major was 21.2%. The significance level was $F = 56.372(df=2)$ within 0.1%; thus, the regression model was fit. The tolerance was 0.1 or higher, and the VIF of all independent variables was 10 or lower. Therefore, it was concluded that there was no multicollinearity in which the areas of explanatory variables of the independent variables overlapped.

Among the factors for choosing tourism as a major in Hypothesis 3 (H3), the standardized coefficient (β) for the influence of prospective factors on major satisfaction was .267, with $t=5.176$ and $p<0.000$. Thus it was statistically significant within 0.1%. In other words, prospective factors had a significant positive influence on career decision self-efficacy. The standardized coefficient (β) for the influence of the second factor, personal factors, on career decision self-efficacy was .249, with $t=4.669$, and $p<0.000$, and thus it was statistically significant within the significance level 0.1%. Thus, personal factors had a significant positive influence on career decision self-efficacy.

Therefore, H3 of this study, “Choosing tourism as a major influences career decision self-efficacy” was adopted. The results are shown in Table 8.

<Table8> Analysis on the influence of choosing tourism as a major on career decision self-efficacy

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Career decision self-efficacy	Prospective factors	.229	.044	.279	5.176***	.675 (1.481)
	Personal	.201	.043	.249	4.669***	.675 (1.481)
$R = .577, R^2 = .333, \text{Adj-}R^2 = .330, F = 102.003(df=2), sig. < .000$						

Footnote) *** $p < .001$

H4. Major satisfaction influences major commitment.

The influence of major satisfaction on major commitment was analyzed with simple regression. Goodness of fit for the model in the regression analysis was $\text{Adj-}R^2 = .410$. The explanatory power of the dependent variable of major satisfaction for major commitment was 41.2%. In addition, $F = 287.023(df=1)$ within the significance level 0.1%. And thus the regression model was fit and the explanatory power of the independent variable major satisfaction was statistically significant.

The standardized coefficient (β) for the influence of major satisfaction in H4 on major commitment was .642, with $t=16.942$, and $p<.000$; thus, it was statistically significant within the significance level 0.1%. Therefore, major satisfaction had a significant positive influence on major commitment.

Therefore, H4 of this study, “major satisfaction influences on major commitment,” was adopted. The results are shown in Table 9.

<Table 9> Analysis on the influence of major satisfaction on major commitment

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Major commitment	Major satisfaction	.595	.035	.642	16.942***	1.000 (1.000)
$R = .470$, $R^2 = .221$, $\text{Adj-}R^2 = .219$, $F = 116.535(df=1)$, $sig.<.000$						

Footnote) *** $p<.001$

H5. Major satisfaction influences career decision self-efficacy.

The influence of major satisfaction on career decision self-efficacy was analyzed with simple regression.

Goodness of fit for the model in the regression analysis was $\text{Adj-}R^2 = .219$. The explanatory power of the dependent variable of major satisfaction for career decision self-efficacy was 22.1%. In addition, $F = 116.535(df=1)$ within the significance level 0.1%. And thus the regression model was fit and the explanatory power of the independent variable major satisfaction was statistically significant.

The standardized coefficient (β) for the influence of major satisfaction in H5 on career decision self-efficacy was .470, with $t=10.795$, and $p<0.000$; thus, it was statistically significant within the significance level 0.1%. Therefore, major satisfaction had a significant positive influence on career decision self-efficacy.

Therefore, H5 of this study, “major satisfaction influences on career decision self-efficacy,” was adopted. The results are shown in Table 10.

<Table 10> Analysis on the influence of major satisfaction on career decision self-efficacy

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Career decision self-efficacy	Major satisfaction	.400	.037	.470	10.795***	1.000 (1.000)
$R = .470$, $R^2 = .221$, $\text{Adj-}R^2 = .219$, $F = 116.535(df=1)$, $sig.<.000$						

Footnote) *** $p<.001$

H6. Major commitment influences career decision self-efficacy.

The influence of major commitment on career decision self-efficacy was analyzed with simple regression. Goodness of fit for the model in the regression analysis was $\text{Adj-}R^2 = .286$. The explanatory power of the dependent variable of major commitment for career decision self-efficacy was 28.6%. In addition, $F = 156.557(df=1)$ within the significance level 0.1%. And thus the regression model was fit and the explanatory power of the independent variable major commitment was statistically significant.

The standardized coefficient (β) for the influence of major commitment in H6 on career decision self-efficacy was .454, with $t=12.867$, and $p<0.000$; thus, it was statistically significant within the significance level 0.1%. Therefore, major commitment had a significant positive influence on career decision self-efficacy.

Therefore, H6 of this study, “major commitment influences on career decision self-efficacy,” was adopted. The results are shown in Table 11.

<Table 11> Analysis on the influence of major commitment on career decision self-efficacy

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient (β)	t	Tolerance (VIF)
		Gradient (B)	Standard error			
Career decision self-efficacy	Major commitment	.492	.038	.454	12.867***	1.000 (1.000)
$R = .536, R^2 = .288, \text{Adj-}R^2 = .286, F = 156.557(df=1), sig.<.000$						

Footnote) *** $p<.001$

CONCLUSIONS

This study investigated the influence of choosing tourism as a major on major satisfaction, major commitment, and career decision self-efficacy. The purpose of this study was to identify factors such as personal will and characteristics that are reflected when potential human resources—who will constitute the foundation of the future growth of the Korean tourism industry—choose tourism as a major. Further, it investigated the influential relationship between major satisfaction, major commitment, and career decision self-efficacy in choosing tourism as a major.

This study is summarized as follows. First, in terms of the demographic characteristics of the sample, female students accounted for more of the population of tourism major students than male students. In the sample, freshmen accounted for 43.0%, which was worth noting, but their ages ranged between 20 and 23. Second, the six hypotheses of this study were all adopted, and all had significant positive relations.

The implications of the study results are as follows. First, there are numerous studies on the Korean university entrance system and the decision-making of students concerning their college major. However, studies of the influence of choosing tourism as a major on major satisfaction, major commitment, and career decision self-efficacy have been insufficient so far. The value of this study is that it extended the scope of such studies by analyzing tourism majors.

Second, in terms of individual students, it was confirmed that choosing tourism as a major had a significant positive influence on major satisfaction, major commitment, and career decision self-efficacy. The study also conveyed to the students that choosing a major is highly important.

Third, the study provides basic data that help us understand the state of students in order to prevent them from dropping out of college or choosing a job that is unrelated to their major due to a sense of failure or loss of will to receive an education in which they have no interest.

Finally, in terms of tourism major management, the study provided basic data to help students grow further and develop into competent tourism professionals after graduation.

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Toward a Quality Measure of Angolan Public Higher Education Institutions to Enhance Organizational Performance

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ABSTRACT

Nowadays, Higher Education Institutions (HEI) are obliged to pursue the path of quality, not only because of the growing demand of society, but also because HEI are the driving force for competitiveness. As the knowledge society is increasingly demanding, it is necessary to measure and evaluate it. The use of a self-assessment tool, developed in Europe, Common Assessment Framework (CAF), allows the measurement of the quality of services provided in public administration. In order to evaluate the reliability of the application of the CAF model to Public Higher Education Institutions in Angola, a multivariate analysis it was used. The findings of this study show that the model can be applied with confidence to Angolan HEI. In addition, the CAF model can be a useful tool for HEI to help them get to know each other better and move toward the path of quality, in an endless search for continuous improvement translated into excellent organizational performance.

Keywords: Higher Education Institutions; Common Assessment Framework; Competitiveness; Self-assessment.

INTRODUCTION

The increased competitiveness in organizations, as is the case Higher Education Institutions (HEI) in terms of attracting and keeping students leads education managers reassess their strategy intended at finding the elements and indicators of competitive advantage. According to Watson (2000), strategy management is crucial for a HEI, as it provides the realization of its main activities. To this extent, it is fundamental that educational managers use instruments that help them to effectively know the main strengths of their institution. Since human capital is considered the fundamental element of an effective implementation of the organizational strategy, the only ones where companies can efficiently differentiate themselves from their competitors, since the rest is easily imitated. Thus, human resources certainly represent a sustainable competitive advantage for any organization. In this sequence the application of an instrument capable of measuring job satisfaction can be the key to an adequate measure of organizational performance.

In addition, in organizations it is important not only to assess the needs and customer satisfaction but also the level of job satisfaction and participation, making them feel satisfied in the improvement of their activities. Job activity occupies most of the time of workers, and undoubtedly has a notable importance in the life of the active population. Health and safety are two of the pillars that sustain productivity, so organizations must offer their workers favourable conditions. So that they can develop their activities, ensuring their physical and mental well-being (Chiavenato, 2008).

To this extent, it is extremely relevant that the workplace provides well-being, since this satisfaction exhibits a direct connection with the other spheres of workers' lives. According to Graça (1999), job satisfaction comprises an attitude or an emotion that assumes concrete meaning in behaviours and opinions expressed. Barros and Cunha (2010) affirm that it is the activity that determines the set of all the actions (thoughts, feelings and emotions) that characterize human behaviour at work. There are several studies that show that job satisfaction has an effective effect on the productivity of organizations, on the well-being of employees and also on the various dimensions that are directly or indirectly associated with people, both in the labour and personal fields

Several dimensions were indicated in order to ascertain job satisfaction: working and health conditions, job security, achievement, autonomy, relationship, prestige and remuneration. Job satisfaction can be assessed by different approaches and in different environments. Research at the global level suggests that good socialization practices lead individuals to understand their role more clearly, getting more involved in work and organization, leading to greater satisfaction, since according to Gomes et al. (2008) in the initial stages of the individual's life in the organization, it is important that the new employee has good opportunities to interact and socialize with his peers and leaders.

Job satisfaction has become increasingly important because it is pointed out as a variable, implicitly and explicitly, that is linked cumulatively to the productivity and personal fulfilment of workers. Greater job satisfaction contributes to the professional finds meaning in their work activity and adopts positive attitudes towards institutional development. Bearing as the main objective the quality of services provided in and the measurement of job satisfaction in the Public Higher Education Institutions in Angola, was applied the self-assessment tool, developed in Europe, Common Assessment Framework (CAF), it allows the measurement of the quality of services provided in public administration. In order to evaluate the reliability of the application of the CAF model to Public Higher Education Institutions in Angola, a multivariate analysis it was used. In sum, the present research work aims to contribute to the construction and validation of an instrument that can be used by educational managers and other researchers in assessing the level of satisfaction of academic workers in Public HEI in Angola. This paper is organized in 5 points. In addition to the present introduction, there is a section with the theoretical framework, another with the supporting methodology of the whole study. Following is the section where the results achieved with the application and validation the model CAF 2006 are displayed and discussed. Finally, the main conclusions and contributions of the present study are highlighted.

THEORETICAL BACKGROUND

In the current context of globalisation, the work environment has undergone profound and significant changes around the need to systematic adaptation of the organizations to the new market challenges (Lawler, 2005). One of the great and current requirements of organizations is to use the range of knowledge in a strategic and integrated way, rather than simply need to retain the best professionals. In this sequence, according to Handel (2005), professionals considered more satisfied, who perceive greater autonomy and decision-making freedom in the pursuit of their activities, tend to become more involved with their work and to perceive it more in function of the designated ones rewards intrinsic, related to their interests, demands and needs, which most impact on their performance and inherently in organizational performance.

Organizations have begun to invest in strategic management and particularly in human resource management, which reveals the progressive concern with people, regarded as the key factor for excellent performance and organizational competitiveness. In addition to the usual sources of competitive advantage, people have come to be seen not as a mere organizational resource that should be managed like other resources but rather as the strategically most important "resource" for gaining competitive advantage. In the search for this advantage, the contribution requested for the human resources management is in the capacity of production of added value, representing this capacity, the implementation of certain strategic activities of human resources management (Mendes, 2012). The systematic and continuous adaptation of organizational practices to environmental changes and the adoption of leadership styles that stimulate the proximity between goals and interests shared by professionals and organizations undoubtedly lead to the improvement of sustainable organizational performance. To this extent, organizations such as HEI must implement a human resources management that is closer to professionals, which verifies the impact of their actions on their performance, with special incidence on measuring of the level of the satisfaction of their employees.

The importance of the job satisfaction construct to the area of organizational behaviour remits the researchers to respond to the challenge of evaluating it in a valid and precise way. In order to respond to this challenge, the objective proposed of this research was the adaptation and validation of the Common Assessment Framework (CAF), widely used in Europe, to measure the degree of satisfaction of HEI public professionals in Angola. It is intended that the validated application of the CAF scale make it possible to understand the perception of these professionals about this reality, to know what motivates them and what their expectations, and through this knowledge enhance their productivity and efficiency, as well as the quality of higher education Public of Angola. Lobos (1978) argues that so many managers and social researchers believe that if work dissatisfaction were reduced, human barriers to production would be eliminated and transformed into a force that would promote improved performance and consequently productivity.

With regard to the professionals of the higher education, the way in which they feel and faces his work, determine categorically the success and the quality of the education. Because it is a profession that is dynamized particularly in the field of human relations, satisfaction in the workplace becomes essential. In fact, teaching is a profession that has undergone changes and restructurings in the sense of achieving excellence in teaching. With the increasing development of communication and information technologies, education professionals need constant updating so as not to compromise professional competence and the quality of teaching and service delivery to students and the community.

Some investigators have dedicate special attention to examine the supposed relation between the job satisfaction and professional performance and consequently organizational competitiveness. Locke (1976) understands job satisfaction as an emotional state, pleasant or positive, which necessarily results from work-related experiences. Such an emotional state is determined by agents (such as relationships with bosses and colleagues, organizational policies and procedures, etc.) and events (such as physical conditions in the industry and recognition by others) related to the work, capable to promote such satisfaction. According to Suar, Tewari and Chaturbedi (2006) job satisfaction is the individual's perception of intrinsic aspects (levels of responsibility, autonomy, functional progression, and others) and extrinsic ones (challenging work, salary, hours of work, type of work Position, among others) related to their performance within organizations. Such definitions of satisfaction directly influence the type of measure used, whether a general satisfaction measure or a measure that evaluates its dimensions or facets separately. There are a large number of measures associated with the operationalization of this variable. Tsang and Wong (2005) define job satisfaction as a positive emotional state or pleasure sensation resulting from assessment of a work or related aspects simultaneously. For Scott-Ladd, Travaglione and Marshall (2006) job satisfaction is understood as how much an individual really likes what he does. It refers, therefore, to an attitudinal response of the individual around how much work gives him rewards and compensations, not necessarily financial ones. The individual would feel satisfied from his attitude towards interpersonal relationships with peers, the confidence climate established in his sector, the friendship among his colleagues, among other intangible aspects that would promote this satisfaction.

Moreover, several studies (Locke, 1969; Cura & Rodrigues, 1999; Judge, Thoresen, Bono & Platton, 2001; Aiken, Clarke & Sloane, 2002; Martinez, Paraguay & Latorre, 2004; Marquez & Moreno, 2005; Santos, Spagnoli, Ramalho, Passos & Caetane, 2010; Moura, 2012; Azevedo, 2012; Leite, 2013) point to an implicit link between job satisfaction and the high performance of its professionals. According to Lu, Barribal, Zhang and While (2011) workers' expectations play a role in the traditional model of job satisfaction and, in turn, job satisfaction is related to performance. Mezomo (2001) points out that an organization with satisfied employees has a potential advantage, since, as a rule, it attracts the best, reduces staff turnover, increases productivity, reduces costs, improves image in the community and gains competitiveness. The senior works of a higher education institution have an important role in creating job satisfaction, identifying which factors cause satisfaction and/or dissatisfaction, and to use those data to identify strategies that lead to improved situations that are less satisfactory, and to use this data to identify strategies that lead to improving less satisfactory situations, since they are crucial aspects since job satisfaction has a significant impact on employees' commitment to organizations, work performance and motivation (Noordin & Jusoff, 2009; Machado-Taylor, Soares & Gouveia, 2010; Machado-Taylor, et al., 2016).

In addition, job satisfaction is an indispensable condition for improving the functioning of organizations, and educational managers have a decisive role, through the promotion of strategies that lead to increase the satisfaction of the workers, with a view to achieving results in terms of creativity, commitment and productivity (Alpay & Verschoor, 2014; Castro et al., 2011, Machado-Taylor et al., 2016, Wei & Junyan, 2015).

METHODOLOGY

Process of construction and adaptation of the CAF 2006 Model

The adaptation and application of the scale was based on a bibliographical review based on literature and research studies on the satisfaction of workers who mainly used the CAF model, this model was elaborated and validated by the European Union, with the support of the Speyer Academy, representative of the German quality model, and the European Foundation for Quality Management (EFQM). The CAF model is a tool that allows public organizations to carry out self-assessment exercises in a perspective of continuous improvement since it is a Total Quality Management tool and was developed based on the Excellence Model of the European Foundation for Quality Management (EFQM). CAF is used throughout Europe as a common framework for quality assessment of Public Administrations and to assist them in the pursuit of excellence. It should be noted that CAF analyses the organization from different angles, promoting a holistic analysis of its performance. The present study was based on the perspective of teaching and non-teaching staff. It is important to mention that this study also intends to measure the satisfaction that the employees have in relation to the remuneration system in force, which is why recourse was made to the questionnaire on teacher and non-teacher satisfaction and dissatisfaction, adapted and validated for the Portuguese population by Seco (2000) being the original author of this questionnaire is (1982). From this questionnaire were extracted 4 items that evaluate the satisfaction with the current remuneration.

The questionnaire is composed of 82 items and is organized in 2 parts. In the first part, questions were asked in order to obtain elements of sociodemographic and professional characterization of the individuals (13 items). In the second part of the questionnaire, an instrument for satisfaction study was introduced, namely the CAF 2006 model. This part is composed by the set of 8 Factors (total of 69 items), such as: Overall satisfaction with the institution with 9 items, Satisfaction With management and management system with 9 items, Satisfaction with working conditions with 8 items, Satisfaction with career development with 5 items, motivation levels with 5 items, Satisfaction with leadership style Top management with 11 items, Satisfaction with leadership style intermediate management with 11 items, Satisfaction with the conditions of hygiene, safety, equipment and services with 7 items and satisfaction with the compensation system with 4 items. In summary, this study intends to validate the adaptation of the professional satisfaction scale corresponding to the second part of the questionnaire, composed of seven dimensions taken from the CAF 2006 model and a dimension proposed by Seco (2000) to evaluate the remuneration system. The 69 items that make up the 8 factors are expressed in affirmations, in which the professionals of the Higher Education indicate the degree of satisfaction with their place of work. Thus, the present scale aims to evaluate the satisfaction of these professionals related to aspects of work dynamics, such as leadership (intermediate and top leadership styles), management systems, internal career development, hygiene conditions, safety, equipment and services, Working conditions, motivation and professional valuation and remuneration. It is a Likert-type scale with five response options: 1 = Very Unsatisfied, 2 = Unsatisfied, 3 = Moderately Satisfied, 4 = Satisfied and 5 = Very Satisfied.

Instrument and Procedure for data collection

As a data collection instrument, a questionnaire was sent to all teaching and non-teaching professionals of the Public Higher Education of the Province of Kwanza South in Angola ($n = 147$). The data collection was carried out from May 6 to 22, 2016. This distribution was made after obtaining superior authorization to perform the data collection in the two public institutions of Higher Education of Kwanza South: Institute Superior Polytechnic of Kwanza South (ISPKS) and Institute of Education Sciences (ISCED) of the Sumbe. After obtaining the questionnaires, statistical data were processed in the Statistical Package for the Social Sciences (SPSS) 20 program.

Data analysis procedure

Participants' responses were treated using SPSS software and subjected to descriptive statistical analysis, factorial analysis and Cronbach's alpha calculation. The data were examined for normality, collinearity and distribution of outliers. The factorial of the sample was tested by the Kaiser-Meyer-Olkin Coefficient and Bartlett's sphericity test, as recommended by Marôco (2010). After that, the data were submitted to analysis of the Principal components (PC) and the Factorization of the Principal Axes (PAF). The reliability of the factors was estimated by the calculation of Cronbach's alphas. In sum, for the validation of the scale, it was make the first extraction of its factors (dimensions and components) was performed by analysing its Principal Components (PC) in order to verify the initial number of factors in the matrix. We also analysed extreme cases, multicollinearity and matrix factorization through sample size, intercorrelations, as well as distribution of the eigenvalues and graphic analysis through the scree plot. Then, Principal Axis Factoring was carried out. Factor scores were also calculated.

Sample Profile

The sample was consisted of 147 individuals, 64.6% (95) of these professionals work at ISPKS and 35.4% (52) at ISCED. Regarding gender, 61.2% (90) of the respondents are male and 38.8% (57) female. As to age, 25.9% (38) of the individuals were aged up to 30 years, 41.5% (61) were between 31 and 40 years old and 32.7% (48) were over 40 years old. Of the respondents, 81% (119) of respondents are Angolan, 17% (25) of respondents are Cuban, one is Portuguese and two are Vietnamese. Regarding marital status, 57.1% (84) were single, 38.8% (57) were married / de facto, two were divorced and four were widowed. The majority of respondents, 81.6% (120) had children, these individuals 21.1% (31) had one child, two children and 27.9% (41) had three to five children. With regard to qualifications, it was observed that 3.4% (5) had completed the 1st cycle of secondary education, 12.9% (19) finished secondary school, 17.7% (26) graduated with a bachelor's degree, 29.3% (43) of the respondents were graduates, 33.3% (49) finished the master's degree and one respondent has the doctoral degree. Regarding the employment relationship, 68.0% (100) stated that they were effective and 32.0% (47) were employees.

Table 1: Sample Profile

Variables		<i>n</i>	%
Institution	ISPKS	95	64,6
	ISCED	52	35,4
	Total	147	100
Gender	Male	90	61,2
	Female	57	38,8
	Total	147	100
Age	Up to 30 years old	38	25,9
	From 31 to 40 years old	61	41,5
	Greater than 40 years old	48	32,7
	Total	147	100
Nationality	Angolan	119	81,0
	Cuban	25	17,0
	Vietnamese	1	0,7
	Angolan	2	1,4
	Total	147	100
Marriage Status	Not married	84	57,1
	Married/Union in fact	57	38,8
	Divorced/Separated	2	1,4
	Widower	4	2,7
	Total	147	100
Have Children	Yes	120	81,6
	No	27	18,4
	Total	147	100
Number of children	One child	48	32,7
	Two children	31	21,1
	Three to five children	41	27,9
	Total	120	100
Educational Qualifications	1st cycle of secondary education	5	3,4
	2nd cycle of secondary education	19	12,9
	Bachelor's Degree	26	17,7
	Graduation	43	29,3
	Master	49	33,3
	PhD	5	3,4
	Total	147	100
Job link	Effective	100	68,0
	Collaborator	47	32,0
	Total	147	100

FINDINGS

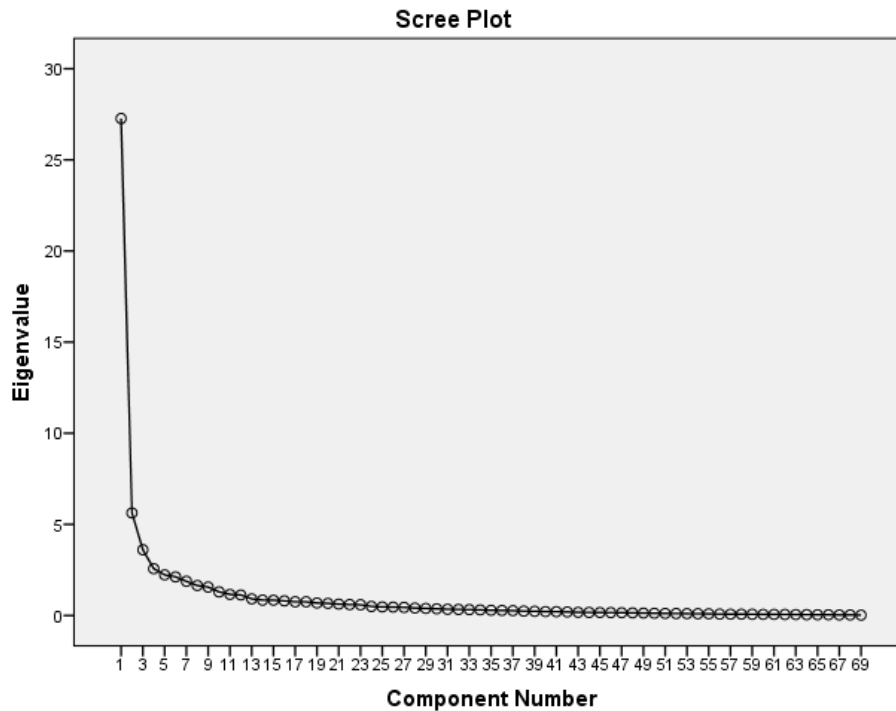
Validity and Reliability

The legitimacy of the factorial analysis was assessed by the Kaiser-Meyer-Olkin of Adequacy (KMO) measure of adequacy. The value obtained was 0.90, considered as very good according to Marôco (2010). Which means a strong correlation between the variables. The Bartlett test ($p < 0.001$) allows us to conclude that the variables are significantly correlated. In this way, it can be ensured that with the available sample, the scale is subject to factorial analysis.

Factor analysis

Exploratory factorial analysis was performed, and it were obtained eight factors (components) with a value greater than 1 (Figure 1) explaining 68.04% of the total variance (Table 2). The obtained values demonstrated, according to Marôco (2010), to be acceptable for the pursuit of the study.

Figure 1: Scree Plot



Moreover, Table 2 shows that all variables have a strong or moderate relationship with the retained factors, because for the extracted factors, the percentage of the variance of each variable explained by the common factors extracted was higher than 49,8% for all variables.

Table 2: Components Matrix

Factors	Own Value	% de Variance	% Cumulative Variance
1	27,269	39,520	39,520
2	5,628	8,156	47,676
3	3,607	5,228	52,904
4	2,566	3,719	56,624
5	2,229	3,231	59,855
6	2,122	3,075	62,930
7	1,880	2,725	65,655
8	1,648	2,388	68,043

Table 3 shows the main factor matrix obtained by the Varimax rotation method. In the factorial analysis, no item was excluded, all of which presented a correlation value higher than 0.30, in fact the minimum value obtained was 0.36. After the eight factors were obtained, their designation was made, taking into account the theoretical reference. Thus, the dimensions that make up the Satisfaction Scale were denominated: Satisfaction with Management and Management Systems that encompass Internal Career Development, Satisfaction with the Intermediate Leadership Style, Global Satisfaction of Workers with the Institution, Satisfaction with Style Leadership - Top Management, Satisfaction with the Conditions of Hygiene, Safety, Equipment and Service, Levels of Motivation, Satisfaction with the Current Remuneration System and Satisfaction with Working Conditions.

Table 3: Rotated Component Matrix

Items		1	2	3	4	5	6	7	8	Items		1	2	3	4	5	6	7	8
Q16	SManager5	,748								Q40	SManager4b				,728				
Q24	Sconditions6	,713								Q39	SManager3b				,688				
Q17	SManager6	,691								Q38	SManager2b				,652				
Q15	SManager4	,686								Q44	SManager8b				,645				
Q25	Sconditions7	,663								Q42	SManager6b				,640				
Q7	Sglobal7	,645								Q43	SManager7b				,613				
Q26	Sconditions8	,641								Q47	SManager11b				,608				
Q9	Sglobal9	,639								Q41	SManager5b				,587				
Q29	Sdevelopment3	,603								Q37	SManager1b				,586				
Q12	SManager2topo	,587								Q46	SManager10b				,567				
Q20	Sconditions2	,565								Q10	SManager1top				,467				
Q30	Sdevelopment4	,557								Q45	SManager9b				,361				
Q18	SManager7	,543								Q59	Shigiene1					,752			
Q28	Sdevelopment2	,540								Q60	Shygiene2					,732			
Q27	Sdevelopment1	,444								Q61	Shygiene3					,713			
Q54	SIntermediate7b		,794							Q62	Shigiene4					,639			
Q51	SIntermediate4b		,786							Q65	Shygiene7					,607			
Q55	SIntermediate8b		,784							Q64	Shygiene6					,535			
Q53	SIntermediate6b		,784							Q63	Shygiene5					,495			
Q52	SIntermediate5b		,776							Q35	N Motivation 4						,794		
Q50	SIntermediate3b		,756							Q36	N Motivation 5							,775	

Q49	SIntermediate2b		,717							Q33	N Motivation 2					,732			
Q48	SIntermediate1b		,716							Q34	N Motivation 3					,727			
Q57	SIntermediate10b		,713							Q32	N Motivation 1					,518			
Q58	SIntermediate11b		,703							Q67	Sremuneration2						,761		
Q56	SIntermediate9b		,543							Q69	Sremuneration4						,726		
Q3	Sglobal3			,783						Q66	Sremuneration1						,726		
Q4	Sglobal4			,719						Q68	Sremuneration3						,706		
Q6	Sglobal6			,706						Q22	SConditions4							,756	
Q8	Sglobal8			,687						Q23	SConditions5							,694	
Q1	Sglobal1			,649						Q21	SConditions3							,671	
Q31	Sdevelopment5			,639															
Q13	SManager2Intermediate			,573															
Q11	SManager1Intermediate			,561															
Q2	Sglobal2			,552															
Q5	Sglobal5			,521															
Q14	SManager3			,454															
Q19	Sconditions1			,441															

By performing a cross-analysis of tables 2, 3 and 4 we can describe the eight dimensions with respect to its composition of the items and the explanation of each dimension for the total variance. Satisfaction with Management and Management Systems was the first dimension obtained after the factorial analysis of the CAF model was carried out. It constituted by 15 items that refer to the satisfaction with the relationship established between the worker and the Management, the Management Systems and the internal development of the career. This first factor explains 39.52% of the total variance. The second dimension, Satisfaction with the Intermediate Leadership style is composed of eleven items that explains 8.16% of the variance. The all items refer to the intermediate leadership of the workplace. The third dimension obtained after conducting a factorial analysis was called Global Satisfaction of workers with the Institution. The name assigned is related to the nature of the items, which refer to aspects related to overall satisfaction with the Institution. This dimension consists of 12 items that explains 5.23% of the variance. The Top Management Leadership Satisfaction dimension consists of twelve items that account for 3.72% of the variance. All items refer to aspects related to satisfaction with the leadership style adopted by Top Management. The fifth dimension Satisfaction with the Conditions of Hygiene, Safety, Equipment and Service, is composed of seven items that explain 3.23% of the variance. The same items refer to the organizational structure of the workplace and resources. In this dimension the hygiene and safety conditions of the premises, the equipment / materials and the physical work space are taken into account. The sixth dimension refers to the levels of motivation of the workers, it is composed of five items that explain 3.08% of the variance. Satisfaction with the current remuneration system was the seventh dimension obtained after the execution of the factorial analysis. It consists of four items that explain 2.73% of the variance. This dimension is composed of items that refer to the satisfaction with the remuneration in relation to the work performed and the literary qualifications. The last dimension obtained Satisfaction with working conditions consists only of 3 items that explain 2.38% of the total variance. These items refer to the satisfaction with the working environment, working hours and the conjugation of work with family life.

The internal consistency study was performed using Cronbach's alpha coefficient (Table 4). All dimensions have obtained values for the Cronbach Alpha ranging from 0.795 to 0.96, which means that the dimensions have a good internal consistency. We highlight the first 5 dimensions of the satisfaction scale with values above 0.90, which means according to Hill and Hill (2009) that these dimensions present an excellence internal consistency. In the remaining dimensions Cronbach's alpha values are very good, according to Marôco (2010). Thus, taking into account the previously mentioned, it can be said that the values demonstrate an internal consistency appropriate to the achievement of the study (Table 4). Regarding the determined factors, it can be seen from table 4 that the best results in average terms occur for the factors (dimensions): F2, F6 and F8, while the less satisfied perspective happens in factors F5 and F7.

Table 4: Statistic Summary of Factors extracted by Factorial Analysis

Factors	Items	Alpha de Cronbach	Minimum	Maximum	Average	Standard Deviation	Medium
F1	7;9;12;15;16;17;18;20;24;25;26;27;28;29;30	0,960	1,07	5,00	3,12	1,01	3,13
F2	48;49;50;51;52;53;54;55;56;57;58	0,947	1,45	5,00	3,73	0,88	3,82
F3	1;2;3;4;5;6;8;11;13;14;19;31	0,920	1,17	5,00	3,59	0,76	3,67
F4	10;37;38;39;40;41;42;43;44;45;46;47	0,939	1,00	5,00	3,64	0,87	3,75
F5	59;60;61;62;63;64;65	0,900	1,00	5,00	2,88	0,98	2,71
F6	32;33;34;35;36	0,876	1,20	5,00	3,78	0,93	4,00
F7	66;67;68;69	0,837	1,00	5,00	3,10	1,06	3,25
F8	21;22;23	0,795	1,00	5,00	3,77	0,89	4,00

Correlation between Factors

Concerning the correlations between factors and total scale, it is observed that F1, F3 and F4 are the ones that present a stronger relation with the total score. Among factors, there are correlations of weak to moderate intensity, although they are all statistically significant. In short, the correlations between the factors are positive and statistically significant, being an indicator of consistency between the dimensions of the construct and also the validity or fidelity argument of the measure (Table 5).

Table 5: Correlation between Factors

	F1	F2	F3	F4	F5	F6	F7	F8	TOTAL
F1	1	0,636**	0,693**	0,785**	0,695**	0,459**	0,460**	0,510**	0,925**
F2		1	0,409**	0,708**	0,466**	0,337**	0,196*	0,340**	0,750**
F3			1	0,538**	0,552**	0,587**	0,449**	0,486**	0,785**
F4				1	0,573**	0,409**	0,288**	0,431**	0,865**
F5					1	0,320**	0,538**	0,428**	0,772**
F6						1	0,289**	0,350**	0,568**
F7							1	0,284**	0,516**
F8								1	0,572**
TOTAL									1

Note: **Correlation is significant at the 0,01 level (2-tailed).

DISCUSSION AND CONCLUSION

In this study, the application of the CAF 2006 Satisfaction Scale was validated in a population of teachers and non-teaching personnel from Public Higher Education of Angola, belonging to the Kwanza South Public HEI: ISPKS and ISCED of Sumbe. It was verified that the minimum, maximum, average and median values are distributed over the intervals of the response scale, revealing some sensitivity in the evaluation of the construct. The value obtained from KMO was 0.90, being the same, according to Marôco (2010) considered excellent. Concerning the values of the Cronbach alpha, the scale dimensions presented values varying between 0.795 and 0.96, values that mean a very good internal consistency (Hill & Hill, 2009; Marôco, 2010), which shows a good Reliability of the instrument of the professional satisfaction scale. By means of the above, it can be affirmed that the results obtained have proved satisfactory in all dimensions to the pursuit of the study. An exploratory factorial analysis with varimax rotation was performed. After the same, the 69 items under evaluation were grouped into eight dimensions named, according to the bibliographic research by: 1) Satisfaction with Management, Management Systems and Career Development; 2) Satisfaction with the Intermediate Leadership Style; 3) Global Satisfaction of Workers with the Institution, 4) Satisfaction with Leadership Style - Top Management; 5) Satisfaction with the Conditions of Hygiene, Safety, Equipment and Service; 6) Levels of Motivation; 7) Satisfaction with the current Remuneration System and 8) Satisfaction with Working Conditions. The dimensions that constituted the final version of the professional satisfaction assessment instrument explain 68.04% of the total variance. In the present study, the fact that the research design was transversal could be considered as a limitation, since it did not allow to test the stability of the instrument, i.e. its capacity to produce the same results in successive applications.

This study aimed to validate the satisfaction scale in the CAF 2006 work. It was intended to verify the factorial structure of this scale obtained in a sample of the professionals of Public Higher Education of Angola, and thus verify the validity of the application of the CAF 2006 model, developed In a European context, to measure the degree of satisfaction of HEI professionals in Angola. The results pointed to an empirical structure similar to the CAF 2006 model, made up of eight factors. The eight dimensions identified allow the evaluation of the degree of satisfaction of the individuals in relation to both the working conditions, such as the perception of the degree of satisfaction with the leaders, and the characteristics more intrinsic to the task. Some dimensions can be evaluated separately, in the case of replication of this scale in organizations. If there is, for example, an interest in investigating the greater or lesser satisfaction of the individual with the organization's remuneration policy, it is recommended to analyse the items belonging to this factor. The same can be observed in relation to other dimensions identified, such as the degree of satisfaction with leadership styles, satisfaction with working conditions, among others. In summary, the CAF 2006 scale was reliable for what it aims to evaluate, and it is an important tool in the strategic of management human resources within organizations, especially in the specific case of HEI. It is recommended that there be replication in other organizations, with distinct cultural characteristics and a diversified organizational structure compared to those used both in their original design of the CAF 2006 model and in this study.

In addition, employee satisfaction correlates with productivity and the sustainable competitiveness of organizations. It is therefore important to assess the satisfaction of workers to promote working conditions based on their needs while ensuring their physical and mental well-being. The purpose of this study was to present the construction and validation of the CAF 2006 Scale for the context of Angolan Higher Education. The scale consisting of 69 items that are grouped in eight factors, allows evaluating the satisfaction of the professionals that perform functions at HEI. This model proved to be easy to apply and presented a good index of reliability and validity, so it can be a valuable tool for studies that intend to evaluate the perception of job satisfaction at HEI.

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Translation of Selected Pun Words from the Holy Quran Into English

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ABSTRACT

Qur'an is the central religious text of Islam, which Muslims believe to be a revelation from God (Arabic: الله, Allah). It is widely regarded as the finest piece of literature in the Arabic language. Translation of the Qur'an has always been a problematic and controversial issue for each translator in the Islamic theology. Furthermore, translating Qur'anic text might raise several serious problems in translation; these problems are due to the different translations of puns and the misinterpretations between the intended meanings of pun with their inherent notions, which could result in a certain amount of ambiguity. The present study deals with problems of translating the rhetorical purposes of puns in the Glorious Quran into English. The study examines Quranic text and its four widespread English translations by Yusuf Ali (2014), Pickthall (1963, 2011), Arberry (1991), and Shakir (1999). The research corpus is based on four verses (Ayat) selected randomly from the Holy Quran. The objectives of this study are to determine the pun translation strategies applied by the translators in translating the Quranic puns from Arabic into English in terms of Delabastita's (1996) strategies. In addition, to find out to what extent is the meaning of the Arabic puns has maintained in the English translation with regard to Newmark (1988) translation methods. A descriptive method was used to analyze the data. The researcher calculated the frequency and percentage of strategies applied by each translator. The findings of the study will pave the way for further investigations on the translatability of different issues in the Holy Quran.

Keywords: the holy Quran, pun sentences, methods of translation, Delabastita strategies, typology of puns.

INTRODUCTION

Islam is a worldwide religion, which was sent to all humanity. Its teachings, orders, prohibitions and laws are all found in its holy book, the Quran. The holy Quran is a unique form of Arabic speech, and is divided into chapters (sura in Arabic), which are then divided into verses (ayah). The totality of every chapter has a special character, with its own unique form, and its unique use of literary devices.

Pun is one of the rhetoric devices that have been frequently used in the holy Quran. The puns have brought forth a sublime reconciliation between form and content.

Several scholars (e.g., Alexieva, 1997; Delabastita, 1996; Weissbord, 1996) used the terms wordplay and pun interchangeably; however, since distinguishing between wordplays and puns is not the focus of this study, it will be assumed that puns are included in the given definition of wordplay. Shaw (1905) indicated that puns have appeared in literature since the time of Homer, 8th century B.C., states that pun is the humorous use of a word emphasizing different meanings or associations. Some scholars (e.g. Delabastita, 1997; Leech, 1969; Newmark, 1988) emphasized the homonymous and polysemous nature of words used in pun or wordplay. According to Newmark (1988, p. 217) one makes a pun by using a word, or two words with the same sound (piece-peace), or a group of words with the same sound (personne alitee / personnalite) in their two possible senses. He adds that the purpose of making a pun is to arouse laughter or amusement, and sometimes to concentrate meaning. Based on the

reason that puns depend on the structural features of a language, and that different languages have different structures, it is believed that the task of translating them to be a very difficult one. The translation even will be more difficult between unrelated language systems such as Arabic and English. Besides the language distinctions, the different cultural backgrounds are also big barriers to translate Arabic puns into English. Moreover, the translation of the Quranic puns will causes serious problems to the translators since the holy Quran is a unique expression of the Arabic language and nothing can match its literary form.

A brief look at the studies on pun indicated that so far very little research has been done in the field. The current study is one of the few studies that focused on the holy Quran and pun translation from Arabic into English. It is conducted to see the strategies were applied by different translators in rendering the Quranic puns into English.

STATEMENT OF PROBLEM

Pun makes Arabic texts (Quranic, poetic and everyday formal expressions) more vivid and their content richer in semantic values. Puns are not often used for daily speech, so they have gained little attention from researchers. Puns are mainly used to attract the attention of the hearer/ speaker towards the dual meaning of the verse or sentence for example, {قَالُوا تَأْتِيَنَا بِكَلِمَاتٍ لَّيْسَ لَهَا بَدَلٌ فَكَذَّبُوا وَاتَّبَعُوا أَهْوَاءَهُمْ} (They said: "By God, you are still persisting in your old delusion." Here the pun word is ضَلَالِكُمُ which has two meaning, (1) ignorance and (2) love 'still loving Yusuf and don't forget him'. This meaning may deviate from its platform to yield another new meaning for instance, the first one is "not intended meaning", while the second is "intended meaning". Tanaka (1994: 68) notices, "Puns attract attention because they frustrate initial expectations of relevance and create a sense of surprise." The translator stands helpless towards such expression since it has two different meanings. Thus, the translator has to make a clear distinction in order to convey the real meaning of such an expression to the reader.

The Quran is opulent with a variety of meanings relevant to pun sentences, which are deserve an intensive study. The present study investigates the translation of prominent types of pun sentences in the Glorious Quran, which contain a given rhetorical purpose. It argues that each pun sentence has a particular rhetorical purpose, which may be missed if the translator fails to capture it through translation from Arabic to the target language. Consequently, the internal meaning of the pun sentence will be distorted and a different meaning of the original message is produced. Furthermore, rhetorical pun sentences are associated to the feelings of the speaker thus may be problematic issue to the translator seeking to determine how to convey that sentiment into the target language. Besides, sometimes there is a loss of meaning since the translator uses various linguistic components, which unrelated to the cultures involved. Although the use of pun sentences is quite common in the Glorious Quran, there are no studies to explicate the problem from translation perspective. Hence, the current study is intended to fill this gap. In other words, the intention of the current study is not to focus upon the amusing, tricky, and even humorous effects produced by puns. The aim is to pinpoint pun translation as a problematic area in Quran translation.

RESEARCH QUESTIONS OF THE STUDY

This study is an attempt to answer the following questions:

- 1) What are the translation strategies applied by the different translators in translating the Quranic puns from Arabic into English in terms of Delabastita's (1996) strategies?
- 2) To what extent is the meaning of the Arabic puns maintained in the English translation?

SIGNIFICANT OF THE STUDY

The current proposed study reserves its significance from the significance translation of the Holy Quran and the function of puns in creating a coherent and meaningful text through utilizing different types of puns in the text.

To the best knowledge of the researcher, and although to date there has been little of literature available on the contrasting parts between English and Arabic with regard to the Quranic pun, in each language, little work has been done on it. As far as translation is concerned, this study is expected to be of great value in the sub-field of rhetoric pun on Quran translation between English and Arabic as a great deal of pun meanings and functions are found in both languages.

Furthermore, this study is hoped to contribute some important findings to the translation of Quranic text.

SCOPE AND LIMITATION OF THE STUDY

The study covers and tackles the English translation of Arabic puns in the Quranic text, and its inherent meaning. The study will focus only on the meaning, rhetoric function and strategies used of translating Quranic pun from Arabic into English.

LITERATURE REVIEW

Translation of Pun

According to Delabastita (2004), whether serious or comical, wordplay creates linguistic problems of translatability because different languages have different meaning-form distributions. Delabastita (1996) also believed that puns due to the combination of the subject-oriented (reference) and the self-oriented (self-reference) mode of language from which puns lend their individuality, present special problems to translators. Furthermore, he noted that a structural and typological dissimilarity of source and target language increases the linguistic untranslatability of puns (1996).

Alexieva (1997) argued that: the difficulty of translating puns is caused by the asymmetry between world and language manifesting itself in different ways in different languages. For example, a word, which has a set of multiple meanings in one language, may have a corresponding word in another with only one meaning or with a different set of multiple meanings.

As Weissbrod (1996) stated there are always subjective features relevant, including the translator's talent, proficiency, and willingness to spend time finding solutions in the face of hard-to-translate wordplays.

Delabastita strategies of pun translation:

Delabastita (1996) has presented the following translation strategies for wordplay (pun):

1. *Pun to pun*: the source text pun is translated by a target language pun, which may be more or less different from the original wordplay in terms of formal structure, semantic structure, or lexical function.
2. *Pun to non-pun*: the pun is rendered by a non-punning phrase, which may salvage both senses of wordplay but in a non-punning conjunction, or select one of the senses at the cost of suppressing the other; of course, it may also occur that both components of the pun are translated beyond recognition.
3. *Pun to related rhetorical device*: the pun is replaced by some wordplay related rhetorical device (repetition, alliteration, rhyme, referential vagueness, irony, paradox, etc.) which also aims to recapture the effect of the source text pun.
4. *Pun to zero*: the portion of text containing the pun is simply omitted.
5. *Pun ST= pun TT*: the translator reproduces the source-text pun and possibly its immediate environment in its original formulation, i.e. without actually „translating“ it.
6. *Non pun to pun*: the translator introduces a pun in textual positions where the original text has no wordplay, by way of compensation to make up for source text puns lost elsewhere, or for any other reason.
7. *Zero to pun*: entirely new textual material is added, which contains wordplay that has no apparent precedent or justification in the source text except as a compensatory device.
8. *Editorial techniques*: explanatory footnotes or endnotes, comments provided in translator's forewords, the anthological presentation of different, supposedly complementary solutions to the same source text problem, and so forth.

Translation Methods

Newmark (1988, p. 18) suggested a concrete steps and procedures in order to transfer the ST into the TL.

Newmark (1988, p. 144) confirms that there are three basic translation processes:

- a. The interpretation and analysis of the SL text;
- b. The translation procedures, which may be direct, or on the basis of SL and TL corresponding syntactic structures, or through an underlying logical 'interlanguage';
- c. The reformulation of the text in relation to the writer's intention, the readers' expectation, the appropriate norms of the TL, and so on.

Accordingly, the translator first must understand or figure out the SLT. The process of understanding involves analyzing the text in several ways, linguistically, semantically, syntactically and culturally. The second phase is the transformation, where the translator tries to frame the meaning of the SLT to fit, linguistically and culturally, the TLT. The third phase is to produce the TT'.

Translation of the Holy Quran

The opponents of the illegitimacy of the holy Quran translation believe that “it is legitimate to translate all verses of the Quran to the foreign tongue” (Baker & Saldanha, 2008, p. 201). Their rationale is that we live in an era in which the wider demand for translations of the Quran, among Muslims and non-Muslims alike, has become far greater than at any time in the past. Thus, “Non-Muslim audience in many different parts of the world turns to the Quran almost always in translation in the search for the bases of deeper mutual understanding” (Morris, 2000, p. 53).

Muslim scholars take two opposing stands regarding the translation of the holy Quran: Some accept the idea of translating it while others refuse its translation totally. In the second edition of Routledge Encyclopedia of Translation Studies (2009), the translatability and legitimacy of the translation of the holy Quran has been discussed. For example, it mentions that the Quran cannot be translated with the view that the book has senses, which are exclusive to the Quranic Arabic. On the other hand, the Al-Azhar Encyclopedia states that ‘Al-Azhar Alsharif’ (Egypt’s renowned Islamic institution, al-Azhar al-Sharif, has been serving the Islamic World for more than 1,000 years) agreed on Pickthall’s translation of the Quran. As long as, his 1930 translation does not carry the title of ‘The Quran’, rather it should be ‘a translation, or interpretation of the meanings of the Quran’. According to Arberry (1998), rhetoric and rhythm of the Koran are so distinctive, powerful and emotive that any translation seems to be just a poor copy of the glorious original.

Many orientalist and linguists have highlighted the uniqueness and sensitiveness of the Quran as a text, making it a genre of literary beauty (Tzortzis, 1960). As Mir (2000) states, what makes the literary repertoire of the Quran rich is its masterful use of language on the level of words and phrases. According to him, the all-pervading rhythm along with the rhymed prose creates, in many verses, a spellbinding effect for those who can read the Quran in Arabic that is impossible to reproduce.

Definition of Pun in English

Also, in this definition, according to Sanderson (2009): According to Delabastita (1996): wordplay is the general name for the various textual phenomena in which structural features of the languages used are exploited in order to bring about a communicatively significant confrontation of two (or more) linguistic structures with more or less similar forms and more or less different meanings. (p. 128). In this definition, it is stated “the pun is based on the confrontation of linguistic forms that are formally similar, but have different meanings” (Delabastita, 1993, p. 58).

The formal similarity is manifested in terms of spelling and pronunciation. It is therefore the confrontation of similar forms and dissimilar meanings between linguistic structures, which rise to ambiguity. This means that ambiguity arises because words that look and/or sound the same but have different meanings are exploited in such a manner that an additional semantic layer is added to the otherwise stable relationship between signifier and signified (p. 123).

Categorization of Pun in English

Several criteria can be attended to carry out a categorization of wordplay. Delabastita, (1993) applied a formal criteria and a linguistic phenomenon as basis of his classification. According to the formal criterion, a distinction can be drawn between two types of puns, namely vertical pun and horizontal pun. Delabastita asserted that different types of horizontal pun are Homophony, homography, paronymy, and homonymy (Ibid). He explained the puns as the follow:

- *Homophonic pun* is based on the exploitation of word pairs, which sound alike, but are different in spelling. An example of such word pair is tale and tail.
- *Homographic pun* indicates two expressions, spelt the same way and creating graphemic ambiguity. A word of the same spelling as another but derived from a different root and having a different meaning (e.g., to wind and the wind; to present and a present or bow (the front part of a ship), bow (to bend), and bow (a decorative knot)).
- *Paronymic pun* exploits words that have slight differences in both spelling and pronunciation. An example of such a word pair is adding in Salt/insult to injury.
- *Homonymic pun* is comprised of words that are identical in both spelling and pronunciation. The words have different meaning, though. An example is the word bear, which can be a verb (to carry) or a noun (the animal).
- *Syntactic pun* is constituted by a statement, which can be analyzed syntactically in at least two different ways.
- *Morphological pun* is composed by words, which can be related to other words by means of morphological devices such as derivation or compounding.

Definition of Pun in Arabic

Originally, the Arabic rhetorical term “التورية” [at-Tawriyyah, lit.pun] is derived from the Arabic statement “وَرَيْتُ” [warraytu al-khabara aw al-shaya] which literally means, “I have hidden the news or the thing in order not to be known by others”. Technically speaking, it means intentionally hiding a very subtle sense of a spoken or written text and makes it difficult or impossible to be completely grasped by certain people in an audience (Al-Jawhari, 1956:2523). This interpretation is clearly supported by a number of Quranic texts such as:

(1) Surah “An-Nahl, The Bee”, ayah 59.

يَتَوَارَىٰ مِنَ الْقَوْمِ مِنْ سُوءِ مَا بُشِّرَ بِهِ .

He hides Himself with shame from his people, Because of the bad news he has had.

(2) Surah “Al-Ma'idah, The Table” ayah 31.

فَبَعَثَ اللَّهُ غُرَابًا يَبْحَثُ فِي الْأَرْضِ لِيُخَبِّرَهُ كَيْفَ يُؤَارِي سَوْأَةَ أَخِيهِ

Then God sent a raven that scratched the ground in order to show him how to hide the nakedness of his brother.

Rhetorically speaking, the Arabic term “تورية” and its English counterpart “pun” both refer to a figure of speech which is rich in its linguistic (syntactic, semantic, morphological, and lexical) content. Pun is seen by Arab rhetoricians as a fundamental figure of speech for its rhetorical force in texts. It has been used as a rhetorical device and played an essential role in both poetry and prose since the pre-Islamic era. It has been frequently used in the Glorious Quran as well as in the Prophetic Tradition to express certain semantic values in various textual structures. Abd Ut-Tawwab (1967) defined pun “At-Tawriyyah” as:

“A word which has two meanings: Adjacent with clear reference, and far with hidden reference. The latter is often intended. The faster that comes to the hearer’s mind is the approximate meaning. The speaker aims at the far meaning but uses the near one to cover it” (p. 293).

Briefly speaking, English rhetoricians mostly concentrate on a number of phonologically oriented rhetorical figures, which have homophonic, homographic and / or homonymic nature, and consider them as major types of pun, while the Arab rhetoricians treat these western puns as types of paronomasia, therefore they are seen as non-puns in Arabic rhetoric.

Categorization of Pun in Arabic

According to most Arabic rhetoricians (al-Qazwini, 1975:p.499; Al-Satiq, 1971;As-Safadi, 1987; Ibn abi Rabiaah, 1935; Al-Jawhari, 1956) there are four main types of Arabic puns which are governed and controlled by a logico-semantic contextual framework which determines both their immediate and far-fetched meanings. According to this criterion, pun is divided into:

(1) Tawriyyah al-Mujaradah (stripped-off pun)

In this type of pun, devoid from duo; the lexical requirements of the punned with (al-muwarra bihiالمواري به), which normally represents the immediate meaning, and the requirements of the punned to (al-muwarra anhuالمواري انهُ), which are represents by the remote meaning. Consider the following Quranic text:

Surah “Taha”, ayah 5.

الرَّحْمَنُ عَلَى الْعَرْشِ اسْتَوَىٰ

The ever merciful, established on the throne (of authority).

(2) Tawriyyah al-Murashahah (strengthened pun)

In this type of pun, there must be a lexical requirement for the punned with المواري به, i.e. the immediate meaning, which should be stated either before or after the punnable word. According to this definition, the present type of pun is divided into two subtypes:

I. Pre-required Strengthened Pun

The speaker\writer should provide a lexical requirement for the “punned with المواري به - immediate meaning” before the word, which carries the pun.

Consider the following Quranic text:

Surah “Adh-Dhariyat”, ayah 47.

وَالسَّمَاءَ بَنَيْنَاهَا بِأَيْدٍ وَإِنَّا لَمُوسِعُونَ

We built the heavens by Our authority; and We are the Lord of power and expanse.

II. Post-required Strengthened Pun

The speaker\writer should provide a lexical requirement for the “punned with به - immediate meaning” after the word, which carries the pun.

Surah “Al-Ghashiyah”, ayah 8.

{وَجُوهٌ يُّؤَمِّنُونَ نَاعِمَةً} {لَسَعِيهَا رَاضِيَةً}

Many faces will be joyous on that day

(3) Tawriyah al-Mubayyinah (clarifying pun)

In order for this type of pun to work properly, the speaker\writer should provide a lexical requirement for the “punned to عنه - remote meaning” before or after the word, which carries the pun.

Thus, this type of pun is divided into two subtypes:

I. Pre-required Clarifying puns:

The speaker\writer should provide a lexical requirement for the “punned to عنه - remote meaning” before the word, which carries the pun such as:

Surah “Yousuf”, ayah 70.

{فَلَمَّا جَهَّزَهُمْ بِجَهَّازِهِمْ جَعَلَ السِّقَايَةَ فِي رَحْلِ أَخِيهِ ثُمَّ أَذَّنَ مُؤَذِّنٌ أَيُّهَا الْعَبْرُ إِنَّكُمْ لَسَارِقُونَ}

When he had given them their provisions, he put his goblet in his brother's saddlebag. Then a crier announced "O men of the caravan, you are thieves."

I. Post-required Clarifying puns:

The speaker\writer should provide a lexical requirement for the “punned to عنه - remote meaning” after the word, which carries the pun such as:

Surah “Al-Rahman”, ayah 6.

{الشَّمْسُ وَالْقَمَرُ بِحُسْبَانٍ} (5) {وَالنَّجْمُ وَالشَّجَرُ يَسْجُدَانِ}

The sun and moon revolve to a computation; And the grasses and the trees bow (to Him) in adoration.

(4) Tawriyyah al-Muhayyah (preparing pun)

In this type, the pun can only be considered if it came before or after a punnable word.

Surah “Al-Rahman”, ayah 6.

{يَوْمَ تَقُومُ السَّاعَةُ يُقْسِمُ الْمُجْرِمُونَ مَا لَبِثُوا غَيْرَ سَاعَةٍ}

The day Resurrection is set the sinners will swear: "We did not tarry more than an hour (and cannot be guilty)."

METHODOLOGY

In this section, the researcher is discussing the theoretical framework of investigation, as well as the methodology, which consists primarily of description of the data collection, justification for choosing the data and method of Analysis.

Data Collection

To achieve the purpose of the study the descriptive approach is selected. This study is focusing on the Holy Quran as the source text (ST) and its four English translations by Yusuf Ali (2014), Pickthall (1963), Arberry (1991), and Shakir (1999) as target texts (TT). The data of four (Ayah) verses is gathered from the holy Quran and their equivalents in the selected English translations.

Method of Analysis

To fulfill the aim of the study, 4 Ayat from the holy Quran is selected randomly. The selected Ayat in the original Arabic source text, the holy Quran, is read. 4 texts out of the puns under study is selected and underlined. The correctness of some examples is considered by using the commentaries of *Tafsir ibn Kathir* (AH 759). Then, the same Ayat in the four English target texts is read to *identify* those parts of the texts, which corresponded to the original puns and underlined them. After that, Delabastita's (1996) strategies is used as the theoretical framework in the study to identify which strategies are applied in translating each original pun by the translators. Then, Newmark's (1981, 1988) methods of translation is used to see how the four translators translated the pun sentences into English. Having identified each translator's strategies, the frequency and percentage of each strategy is calculated and presented in a table of four translators to identify the most frequently used strategy by each translator. Finally, conclusions are drawn based on the data analysis.

Justification of Data and Methodology

The Justification for use of this methodology is to investigate translation of puns expressions in the holy Quran from semantic, pragmatic, and rhetoric perspective that has been recognized by several scholars (Mark, 2014; perry, 1999; Abdul karim, 2006). This study is based on a PhD research project that concerned with four English versions of translation of the Holy Quran, and the selection of forty pun words from the holy Quran.

The case study approach is a highly appropriate method for investigating the precise translation of Holy Quran for non-Arabic speakers.

DATA ANALYSIS

In this section, 4 data out of the puns under study is gathered and analyzed according to Delabastita's (1996) strategies. Then, the frequency and percentage of each strategy is calculated. The results are presented in a table. Some more prominent examples are presented below as better illustration of the pun translation strategies.

Text 1:

(Data 1) Surah "Taha- Ta Ha", ayah- verse 5.

ST: الرَّحْمَنُ عَلَى الْعَرْشِ اسْتَوَى

BT: al rahman ala al arish istawa

TT-1: The most Gracious (Allah) rose over (Istawa) the (Mighty) Throne (in a manner that suits His Majesty), rose over (Istawa) the throne (of authority) (Ali, 2006)

TT-2: The Beneficent One, Who is established on the Throne. (Pickthall, 1963)

TT-3: the All-compassionate sat Himself upon the Throne; to Him belongs (Arberry, 1991)

TT-4: The Beneficent Allah is firm in power. (Shakir, 1999)

According to the commentary of *Tafsir ibn Kathir (AH 759)* the underlined pun is "استوى" is a noun which has two meaning, first; (sitting) which is immediate and non-intended meaning and second, (power of authority) which is remote and intended meaning.

Neither of Pickthall, Arberry and Shakir managed to convey the pun to the target text since the pun has been translated by the pun to non-pun strategy. However, Yusuf Ali has managed to translate the source text pun into target text pun "rose over (Istawa)" and quoted the same Arabic word with footnote indication. Pickthall has translated source text pun into "who is established" while Arberry has translated it into "sat Himself upon", and Shakir has translated it into "firm in power". Most of translators Pickthall, Arberry and Shakir have conveyed only the sense of the puns into the target text.

Hence, the aesthetic effect of source text pun has lost in the process of translation. The type of pun used in this text is *Tawriyyah al-Mujaradah* (stripped-off pun) due to it is devoid from any lexical requirements of the punned with (al-muwarra bihi به الموارى), which normally represents the immediate and non-intended meaning, and the requirements of the punned to (al-muwarra anhu عنه الموارى), which represents the remote and intended meaning. Rhetorically, the word (استوى) could be interpreted in two different meanings as in the following:

A. Sit.

B. Rose over (Istawa) the throne of authority.

The analysis of these instances has different sense. The word استوى Istawa has been translated differently by the translators. Pickthall translated as *established*, while, Arberry translated as *sat Himself upon*, then Shakir translated as *firm in power*. Unluckily all of them used the literal translation method to deliver the meaning and represent the non-intended meaning whereas Yousuf Ali has used the faithful translation method and translated it as *Rose over (Istawa) the throne of authority*, which convey the meaning, represents the remote and intended meaning. The pun in (Istawa) cannot be grasped by native speakers of Arabic unless they are acquainted with some religious aspects. Theoretically speaking, any word "which has two completely different senses, and can represents remote and intended meaning" can be used as a pun by linguistically and rhetorically competent native speaker.

Text 2:

(Data 2) Surah "Adh-Dhariyat- the Winnowing Winds", ayah- verse 47.

ST: وَالسَّمَاءَ بَنَيْنَاهَا بِأَيْدٍ وَإِنَّا لَمُوسِعُونَ

BT: wa alsama'a banainaha bi ayd wa ina la mowaseoun

TT-1: We built the heavens by our authority; and we are the Lord of power and expanse (Ali, 2006)

TT-2: We have built the heaven with might, and we it is who make the vast extent (thereof). (Pickthall, 1963)

TT-3: And heaven - We built it with might, and we extend it wide. (Arberry, 1991)

TT-4: And the heaven, we raised it high with power, and most surely, we are the makers of things ample. (Shakir, 1999)

In this verse, the pun is “بِيَدٍ” which has translated differently by several ways. Pickthall, Arberry, Shakir have translated the source text pun literally “*with might or with power*” and transmitted only the sense of original pun by applying the pun to non-pun strategy. While, Ali has translated as “*by our authority*” and sustains the same effect of aesthetic and meaning in both texts by adopting the faithful translation method of Newmark. In fact, he has transmitted the source pun from *Tawriyyah al-Murashahah* (strengthened pun) into morphological pun. In this sentence the punned with is “بِنِيْنَاهَا – *we built it*” is associated with the close meaning “*we built it by our hands*” because the building fits the hand, however, this is not right translation and does not fit at all with the power of Allah almighty. The underlined pun “بِيَدٍ” is an Arabic noun which has two meaning, first; (with hand) which is called an immediate meaning “*with hand*” but non-intended and the second; (authority) which is remote and intended meaning.

Text 3:

(Data 3) Surah “Najm- The Star”, ayah- verse 1-3.

ST: {3} وَالنَّجْمُ إِذَا هَوَىٰ {1} مَا ضَلَّ صَاحِبُكُمْ وَمَا غَوَىٰ {2} وَمَا يَنْطِقُ عَنِ الْهَوَىٰ

BT: wa alnajib eza hawa, ma dal sahibakum w ma ghawa, w ma yantiq an al hawa

TT-1: By the Star when it goes down, (1) Your Companion is neither astray nor being misled. (2) Nor does he say (aught) of (his own) Desire. (3) (Ali, 2006)

TT-2: By the Star when it set, (1) Your comrade erred not, nor is deceived ; (2) Nor doth he speak of (his own) desire. (3) (Pickthall, 1963)

TT-3: By the Star when it plunges (1) your comrade is not astray, neither errs (2) nor speaks he out of caprice(3) (Arberry, 1991)

TT-4: I swear by the star when it goes down (1) Your companion (PM) does not err, nor does he go astray (2) Nor does he speak out of desire (3) (Shakir, 1999)

In this example, the pun in the words “موي - موي”. According to the commentary of *Tafsir ibn Kathir* (AH 759), the first word is a verb and means, “*goes down*” and the second word is a noun and means “*desire*”. None of Pickthall and Arberry took into account the existence of pun in these two verses since they have translated the source text pun literally and have tried to transmit only the sense of pun by applying the pun to non-pun strategy. Arberry has selected the words “*plunges-caprice*” and Pickthall has selected the words “*set-desire*” which all of them divert from the source text pun. However, Shakir and Yusuf Ali have selected the words “*goes down- Desire*” for source text puns, by using pun-to-pun strategy. Therefore, Pickthall and Arberry have failed to transmit the sense of source text into target text, while Shakir and Yusuf Ali have sustained to transmit the aesthetic and rhetoric effect of source text into the target text. Consequently, the meaning of the source text is sustained in the target text after applying the faithful translation method.

Text 4:

(Data 4) Surah “Rahman- The Gracious”, ayah- verse 7-8.

ST: {8} وَالسَّمَاءَ رَفَعَهَا وَوَضَعَ الْمِيزَانَ {7} أَلَّا تَطْغَوْا فِي الْمِيزَانِ

BT: wa alsamaa rafaa'ha wa wadaa' al mizan, ala tatghaw fi al mizan

TT-1: And the Firmament has He raised high, and He has set up the Balance (of Justice), (7). In order that ye may not transgress (due) balance. (8) (Ali, 2006)

TT-2: And the sky He hath uplifted; and He hath set the measure, (7) That ye exceed not the measure, (8) (Pickthall, 1963)

TT-3: and heaven He raised it up, and set the Balance (7) Transgress not in the Balance (8) (Arberry, 1991)

TT-4: And the heaven, He raised it high, and He made the balance (7) that you may not be inordinate in respect of the measure (8) (Shakir, 1999)

These two verses are considered clear examples for pun “*Tawriyyah al-Mubayyinah* (clarifying pun)” in the holy Quran. According to the commentary of *Tafsir ibn Kathir* (AH 759), the underlined words in the translated texts hold different meanings from the original Arabic texts. In the Arabic text, the word “الْمِيزَانِ, al mizan” means justice while the second one means “*balance*”. However, these two words have been translated by four different

strategies. Arberry and Pichthall have applied the strategy of pun to related rhetorical device through repeating the equivalent word. Shakir has applied the strategy of pun to non-pun due to transmitting only the sense of the source text pun into the target text, while, Yusuf Ali has used the strategy of pun-to-pun and replaced the original pun with a pun in the English. The pun produced in target text is called “homonymic” pun, which is the equivalent to pun called “Tawriyah al-Mubayyinah” in the source text. Linguistically, Yousuf Ali has managed to convey the rhetorical and pragmatic sense of the Arabic pun into English without changing the meaning. Thus, the meaning of the source text is sustained in the target text after applying Newmark’s (1981) faithful translation method.

CONCLUSIONS

From the analysis, it can be realized that the occurrence of the pun in the Quran generates a significant problem for the translators since several words in the Quranic verses are pun. Consequently, if the Quran translators are not aware of the factors that help them to capture the deep meaning, they will not be able to transfer the intended meaning effectively.

Obviously, the analyses show that the translators do not have a certain strategy in solving the problem of the pun in the Quran. Furthermore, it seems that depending on numerous commentaries is an important strategy to define the meaning of the pun words, but this will confound the translators the more because, in some cases, there are several interpretations for one word or for one case in the Quran. Consequently, it is recommended for the translators to relay on at least two of the authorized commentaries and employ them.

In terms of style of translation, Ali’s translation is in a modern style and plain English that flows softly and it is easy to read and comprehend. He also opted for contemporary language usage of sentence structure and he avoided confusing phrases. He transliterated many Arabic words and provided their meanings in parenthesis.

The selected translators did not treat the problem of the pun in the Holy Quran carefully. They transferred most of the samples of the pun words into primary, sense by using literal and formal translation. Only in a few instances did they transfer by using paraphrase strategies.

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Turkish Teacher Candidates' Perspectives on Ottoman Turkish Learning

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ABSTRACT

Ottoman Turkish course is one of the fundamental courses that must be taken by undergraduate students/prospective teachers of Turkish Language Teaching/Turkish Education. Because, as a matter of course, Turkish alphabet with Arabic origins is used in this course, it is observed that teacher candidates' learning anxiety increases.

It is thought that this study will make an important contribution in determining the learning difficulties of the teacher candidates to remove or minimize their anxieties and to make the Ottoman Turkish education more productive. We will try to determine in this research Turkish language teacher candidates' opinions and solutions to problems related to the Ottoman Turkish course. For this reason, our study group consists of randomly selected 80 teacher candidates who have studied in the Department of Turkish Language Teaching/Turkish Education in the Turkish Republic of Northern Cyprus and taken the Ottoman Turkish course. Of these prospective teachers, 40 were the ones who succeeded in taking the course at the first time, and 40 were the ones who took the lesson more than once. "Student Interview Form" was applied to the teacher candidates in order to determine the data. This student interview form consists of 6 questions that reveal the approaches of the teacher candidates in the three categories related to the pre-process, process and post-process related to Ottoman Turkish. In analyzing the collected data, percentage, frequency and content analysis were used. Based on the findings, the anxieties of the Turkish language teacher candidates about the Ottoman Turkish and the sources of these anxieties were determined; the effects and problems created by them were identified. The implemented study methods during the efforts to overcome these problems and the gains obtained/to be obtained in the end were discussed. Suggestions were put forward in this regard and it was emphasized that the Turkish language teacher candidates should definitely take advantage of the equipment that Ottoman Turkish will bring in.

Keywords: Ottoman Turkish, learning anxiety, difficulty, Turkish Language Teaching, teacher candidates.

INTRODUCTION

Language is the most important national asset in which all material and spiritual values of a nation are carried throughout history. Turkish, too, is a communication link, a bridge that brings the existence of the Turkish nation to the present from the earliest times. The Turkish language education, which makes possible the transfer of the values of the Turkish nation, is also very important in this respect.

The Ottoman Turkish lecture, which teacher candidates should take within the scope of the Turkish language education, deals with a section in the Turkish language history. Ottoman Turkish is sometimes referred to as "Ottoman" in a way that would lead to the misconception that it is a separate language. However, "Ottoman or Ottoman Turkish language generally refers to the language written or spoken by the Turks who lived in the borders of the Ottoman State, or the language written in the same period in which Arabic or Persian words appear intensively, or more generally Turkish written in the Arabic alphabet. Scientifically, Ottoman Turkish, including the first period called the Old Anatolian Turkish in the development process of Turkish of Turkey, is a writing language that continues from XIII century until the beginning of the XX century. It is not true to think of Ottoman Turkish as separate from the present Turkish, which is its continuation" (Ozkan, 2007, 483).

One of the alphabets we have used so far is the Turkish alphabet of Arabic origin (Ergin, 1999, 2). If it is considered that the Turks have been acquainted with this alphabet since they converted to Islam, this alphabet witnesses to the existence and development of Turkish language through the presence in the life of Karahanli, Gazneli, Great Seljuk and Ottoman Turkish states in a thousand years time period (Timurtas, 1999, 1).

In Ottoman Turkish, which is our historical literary and written language, there is a scope to be informed by three separate sources along with the rules regarding the use of Arabic and Persian origin phrases under the Turkish sentence structure (Oztoprak-Ahiskali, 2011, 9).

Knowing Ottoman Turkish will contribute to knowing enough about the development of today's Turkish. "It cannot be expected of a Turkish language teacher who cannot comprehend the historical depth and richness of the Turkish language to fulfill his or her duty in the educational field decently" (Cifci, 2011, 409). In this respect, the candidate teachers who will carry out the education of Turkish language should have knowledge of Ottoman Turkish.

Knowing Ottoman Turkish is not just about overcoming an alphabet issue. This information will also be the key to an instrument of language and literature that will often have to be resorted to when using our Latin alphabet today. Because, it is an instrument of language that we need to possess both in the new and old literature and even need to understand texts about the folk literature. Especially, it is a need that the educators of Turkish language can never ignore.

The aim of our study was to determine the anxiety that Ottoman Turkish lecture given within the scope of the Turkish language education program causes in teacher candidates. Based on this, proposing solutions to overcome the anxieties that arise and thus to serve to increase the chances of success will mean this work's reaching its goal.

METHOD

Sample

Our sample consists of 80 teacher candidates who took the Ottoman Turkish course in Turkish Language Education / Turkish Education Department in Turkish Republic of Northern Cyprus. Of these teacher candidates, 40 were the ones who took the course for the first time, and 40 were the ones who did not succeed at the first time. Moreover, these teacher candidates were randomly selected.

Data Collection

"Student Interview Form" was applied to teacher candidates who took the Ottoman Turkish course in order to collect the data. This student interview form consists of 6 questions that will reveal the opinions of the prospective teachers about the Ottoman Turkish in three categories related to the pre-process, process and post-process. Below are the questions on the interview form:

- What were your thoughts before taking Ottoman Turkish course?
- What are the sources of your positive/negative thoughts before taking the Ottoman Turkish course?
- What are the difficulties you have experienced in learning Ottoman Turkish?
- What have you done/could one do to succeed in the Ottoman Turkish course?
- Have your first thoughts about Ottoman Turkish changed after taking the course?
- Do you think that what you gained from the Ottoman Turkish course is/will, is not/will not be of any contribution to you?

Data Analysis and Interpretation

The obtained data were analyzed by content analysis and divided into specific categories and also the views of more than one teacher candidate were quoted. In addition to this, it is aimed to reflect the attitudes of the teacher candidates more clearly by taking percentages and frequencies of the emerging data.

FINDINGS AND DISCUSSION

It was deemed appropriate to examine the findings under 6 headings initiating from the 6 questions on the student interview form. When the findings were assessed, the candidates that passed the Ottoman Turkish course at the first attempt was named Group 1, and the ones with more than one attempt was named Group 2, and were shown by the abbreviation G1 and G2 in the scope of the study. During the evaluation, answers for each question were examined by separating them into specific categories. In some cases, a small number of teacher candidates were excluded from the evaluation because they responded with unsatisfactory responses or wrote nothing. In addition, if more than one answer was given by prospective teachers for a number of questions, all of these answers were taken into consideration.

A. Findings about the Teacher Candidates' Opinions before Taking the Ottoman Turkish Course

It is clear that before the process, prospective teachers either perceived the Ottoman Turkish course with a prejudice stemming from accepting it as difficult and unachievable, or with opinions as useful, achievable and meaningful, or as an unnecessary course.

The issues as such that the course has an unknown scope, that even its name scares, that it is written in Arabic alphabet, that it appears like English, and that it has complicated rules have caused the teacher candidates to regard Ottoman Turkish as a difficult and unachievable course.

The ones who consider the course easy, meaningful and achievable have the tendency to think that the course will be easy and pleasurable and they tend to have the circumstances such as the existence of relatives in the family who know Ottoman Turkish, having graduated from Imam-Hatip High School, knowing Arabic language, having desire to know their history and ancestors' history, and having curiosity of learning the old Turkish.

Those who indicate that the course is unnecessary think that they will not use the Ottoman Turkish in the future, and that this writing does not exist anymore.

Table 1: Frequencies and Percentages of Teacher Candidates' Opinions before Taking the Ottoman Turkish Course

Category	G1		G2	
	f	%	f	%
Difficult and Unachievable	21	52.5	28	70
Useful, Meaningful and Achievable	14	35	9	22.5
Unnecessary	2	5	4	10

Looking at Table 1, it can be seen that 52.5% of the G1 students and 70% of the G2 students are prejudiced before taking the course in the sense that the Ottoman Turkish course is difficult and unachievable.

In the face of the fact that the successes of the teacher candidates have been significantly affected, it is understood that the G1 group made more efforts to face the negative outcome, but the G2 group did not make the effort to overcome this situation because of their prejudices. Student opinions on these can be illustrated as follows:

"I thought I could not understand, I was prejudiced. Because, I'm not used to this alphabet. It seemed like it was not different from English." (G1-S1)

"I was afraid because of its name. I did not believe I would succeed." (G2-S9)

35% of G1 students and 22.5% of G2 students see the course useful, meaningful and achievable. There is a significant difference in this proportional structure. It is understood that the ones with positive attitude towards the course are relatively more successful than the others.

"I thought I would succeed because it was similar to Arabic and I had a little bit of knowledge of Arabic." (G1-S7)

"I knew that I could succeed before I took this lesson. Because, I had no fear of the course as I had an Imam-Hatip High School background. I thought I would even add information on my knowledge." (G1-S2)

It is seen that G1 (5%) students are less than G2 (10%) students who think that the course is unnecessary. This situation, then, can be considered to have a quantitatively positive impact on the success. Student opinions on these can be illustrated as follows:

"I thought it was unnecessary and a waste of time." (G1-S19)

"When I looked at the program before coming, I thought it was not necessary to offer this course. If it was necessary, it would have already been given during the four years." (G2-S32)

B. Findings on the Sources of Turkish Language Teacher Candidates' Positive/Negative Thoughts before Taking the Ottoman Turkish Course

Sources of the teacher candidates' thoughts before taking the Ottoman Turkish course depend on circumstances and tendencies such as the existence of relatives in the family who know Ottoman Turkish, conducted research studies, the act of learning a new language/alphabet, reading past writings and books, acquiring cultural gains, learning one's ancestry, knowing one's history, the fact of knowing Ottoman alphabet, interest in Arabic language, and the fact of having taken Arabic education; and that this turns into positive/negative factors. Accordingly, the following table was created.

Table 2: Frequency and Percentages of the Sources of Teacher Candidates' Positive/Negative Thoughts before Taking the Ottoman Turkish Course

Category		G1		G2	
		f	%	f	%
Positive	Acquired from the Environment and Research Studies	7	17.5	3	7.5
	Interest in Ottoman Alphabet and Arabic	10	25	6	15
Negative	Acquired from the Environment and Research Studies	18	45	16	40
	Interest in Ottoman Alphabet and Arabic	2	5	11	27.5

G1 students were 17.5% positively and 45% negatively, while G2 students were 7.5% positively and 40% negatively affected by the environment and research studies. It is seen that knowledge acquired from the environment and conducted research studies cause the teachers candidates rather to think negatively about this course.

What is striking here is that the negative attitude ratios, which seem to be very close to each other, have increased in the current situation the success level of the successful G1 group with more effort. The same factor had the opposite effect in group G2. This negativity seems to have contributed to the G1 group's making more effort and succeeding.

"I have always wanted to learn because I think that in terms of reading documents and books about the past, it is beneficial personally and it culturally influences in a positive way." (G1-S9)

"I am an Ottoman grandson. It is the fact that I myself want to read and understand the documents and books that my ancestors left me, instead of someone else's translating and giving it to me." (G2-S18)

"The information that I got from the environment before I took this course influenced me negatively." (G1-S30)

"My History-graduate cousin had told me that I would not have much trouble." (G2-S9)

G1 students were affected 25% positively and 5% negatively by the Ottoman alphabet and interest in Arabic whereas G2 students were 15% positively and 27.5% negatively affected, respectively. This situation led the G2 group to remain behind in terms of success and the G1 group to rise positively. It is seen here that the alphabet and interest in Arabic can affect the teacher candidates in both positive and negative ways. Teacher candidates' views can be illustrated as follows:

"Going abroad and studying Arabic proved that I could succeed in this course." (G1-S2)

"My friends who study History teaching and Turkish teaching have told me that it was very difficult for them and that it would be difficult for me, too." (G2-S18)

"I thought it was unnecessary because we were going to be primary school teachers. It does not work for someone who teaches at that level." (G1-S26)

"Because the spelling is different." (G2-S38)

C. Findings on the Difficulties Faced by Teacher Candidates in Learning Ottoman Turkish

Findings regarding the difficulties faced by prospective teachers in learning Ottoman Turkish originated from letters with Arabic origin, depending of vowels and consonants on separate rules, different grammatical rules, difficulty in reading and writing, lack of infrastructure, lack of practicality of books, lack of learning time, and failing to create different group levels.

Table 3: Frequencies and Percentages of Turkish Teacher Candidates' Difficulties in Learning Ottoman Turkish

Category	G1		G2	
	f	%	f	%
Letters	16	40	25	62.5
Difficulties in Reading and Writing	17	42.5	18	45
Difficulties with regard to Suffixes, Words and Rules	3	7.5	3	7.5
Other Challenges	5	12.5	7	17.5

G1 students say that 40% of the difficulties stem from the letters. With 62.5% of G2 students' thinking the same way shows that difficulty is experienced in letters. This has a significant impact on success.

"...I got difficulty in combining when writing." (G1-S5)

"I had a lot of difficulties in combining letters and writing." (G2-S18)

Reading and writing are seen as the second reason for the difficulty of learning Ottoman Turkish. There was a difference of 2.5% between groups G1 and G2, and it is understood that this was not a meaningful difference. Both groups suffer from this problem.

"I did not have difficulty in reading because I knew how to read the Qur'an, but as I wrote, it was difficult to combine." (G1-S5)

"I had difficulty in writing and reading." (G2-S24)

It was found that both groups were affected at the rate of 7.5% in terms of suffixes, words and rules.

"I had difficulty in when I could and when I could not use the vowels." (G1-S14)

"... I experienced difficulties in understanding and practicing the rules, in recognizing and writing letters." (G2-S36)

"I only had difficulties in writing nasal n, and sometimes in writing suffixes." (G1-S18)

"It was very difficult for me because I did not have a command of the rules used when writing Arabic and Persian words." (G2-S16)

In the other difficulties category, G1 and G2 students seemed to be affected at the rate of 12.5% and 17.5%, respectively.

"It is a little bit difficult to fit in a single year all the rules and the grammar information of Ottoman Turkish." (G1-S7)

"Books' not being understandable and being heavy." (G2-S8)

D. Findings on the Teacher Candidates' Opinions about What They Have Done or What could be Done to Succeed in Learning Ottoman Turkish

Teacher candidates indicate that to be successful in the Ottoman Turkish course, the study method, and benefiting from various persons, sources and tools are important; and make various suggestions.

For the method of study, the spoken items were found to be the learning of presentation of sounds, letters and their spelling, and rules; reading and writing a lot; working with friends as if solving puzzles and playing word games; attending classes regularly, being active in classes, listening to the instructor and performing the requests; and so on.

In order to be successful, students point out the value of getting help from various persons, using a variety of books and resources, frequently looking up in dictionaries, benefiting from social media and reliable sites as well as course books.

These suggestions come out in the form of getting rid of the effects of negative judgments, studying, solving abundant examples, anticipating the course to be offered in a longer time span, arranging additional courses, offering the course every semester, increasing the number of quizzes, liking the course and the instructor's having students like the course by making it more enjoyable.

Table 4: Frequency and Percentages of Teacher Candidates' Opinions about What They Did or would Do to Be Successful in Learning Ottoman Turkish

Category	G1		G2	
	f	%	f	%
Study Method	33	82.5	32	80
Benefiting from Different Person, Resource and Tools	14	35	10	25
Suggestions	9	22.5	6	15

Findings about the thoughts of teacher candidates with regard to what they did or would do to succeed in learning Ottoman Turkish were found to be proportionally very close to each other with respect to the study method for both the ones successful (82.5%) at the first attempt and the ones unsuccessful (80%). This closeness shows us a very important point: whether they succeeded or not, prospective teacher candidates show that they comprehended the point of solution of the problem.

"The most important factor in this course is to do repetition ... It is important to read and think on it." (G1-S17)

"... I did repetition. I translated texts; I tried to reinforce using the word game method with my friends. I understood that it is settled when you make an effort." (G2-S9)

Emphasis on referring to various people, resources and tools is 35% for G1 students and 25% for G2 students. It can be said that depending on this, G1 students have succeeded by using this method; alternatively, G2 students have a tendency that they can succeed by referring to various people, resources and tools.

"I have reinforced my topic by describing the topics I understand to my friends, so I did not have difficulties during the examinations. I have used different sources and watched a video about these sources." (G1-S2)

"... I watched videos, I applied to additional sources." (G2-S40)

In terms of succeeding in this course, 22.5% of the G1 group and 15% of the G2 group made suggestions.

"To be successful, continuous reading and writing work must be done." (G1-S6)

"We have to review what we learned on the day. We have to do writing work." (G2-S18)

E. Findings on Whether the Teacher Candidates' First Thoughts Related to Ottoman Turkish Changed After Taking the Course

Teacher candidates stated that after taking the Ottoman Turkish, the first thoughts about the course both did not change and changed.

The ones that experienced change in a positive way stated that they enjoyed the course, that reading their ancestors' writings made them happy, that they saw the course as a pleasurable puzzle, that the teacher has brought the course fun, that the writings of the Ottoman Turkish were enjoyable, that the course contributed to understanding of the old literary texts, that they could do it if they studied, and that learning and saying that I know gives enjoyment.

Those who say that there was a change in the opposite direction said that letters, dominance of the thought of failure to learn, and seeing it difficult were effective in their opinion.

Those who had negative tendency while having a positive attitude or those who had positive tendency while having a negative attitude said that they continue to have the pleasure of learning, to feel the comfort of having building a background and so forth, or they were located at the opposite point.

Table 5: Frequency and Percentages of Whether the Teacher Candidates' First Thoughts Related to the Course Changed After Taking the Ottoman Turkish

Category	G1		G2	
	f	%	f	%
Changed, Became Positive.	18	45	12	30
Unchanged; I Keep Thinking Positively.	9	22.5	3	7,5
Changed, Became Negative.	6	15	15	37,5
Unchanged; I Keep Thinking Negatively.	7	17.5	10	25

According to Table 5, it is seen that the G1 group has a 45% positive change, and the G2 group has a 30% change in the same direction. It is seen together with a proportional difference that there is a change at a significant level towards the positive end in both those who succeeded at the first attempt, and those who could not succeed at the first attempt. This, no doubt, means rise of the success.

"When I took the course, I realized that it was a very easy and fun lesson. I learned that what had been said is not true." (G1-S8)

"Yes, it has changed. It was very frightening and difficult at first, but it was even easier and more fun in the course of the course." (G2-S36)

In the G1 group, 22.5% and in the G2 group, 7.5%, respectively, appear to maintain the same point of view of the teacher candidates who think positively.

"I thought that I would understand this lesson easily and succeed, and it happened that way." (G1-S9)

"Unchanged. I think I can learn no matter how hard I slog." (G2-S28)

In the G1 group, 15% and in the G2 group, 37.5%, indicated that their first thoughts have become negative, respectively. It is clear that 17.5% in the G1 group and 25% in the G2 group are the ones who continue to think negatively from the outset, and this will decrease the degree of success.

"It changed, I started to be frightened of the course ..." (G1-S36)

"Yeah. At first I had thought it was easy. But after I took the lesson, I realized it was difficult." (G2-S29)

"No, it has not changed. Because I thought I would have difficulty." (G1-S29)

"No, it has not changed; because, I still do not think that Ottoman Turkish will be a contribution to me." (G2-S16)

F. Findings on the Teacher Candidates' Thoughts about Whether What They Gained from the Ottoman Turkish Course Is/Will, Is Not/Will Not Be of Any Contribution to Them

Those who think positively that Ottoman Turkish had a contribution think that anything learned will contribute in a way and grant a new instrument to a person. Also, candidates indicate that in addition to the contribution it provides at the moment, it will be of use in the future in terms of access to job opportunities and benefits in academic studies.

The ones that have negative attitude towards the subject of contribution of the course continue to look from a negative point, and they also say that the course is unnecessary. They are fixed in their attitude of "there will be no contribution from the course because ..."

Table 6: Frequency and Percentages of the Teacher Candidates' Thoughts about Whether What They Gained from the Ottoman Turkish Course Is/Will, Is Not/Will Not Be of Any Contribution to Them

Category	G1		G2	
	f	%	f	%
Contributed/Will Contribute.	33	82.5	22	55
Did Not Contribute/Will Not Contribute.	4	10	17	42.5

The G1 group's being at 82.5% and the G2 group's being at the 55% in the subject of whether the teacher candidates' gains from the Ottoman Turkish course made any contribution/will make any contribution reveal that G1 is more positive in comparison to G2. An assessment of whether or not a contribution was made or will be made without emphasizing being successful or unsuccessful is important in terms of the gains of the course. Because, students have had gains from this course. The positive attitudes of those who are unsuccessful (the G2 group students) will be a source of motivation for them to succeed in their subsequent instances of the course. The G1 group students have already achieved considerable success.

"I think it will contribute considerably. ... as it will contribute from the cultural point of view, there is a wide range of possibilities in job opportunities. In addition, the pleasure of being able to read and understand the books of our past personally gives a different happiness to man." (G1-S9)

"If I cannot teach, I can work as a translator or work in the library. So of course there will be contribution. I do not think that an unnecessary lesson will be offered to us." (G2-S4)

It is also meaningful that the ones who have a negative thought about the contribution of the course were at the rate of 10% in G1 and 42.5% in G2. Because the negative views of the G2 group seem to explain the situation in terms of their failure to pass the course at the first time.

"I have not seen a contribution of it until now." (G1-S26)

"I do not think this course will ever be of use to me." (G2-S8)

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings, the majority of teacher candidates have anxiety towards the Ottoman Turkish course. However, it can be said that those who overcome these anxieties and prejudices are considerably successful, and those who are lost in their worries, although they do not leave the effort altogether, cannot make enough effort to succeed.

Positive respondents seem to have tried to capture achievement with meaningful justifications, while negative ones often seem to be behaving with the responsibility and obligation to achieve only one course.

It should be said that Ottoman Turkish preserves the value of the teaching aims if it is taken into consideration that even the unsuccessful have taken an approach that this course is useful. What is dominating the negative attitudes of failed students is the anxiety of being able to succeed.

One of the crucial anxieties of Turkish language teacher candidates is that they will not be able to use this acquisition for their students when they become teachers, and that this alphabet has lost its relevance today.

However, it cannot be expected of a Turkish language teacher who is unable to comprehend the development and change of the Turkish language in the historical process and the richness it has gained in the process to fulfill his or her duty.

In spite of all the anxieties, the approach of achieving the Ottoman Turkish as a course and acquiring it as an instrument is gaining importance. Today, new opportunities emerging in terms of the need for educated people who know Ottoman Turkish intensify this learning desire and give hope to teacher candidates in terms of job opportunities.

Turkish language teacher candidates find that the length of the Ottoman Turkish course is inadequate and therefore demand that the number of credits/hours should be increased. Otherwise, it will not be possible to teach the contents of the current program, and to do enough reading and writing practice.

It is beneficial to take the following suggestions into account in order for the Ottoman Turkish lesson to yield better results by making use of the student opinions:

- In order for the teacher candidates to become more active, making the lessons entertaining and processing the lessons in a race atmosphere will be effective in increasing the success.
- Based on availability, creating of level groups will be beneficial for the lesson to be more productive.
- The creation of an environment where the motivational goals of successful prospective teacher candidates can be shared with other pupils will be effective in reducing the anxieties. For this purpose, student panels can be created by creating discussion environments.
- The knowledge and experience gained in this field is beneficial to be operated and used in literary courses, even in oral and written lectures.
- Visiting the historical artifacts and archives, which will keep the memory of the Ottoman Turkish, will be meaningful.
- It will be important to consider these anxieties in the preparation of textbooks.
- It will be useful to increase the number of semesters and credit hours of the course so that Ottoman Turkish can be learned better.

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Twenty-Seven Years of Technology in Practice: A Meta-Analysis and Systematic Review on Blended Learning

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ABSTRACT

Over the past decades, radical change in underlying beliefs or theory in the context of teaching and learning has instigated significant presence and emergence of web-based instruction termed as blended learning. Current literature juxtaposes that blended learning has inevitably permeated and transformed the topography and landscape of educational practices by becoming one of the paramount game changers. However, in the same disposition, it also depicts less consideration given to the imminent gaps in the blended learning experience, consequently indicating a scarcity of evidence in the context of these technological interventions. With the objective of synthesizing existing researches on blended teaching and learning, ninety-six samples were included through the employment of meta-analysis encompassing a meticulous and thorough search plan and strategy which resulting a priori; to reduce biasness and ambiguity as well as to improve transparency and rigor in order to probe into the magnitude and power of effect sizes (ESs). The ESs yielded from the 96 samples were acquired from the application of Cohen's d formula (1988; 1992) by which the estimation was done using the standardized mean difference score, divided by the standard deviation pooled across the treatment and control group. Collectively, the findings suggest that blended learning is highly potent in increasing learners' performance; however, it could well be attributed to the majority of samples focusing on performance as either their primary or sole dependent variable. It is asserted that the secondary dependent variables of blended learning found from the 96 samples should not be disregarded as they could potentially lead to improved performance. However, it is important to note that samples which yielded a negative ES; the adversity of the treatment incorporated in the blended learning approach, had in a way contributed to the inverse repercussions that the intervention had resulted onto the treatment groups.

Keywords: Blended Learning, Meta-analysis, Effect Sizes (ESs), Cohen's d

INTRODUCTION

Education is a design-oriented field like engineering or architecture; it is concerned with tradeoffs involving cost, efficiency, and effectiveness, and the foundational challenge of blended learning research is seeking to understand what humans do very well and what machines do very well, so that the strengths of both can be maximized as they are blended in the service of learning. In this context, a huge amount of budding literature investigates how blended learning is incrementally becoming an alternative for many classroom instructional strategies. In addition, it has also been suggested that blended learning is considered the perfect approach since it is a marriage of the best elements of two practices (Bele & Rugelj, 2007). More recently, empirical literature has emerged that offers fascinating findings about blended learning with the disquisition of numerous blended learning approaches (Boyle, Bradley, Chalk, Jones, & Pickard, 2003; Garrison & Vaughan, 2011; Hoic-Bozic, Mornar, & Boticki, 2009; Huang & Zhou, 2005; McCarthy, 2010; Newcombe, 2011). Over the past decades, technology has been regarded as an apparatus that possess the capability to encourage and foster better achievement and simultaneously scaffold and strengthen existing teaching and learning pedagogies. The recent trends of teaching and learning inclines towards technology in which various Information Communication Technology (ICT) and Computer-Assisted Interventions (CAI) have been introduced (Archer, Savage, Sanghera-Sidhu, Wood, Gottardo, & Chen, 2014). Nevertheless, the exact position or role of technology, in particular in creating prolific learning processes, is yet to be ascertained even though extensive studies have been carried out since the 1960s.

THE STUDY

With more than 60 meta-analyses available since the 1980s, each of the analyses have successfully focused on questions addressing diverse features including subject matter, grade level and category of diverse technology employed in the context of teaching and learning by providing precious compositions of data. To date, there is only one meta-analysis devoted to blended learning (Means, Toyana, Murphy, & Baki, 2013) and this study was conducted fundamentally on the meta-analysis of the US Department of Education which was originally published in 2009, subsequently was updated in 2010 (Means, Toyana, Murphy, Bakia, & Jones, 2010) and it was discovered that blended learning conditions were found to hold significant advantages and benefits over classroom instruction. Due to this, many institutions are beginning to employ blended learning to participate in this revolutionary concept. Despite the snowballing number of researchers and educators eagerly implementing blended learning, some failed to understand and realize its fundamental philosophy, implications and transformative potential. Furthermore, with the widespread adoption of blended learning as the new traditional instructional model; the pedagogical approach indubitably has the potential to be a game changer in the landscape of teaching and learning. Thus, with the objective of synthesizing existing researches on blended teaching and learning, this study aims to examine the powerful effect sizes in the identified blended learning studies through the employment of meta-analysis encompassing a meticulous and thorough search plan and strategy.

METHODOLOGY

This study utilized meta-analysis as the instrument to reap a thorough understanding of the posted research problems. Theoretically, meta-analysis applies a statistical approach to coalesce findings from multiple studies in an attempt to obtain a better indication of the significance or magnitude of these combined studies, rather than just referring to individual studies; hence, this would improve estimates of the strength or magnitude of the ES and resolve ambiguity and equivocality when reports differ in findings. Greenberg, Robins, and Walker (2005) state that meta-analytical procedures assist the synthesis of quantitative research findings. The existing data coming from numerous sources offers robust and comprehensive findings. According to Christmann and Badgett (2003), the procedures involved in the statistical process of meta-analysis could facilitate in answering new research questions and narrowing gaps in the existing data. Hence, it was deemed apt to use statistical meta-analysis as an investigative procedure to gauge the effect of a myriad of instructional approaches in the context of blended learning. Under the conditions presented, the strength of the calculated ES for the included blended learning samples was gauged to yield a strength of either small, medium or large.

To obtain eligible studies, Wiley Online Library, Taylor & Francis Online, Springer, ERIC, Elsevier, ScienceDirect, ResearchGate, ProQuest, JSTOR, IEEE, Sage Journals, APA PsycNET, CALICO Journal, Penn State University Library, Editlib, IGI Global, anitacrawley.net, ascilite.org.au / ajcet.org.au, and Questia were scanned systematically from the year 1988 to 2015. When scanning the databases, keywords such as “control vs. treatment groups”, “blended learning” and “dependent measures” were used to examine existing and published studies. Keywords for “control” and “treatment” involved definite interventions such as computer-assisted programs and courseware. Keywords for “blended learning” included the use of technology in the aspect of delivery and approach. Keywords for “dependent measures” included how the dependent variable was measured against the independent variable. A total of 3,558 titles were scanned before a thorough read was done. The titles acquired from the searches were carefully scrutinized prior to study selection to eliminate those that clearly did not meet the inclusion criteria. Eligible and potential studies were found via local library and inter-library databases as well as via Google and Google Scholar searches. In addition to the searches, the reference or bibliography list of obtained studies were also reviewed and scrutinized to look for any potential and eligible studies. Table 1 below entails the detailed statistics of the search and inclusion process from databases.

Table 1: Statistics of the Search and Inclusion Process from Databases

No	Databases	Abstract Read	Articles Read	Samples Included
1	Wiley Online Library Taylor	458	38	7
2	& Francis Online	668	57	13
3	Springer	629	31	6
4	ERIC	186	74	8
5	Elsevier / Science Direct Research	352	35	7
6	Gate	392	87	5
7	ProQuest	51	29	2
8	JSTOR	31	9	7
9	IEEE	28	11	2
10	Sage Journals	38	27	5
11	APA PsycNET	57	7	1
12	CALICO Journal	10	9	7
13	Penn State UniversityLibrary	59	30	1
14	Editlib	58	16	4
15	anitacrawley.net	69	8	1
16	ascilite.org.au / ajcet.org.au Questia	5	4	1
17	Miscellaneous Databases	10	5	1
18		14	2	1
19		443	124	17
Total		3558	603	96
Included Percentage		-	16.95%	2.70%

Inclusion Criteria

All the included blended learning samples were highly relevant and pertinent to this study. This was crucial in obtaining a robust representation of the study of blended learning. The number of scholarly research articles chosen for the study was 96 samples, all selected between the years of 1988 to 2015. According to Glass (1977), in a meta-analysis, “the number of studies needed to estimate accurately an aggregate effect size is partly a function of the variance of effect sizes” (p. 377). Therefore, if the studies are relatively homogeneous, then a few studies “may determine accurately the effect” (Glass, 1977, p. 377); likewise, if studies are found to be heterogeneous, then a bigger number of studies are essential. Henceforth, a total of 96 samples were sufficiently robust to obtain the facets presented in the blended learning studies. These 96 samples comprised of studies allied to experimental research studies since the values attained from the studies were converted into ES. In this circumstance, the total of 96 samples which comprised of articles pertaining to language related blended learning studies and other subjects related to blended learning studies, were deemed as pertinent to gauge the ES.

Studies published in the early 1980s were not selected since technology during that period of time was relatively unsophisticated compared to current circumstances. In addition, all articles were ensured pertinent by recognizing the commissioning of terms acknowledged in the literature on blended learning (Graham, 2006), which contained (a) blended, (b) hybrid, and (c) technological intervention. These terms primarily include “technology”, “computer”, “web-based instruction”, “online”, “Internet”, “blended learning”, “hybrid course”, “simulation”, “electronic”, “multimedia”, “Second Language Acquisition (SLA)”, “second language learning”, “grammatical”, “lexical”, “oral”, “reading”, “writing”, “speaking”, and “vocabulary”. The samples encompassed in the meta-analysis were carefully chosen based on a set of detailed criteria adapted from pertinent meta-analysis studies (Bernard et al., 2009; Means et al., 2013; Tamim et al., 2011; Means et al., 2010; Sitzmann et al., 2006; Cook et al., 2008). The criteria are as follows:

1. There must be some intervention or treatment used in the study.
2. Intervention effectiveness must be measured in terms of the mean for both experimental and controlled groups.
3. Quantitative data must be reported; means, standard deviations, results of statistical tests, *p* values, etc. from which an ES could be calculated for any related outcome variable.

4. Studies which used experimental or quasi-experimental designs that equated subject groups attaining identifiable treatments with one or more control conditions. Control conditions may have received “no treatment,” “instruction as usual,” or arrangement as a distinction to the treatment condition that did not signify a determined effort to produce change.
5. Studies must be reported in English.

Meta-analysis encompasses a meticulous and thorough search plan and strategy which resulting a priori, with the aim to reduce biasness and ambiguity. The search plan and strategy are performed by ascertaining, evaluating, and synthesizing all relevant studies on a specific topic. In this context, by means of statistical methods to synthesize the data from the included samples into a quantitative estimate or ES (Petticrew & Roberts, 2006). One of the regulating factors of the search plan and strategy is to establish and determine the inclusion criteria to avert or and minimize ambiguity and biasness, as well as to improve transparency and rigour. The criteria are typically set a priori and on the basis of a framework (Moher, Liberati, & Tetzlaff, 2010). However, forming extremely narrow inclusion criteria would lead to the possibility of eligible evidence being excluded and inaccurate inclusion criteria would consequently produce poor results. Thus, deciding on the key components to be included as the criteria is essential before the review. For instance, this study determined the priority of the outcome and types of intervention. In addition, it is also critical to operationalize the definitions of what types of studies to include and exclude, for example quasi-experimental designs. At this juncture, the retrieval and review of abstracts to meet the inclusion criteria would result in a full review.

Included Samples

The 96 included samples were derived from 18 specific databases and one miscellaneous database. It was observed, from various meta-analysis studies, that there was no indication of the minimum or maximum number of studies required for pooled analysis. According to Valentine, Pigott, and Rothstein (2010), “researchers will need to postulate a typical within-study sample size and will also need to either (a) determine the smallest important effect size given the research context or (b) make an educated guess about the effect size that is likely to be found” (p. 233). The selection of samples was grounded on the basis of the established inclusion criteria and was done on the basis that the final pool of samples robustly represented the blended learning research. A total of 96 scholarly research articles, ranging from the years 1988 to 2015, were purposively selected as samples for this study. To meet the criterion of comprehensiveness and minimize what is known as the publication bias phenomenon, it was necessary to look beyond the published literature to include grey literature encompassing (a) conference presentations, (b) dissertations, (c) theses, (d) research reports for grants and government agencies, (e) organizational archives and so forth. For a complete picture of the literature, a diversity of bibliographic and full-text databases was searched comprehensively, including those in related fields. Table 2 below encapsulates the 96 samples included in this study according to range of year, clustered by three identified and established cohorts.

Table 2: Samples according to Range of Year

Range of Year	Cohort	No.	Sample	Database
1980 - 1989 (n=2)	Language	1	Casteel (1989)	Editlib
		2	Reitsma (1988)	JSTOR
1990 - 1999 (n=19)	Language	3	Adair-Hauck, Willingham-McLain, & Youngs (1999)	CALICO Journal
		4	Allen (1993)	Sage Journals
		5	Bejarano, Levine, Olshtain, & Steiner (1997)	Elsevier / Science Direct
		6	Cahill & Catanzaro (1997)	Research Gate
		7	Cheng, Lehman, & Armstrong (1991)	Taylor & Francis Online
		8	Liou, Wang, & Hung-Yeh (1992)	CALICO Journal

2000 - 2009 (n=49)	Social Science	9	Owston, Murphy, & Wideman (1991)	Taylor & Francis Online
		10	Shany & Biemiller (1995)	JSTOR
		11	Toro (1995)	Elsevier / Science Direct
		12	Vollands, Topping, & Evans (1999)	Taylor & Francis Online
		13	Alavi, Wheeler, & Valacich (1995)	JSTOR
		14	Gratz, Volpe, & Kind (1993)	ERIC
		15	Grimes & Willey (1990)	Elsevier / Science Direct
	Science and Technology	16	Akpan & Andre (1999)	Springer
		17	Claus (1990)	ERIC
		18	Gardner, Simmons, & Simpson (1990)	ERIC
		19	Podell, Kaminsky, & Cusimano (1993)	Taylor & Francis Online
		20	Schaad, Walker, Wolf, Brock, Thielke, & Oberg (1999)	Miscellaneous Databases
		21	Schumacker, Young, & Bembry (1995)	Taylor & Francis Online
	Language	22	Abrams (2003)	Wiley Online Library
		23	Al-Jarf (2004)	Research Gate
		24	Al-Jarf (2005)	Research Gate
		25	Al-Jarf (2007)	Miscellaneous Databases
		26	Bailey (2002)	Penn State University Library
		27	BAŞ & Kuzucu (2009)	CALICO Journal
		28	Blake (2009)	Wiley Online Library
		29	Blake, Wilson, Cetto, & Pardo-Ballester (2008)	Editlib
		30	Chamberlain, Daniels, Madden, & Slavin (2007)	ERIC
		31	Demetriadis & Pombortsis (2007)	Editlib
		32	Fuente (2003)	Taylor & Francis Online
		33	Fujishiro & Miyaji (2009)	Miscellaneous Databases
		34	Gulek & Demirtas (2005)	ERIC
		35	Heiman (2008)	ERIC
		36	Hlas, Schuh, & Alessi (2007)	Sage Journals
		37	Hu, Hui, Clark, & Tam (2007)	IEEE
		38	Kost (2004)	Miscellaneous Databases
		39	Leu, Castek, Hartman, Coiro, & Henry (2005)	Miscellaneous Databases
		40	Maki & Maki (2002)	APA PsycNET
		41	Mioduser, Tur-Kaspa, & Leitner (2000)	Wiley Online Library

	42	Nicolson, Fawcett, & Nicolson (2000)	Wiley Online Library
	43	Pavonetti, Brimmer, & Cipielewski (2002)	JSTOR
	44	Payne & Whitney (2002)	CALICO Journal
	45	Reber (2005)	Research Gate
	46	Rovai & Jordan (2004)	ERIC
	47	Satar & Özdener (2008)	Wiley Online Library
	48	Sequeira (2009)	Miscellaneous Databases
	49	Van Daal & Reitsma (2000)	Wiley Online Library
	50	Woltering, Herrler, Spitzer, & Spreckelsen (2009)	Springer
	51	Young (2008)	CALICO Journal
Social Science	52	Zheng, Young, Brewer, & Wagner (2009)	CALICO Journal
	53	Ebner & Holzinger (2007)	Elsevier / Science Direct
	54	Gilbart, Hutchison, Cusimano, & Regehr (2000)	Elsevier / Science Direct
	55	González & Birch (2000)	Sage Journals
	56	Kunkel (2003)	Taylor & Francis Online
	57	Maki, Maki, Patterson, & Whittaker (2000)	Springer
	58	Petracchi, Mallinger, Engel, Rishel, & Washburn (2005)	Taylor & Francis Online
Science and Technology	59	Scheidet (2003)	Taylor & Francis Online
	60	Alzafiri (2000)	Miscellaneous Databases
	61	Basturk (2005)	JSTOR
	62	Benbunan-Fich & Hiltz (2003)	IEEE
	63	Day (2008)	Miscellaneous Databases
	64	Dinov, Sanchez, & Christou (2006)	Elsevier / Science Direct
	65	Dufresne, Mestre, Hart, & Rath (2002)	Editlib
	66	Faul, Frey, & Barber (2004)	Taylor & Francis Online
	67	Karr, Weck, Sunal, & Cook (2003)	JSTOR
	68	Lim, Kim, Chen, & Ryder (2008)	anitacrawley.net
	69	Salyers (2005)	Miscellaneous Databases
	70	Salyers (2007)	Miscellaneous Databases
2010 - 2015 (n=26)	71	Adas & Bakir (2013)	Miscellaneous Databases
	72	Al-Qahtani & Higgins (2013)	Wiley Online Library
	73	Al-Sorailey-Alqahtani (2010)	Miscellaneous

			Databases
	74	Behjat, Yamini, & Bagheri (2011)	Questia
	75	Dracopoulos (2012)	Miscellaneous Databases
	76	Farrah & Tushyeh (2010)	Research Gate
	77	Kocoglu, Ozek, & Kesli (2011)	ascilite.org.au / ajet.org.au
	78	Masters, Kramer, O'Dwyer, Dash, & Russell (2010)	Sage Journals
	79	Mekheimer (2012)	CALICO Journal
	80	Moore & Jones (2014)	Sage Journals
	81	Oh, Lee, Park, & Cho (2014)	Miscellaneous Databases
	82	Szymańska & Kaczmarek (2011)	JSTOR
	83	Uzun & Senturk (2010)	Miscellaneous Databases
	84	Vernadakis, Giannousi, Tsitskari, Antoniou, & Kioumourtzoglou (2012)	Miscellaneous Databases
	85	Wichadee (2014)	IGI Global
	86	Zhang, Song, & Burston (2011)	ProQuest
Social Science	87	Adileh (2012)	ERIC
	88	Al-Saai, Al-Kaabi, & Al-Muftah (2011)	Miscellaneous Databases
	89	Anderson & May (2010)	Elsevier / Science Direct
	90	Fung & Ma (2013)	Springer
	91	Hwang, Wu, Zhuang, & Huang (2013)	Taylor & Francis Online
	92	Lee & Hung (2015)	Springer
	93	López-Pérez, Pérez-López, Rodríguez-Ariza, & Argente-Linares (2013)	Springer
	94	Wiechowski & Washburn (2014)	ProQuest
Science and Technology	95	Martínez-Caro & Campuzano-Bolarín (2011)	Taylor & Francis Online
	96	Sun Jeong & Sun Kim (2014)	Taylor & Francis Online

Calculation of Effect Sizes (ESs)

To calculate treatment versus control ES, the indicator used for the purpose of this study was the standardized mean difference score, defined as the difference between the posttest mean of the treatment group and the posttest mean of the control group divided by the standard deviation pooled across the treatment and control groups (Cohen, 1988; Mark, Lipsey & Wilson, 2001). The mean difference ESs were computed independently for each treatment versus control group, in relevance to samples that comprised of one treatment and one control group, as well as samples that comprised of a number of treatment and control groups. Hence, some samples interposed a number of ESs due to the several treatment groups and several outcome measures. However, it has to be noted that there were some ESs yielded from this study that were inflated or categorized as having a small ES. This is due to the small sample sizes, predominantly sample sizes smaller than 20 (Hedges, 1981). At this juncture, the juxtaposition of samples with a small ES would not compromise the findings of this study as the ESs across the included 96 samples were not compared to one another. Instead, any included sample was treated

as an independent sample where the comparison was done between the control versus the experimental group, which belong in the same sample.

The 96 samples of this study were categorized into two groups: (a) single-variable, and (b) multi-variable samples. The distinction between both groups comes from the number of dependent variables that a sample is identified with. For example, Heiman (2008) contains more than one dependent variable: (a) satisfaction, and (b) performance. Therefore, it was categorized as a multi-variable sample. The differentiation between these two groups proved to be crucial in a calculation that involved averaging the ES as multiple variables were being investigated. Though averaging the multiple ESs in a sample may not provide its specific intent and findings in terms of definite variables, the overall effectiveness of the intervention was able to be deduced. According to Rosenthal (1991), the ES is calculated when the mean difference between experimental and control groups are the numerator and the Pooled Standard Deviation (PSD) is the denominator. Samples with data in the form of t value, F value, p level and frequency are calculated using formulas provided by Mark, Lipsey and Wilson (2001). The calculation of ES is executed to indicate the power of the facets investigated. ES is a means of quantifying the variance between two groups, which could provide benefits over the other tests of statistical significance; thus, it highlights the size of the difference rather than confounding with sample size. For this study, the calculation of the ES employed Cohen's *d* (1988; 1992, p. 157) formula where the value was derived from the subtraction between the mean value of the experimental group and the mean value of the controlled group, and subsequently divided with the standard deviation of the experimental group. However, if the value was not provided, a pooled value from both groups were utilized. Formula 1 and 2 were employed as follow.

Formula 1: The ES is the standardized mean difference between two groups

$$d = \frac{\text{Mean}(\text{experimental}) - \text{Mean}(\text{control})}{\text{pooled: Std. dev.}}$$

Alternatively, if the mean values were not given, the t-test was used instead. Cohen's *d* in relation to t-test could be employed as the formula.

Formula 2: Cohen's *d* in relation to t-test is used as formula

$$d = \frac{t}{\sqrt{df}}$$

- Where *t* is the value of t-test and *df* is the degree of freedom.
- Degree of freedom is computed by the following formula:

$$df = n1 + n2 - 2$$

- Where *n1* is the sample size of the 1st group, and *n2* is the sample size of the 2nd group.

As mentioned above, the number of ESs yielded by a sample correlates with the number of dependent variables identified. Due to the multiple ESs associated, multi-variable samples such as Dracopoulos (2012) and Adileh (2012) would need to undergo an additional step in calculation, as opposed to single-variable samples like Fuente (2003) which only require the application of either Formula 1 or 2. In this context, for every multi-variable sample, the average ES was calculated by taking the sum of each ES yielded by the respective dependent variable, and dividing the values by the number of corresponding dependent variables as shown in calculation 1 below.

Calculation 1: Average ES of multi-variable samples
Interpretation of ES

$$\text{Average Effect Size} = \frac{\text{Sum of Effect Size}}{\text{Number of Dependent Variables}}$$

- Where *Effect Size(ES)* are the individual ES associated with the different dependent variables of a multi-variable sample

Table 3: Cohen's Interpretation of Effect Sizes

Cohen's Standard	Effect Size (ES)	Percentile Standing	Percentage of Non-Overlap
Large	2.0	97.7	81.1%
	1.9	97.1	79.4%
	1.8	96.4	77.4%
	1.7	95.5	75.4%
	1.6	94.5	73.1%
	1.5	93.3	70.7%
	1.4	91.9	68.1%
	1.3	90	65.3%
	1.2	88	62.2%
	1.1	86	58.9%
Medium	1.0	84	55.4%
	.9	82	51.6%
	.8	79	47.4%
	.7	76	43.0%
	.6	73	38.2%
Small	.5	69	33.0%
	.4	66	27.4%
	.3	62	21.3%
	.2	58	14.7%
	.1	54	7.7%
	.0	50	0%

Note: Cohen (1988, p. 25).

Table 3 illustrates the interpretation of strength, a benchmark supplemented by Cohen (1988) that is used to gauge and to interpret the strength of ES. Cohen cautiously defined ES as (a) "small, $d = .2$ ", (b) "medium, $d = .5$ ", and (c) "large, $d = .8$ ", stating that "there is a certain risk inherent in offering conventional operational definitions for those terms for use in power analysis in as diverse a field of inquiry as behavioural science" (p. 25). Later in the year 1996, Rosnow and Rosenthal added a category of "very large" which is equivalent to or greater than $d = 1.30$ (p. 37). ES can also be interpreted using the average percentile standing of the average of the experimental group compared to the average of the controlled group. For instance, an ES of .0 shows that the mean of the experimental group is at the 50th percentile of the controlled group. In addition, ESs can also be interpreted in terms of the percentage of non-overlap of the experimental group's scores with those of the controlled group. An ES of .0 indicates that when the distribution of scores for the treated group overlaps completely with the distribution of scores for the untreated group, there is 0% of non-overlap.

FINDINGS AND DISCUSSION

The findings show that all the ESs generated from the 96 samples were acquired from the application of Cohen's d formula (1988; 1992) by which the calculation was done using the standardized mean difference score, defined as the difference between the posttest mean of the treatment group and the posttest mean of the control group divided by the standard deviation pooled across the treatment and control groups. However, some samples had interposed a number of ESs due to the several treatment groups and several outcome measures; these multi-variable samples had their ESs averaged to obtain the final ES for interpretation.

Firstly, a small effect shows that there is a minimal difference between the mean scores of both the control and treatment groups, meaning the intervention yielded little effect. Cohen (1969) described a small effect as the

difference in height between girls in United States aged 15 and 16. Meanwhile, a medium effect depicts a considerable improvement for the treatment group after the intervention. For instance, the height difference between 14-year-olds and 18-year-olds is “large enough to be visible to the naked eye” (Cohen, 1969, p. 23). On the other hand, a large effect signifies a difference “grossly perceptible” (Cohen, 1969, p. 23), proving that the intervention is considerably successful and effective. For this, Cohen (1969) exemplified with the difference in performance on an IQ test between PhD degree holders and college freshmen. Similarly, other researchers also offer their respective examples and benchmarks, apart from Cohen’s interpretation, to provide a clearer picture in interpreting the strengths of ES. For instance, Glass, McGaw and Smith (1981) associated an ES of 1.0 with the difference of one year of schooling on elementary students’ performance in achievement tests, while Vincent and Crumpler (1997) proposed that an ES of .3 is observed during “the increase in a spelling age from 11 to 12” (Coe, 2002, p. 6). In addition, an improvement of one England GCSE grade corresponds to an ES of .5 to .7 (Coe, 2002). Cohen (1988, p. 25) cautioned on the use of the terms like “small”, “medium” and “large” that are applied out of context. A small ES does not mean that the samples in question are poor or bad; it simply means the positive effects of intervention were marginally visible between the treatment and control groups. A negative ES however, does indicate the control group outperformed the treatment group, suggesting that the intervention backfired. Nevertheless, one must be careful with the interpretation of ESs.

Table 4: Samples with a Large Effect Size

Cohort	No.	Sample	Dependent Variable(s)	Effect Size
Language (n=14)	1	Behjat, Yamini, & Bagheri (2011)	Performance	3.000
	2	Hlas, Schuh, & Alessi (2007)	Performance	2.920
	3	Satar & Özdener (2008)	Performance	1.630
	4	Al-Qahtani & Higgins (2013)	Performance	1.350
	5	Al-Sorailey-Alqahtani (2010)	Performance	1.350
	6	Toro (1995)	Performance, Attitude	1.210
	7	Mioduser, Tur-Kaspa, & Leitner (2000)	Performance	1.200
	8	Al-Jarf (2007)	Performance	1.180
	9	Owston, Murphy, & Wideman (1991)	Performance, Attitude	1.135
	10	Cahill & Cantazaro (1997)	Performance	1.060
	11	Adas & Bakir (2013)	Performance	1.000
	12	Nicolson, Fawcett, & Nicolson (2000)	Performance	1.000
	13	Sequeira (2009)	Performance	.860
	14	Vollands, Topping, & Evans (1999)	Performance	.820
Science and Technology (n=2)	15	Gardner, Simmons, & Simpson (1990)	Performance, Attitude	1.510
	16	Schaad et al. (1999)	Satisfaction	.850

Table 4 depicts the samples with large ESs for all three cohorts: language, social science, and science and technology. It is observed that for the language cohort, 14 out of 59 samples yielded large ESs. The social science cohort had no sample, while the science and technology cohort yielded two of 59 samples. It is noteworthy to highlight that from the findings, 15 samples reported performance as the dependent variable, potentially suggesting a high significant impact of the treatment incorporated in the context of teaching and learning. The findings are consistent with those of Rossett, Douglass, and Frazee (2003) who noted on the “speedier performance on real world tasks by people who learned through a blended strategy” (p. 1). Besides that, Dziuban, Moskal and Hartman (2005) also posited that performance of students engaged in blended

learning is “as good as, or in some cases better, than face-to-face” (p. 6). In other words, the findings suggest that blended learning is highly effective in improving learners’ performance. In addition, the findings are fairly foreseeable because many of the blended learning practitioners and instructors leverage on blended environments to improve students’ outcome and performance, in ways that may not be materialized through the face-to-face context. Thus, this finding corroborates with samples done by Garrison & Kanuka (2004); Gray & Tobin (2010), & Ahmad (2016) that blended learning enables the attainment of competency.

Table 5: Samples with a Medium Effect Size

Cohort	No.	Sample	Dependent Variable(s)	Effect Size
Language (n=10)	1	Masters, Kramer, O’Dwyer, Dash, & Russell (2010)	Knowledge	.760
	2	Shany & Biemiller (1995)	Performance	.760
	3	Fujishiro & Miyaji (2009)	Performance	.750
	4	Uzun & Senturk (2010)	Performance, Attitude	.740
	5	Payne & Whitney (2002)	Performance	.690
	6	Reber (2005)	Motivation, Satisfaction	.682
	7	Zhang, Song, & Burston (2011)	Learning Efficiency	.620
	8	BAŞ & Kuzucu (2009)	Performance, Attitude	.555
	9	Liou, Wang, & Hung-Yeh (1992)	Performance	.550
	10	Farrah & Tushyeh (2010)	Performance, Attitude	.525
Social Science (n=3)	11	Adileh (2012)	Performance, Attitude	.740
	12	López-Pérez, Pérez-López, Rodríguez-Ariza, & Argente-Linares (2013)	Performance	.670
	13	Fung & Ma (2013)	Performance	.630
Science and Technology (n=4)	14	Basturk (2005)	Performance	.700
	15	Lim, Kim, Chen, & Ryder (2008)	Performance, Satisfaction	.580
	16	Sun Jeong & Sun Kim (2014)	Attitude, Satisfaction, Knowledge	.557
	17	Akpan & Andre (1999)	Performance, Attitude	.535

Table 5 illustrates the samples with medium ESs. The majority of dependent variables reported by samples is performance. The language cohort has seven out of 10 samples reporting on performance as the dependent variable, while the remaining cohorts each have all samples concerned with performance. Herein, the findings yielded seem to suggest that performance is a common variable to measure the efficacy of blended learning’s implementation. Students’ outcome is popularly used by researchers to gauge performance in the context of blended learning approaches, using either formative or summative assessment, or both (Drysdale, Graham, Spring, & Halverson, 2013). Thai, De Wever, & Valcke, (2017) resonate similar sentiment that learners exposed to blended learning environment performed better compared to e-learning setting. In addition to the performance variable, other dependent variables, for example attitude, motivation and learning efficiency, were also yielded. Undoubtedly, the performance variable is one if not, the most common dependent variable investigated by blended learning researchers. To further explain this, samples are typically mediated with either performance, achievement or engagement demonstrated by the students. The literature advocates that students who have had the experience of and exposure to blended subjects are inclined to perceive a considerably higher quality of learning, as opposed to those with a face-to-face format (Melton, Bland, & Chopak-Foss, 2009). However, learner outcomes encompass more than simply grades and scores. Additional research attention should be given

to the sub-topics of student engagement and motivation, as well as student satisfaction, the latter being one of the five pillars found in Sloan-C Quality Framework (Bourne & Moore, 2002). The subjective nature of measuring these forms of outcomes may be the primary reason for the overall lack of interest from blended learning researchers. With great focus placed on the performance variable, it can be seen as the primary dependent variable, while the rest of the variables can be seen as secondary dependent variables. Thus, it is imperative for stakeholders to look into other aspects of blended learning rather than merely analyzing the performance potential to make the approach truly holistic.

Table 6: Samples with a Small Effect Size

Cohort	No.	Sample	Dependent Variable(s)	Effect Size
Language (n=30)	1	Woltering, Herrler, Spitzer, & Spreckelsen (2009)	Motivation, Satisfaction	.495
	2	Dracopoulos (2012)	Performance, Motivation	.480
	3	Fuente (2003)	Knowledge	.470
	4	Van Daal & Reitsma (2000)	Performance	.460
	5	Blake (2009)	Performance	.458
	6	Allen (1993)	Performance	.430
	7	Vernadakis, Giannousi, Tsitskari, Antoniou, & Kioumourtzoglou (2012)	Satisfaction	.430
	8	Casteel (1989)	Performance	.400
	9	Bejarano, Levine, Olshtain, & Steiner (1997)	Attitude	.380
	10	Reitsma (1988)	Performance	.370
	11	Zheng, Young, Brewer, & Wagner (2009)	Performance, Motivation, Attitude,	.368
	12	Al-Jarf (2005)	Performance	.340
	13	Gulek & Demirtas (2005)	Performance	.320
	14	Al-Jarf (2004)	Performance	.300
	15	Mekheimer (2012)	Performance, Attitude	.295
	16	Adair-Hauck, Willingham-McLain, & Youngs (1999)	Performance	.270
	17	Heiman (2008)	Performance, Satisfaction	.265
	18	Leu, Castek, Hartman, Coiro, & Henry (2005)	Performance	.260
	19	Szymańska & Kaczmarek (2011)	Performance	.240
	20	Bailey (2002)	Satisfaction	.230
	21	Demetriadis & Pombortsis (2007)	Learning Efficiency	.180
	22	Chamberlain, Daniels, Madden, & Slavin (2007)	Performance	.140
	23	Abrams (2003)	Performance	.130
	24	Maki & Maki (2002)	Performance, Satisfaction	.080
	25	Wichadee (2014)	Satisfaction	.060
	26	Kost (2004)	Performance	.050
	27	Kocoglu, Ozek, & Kesli (2011)	Performance	.035

	28	Oh, Lee, Park, & Cho (2014)	Performance, Attitude, Motivation	.023
	29	Young (2008)	Performance	.010
	30	Pavonetti, Brimmer, & Cipielewski (2002)	Motivation	.0002
Social Science (n=15)	31	Hwang, Wu, Zhuang, & Huang (2013)	Performance, Attitude, Satisfaction	.490
	32	Lee & Hung (2015)	Performance	.470
	33	Scheidet (2003)	Performance, Motivation	.325
	34	Al-Saai, Al-Kaabi, & Al-Muftah (2011)	Performance, Attitude	.280
	35	González & Birch (2000)	Performance, Attitude, Need for Structure	.253
	36	Grimes & Willey (1990)	Performance, Attitude	.205
	37	Ebner & Holzinger (2007)	Performance	.190
	38	Wiechowski & Washburn (2014)	Performance, Satisfaction	.165
	39	Kunkel (2003)	Performance, Satisfaction	.060
	40	Petracchi, Mallinger, Engel, Rishel, & Washburn (2005)	Performance	.060
	41	Anderson & May (2010)	Retention of Knowledge	.050
	42	Maki, Maki, Patterson, & Whittaker (2000)	Performance, Attitude, Satisfaction	.037
	43	Gilbart, Hutchison, Cusimano, & Regehr (2000)	Performance	.030
	44	Alavi, Wheeler, & Valacich (1995)	Performance, Attitude, Satisfaction, Knowledge Acquisition	.019
	45	Gratz, Volpe, & Kind (1993)	Performance, Attitude	.010
Science and Technology (n=10)	46	Dufresne et al. (2002)	Performance	.440
	47	Dinov, Sanchez, & Christou (2006)	Performance	.390
	48	Faul, Frey, & Barber (2004)	Performance, Satisfaction	.340
	49	Claus (1990)	Performance, Attitude	.330
	50	Day (2008)	Performance	.290
	51	Martínez-Caro & Campuzano-Bolarín (2011)	Motivation, Satisfaction	.280
	52	Podell, Kaminsky, & Cusimano (1993)	Performance, Attitude	.230
	53	Salyers (2007)	Performance, Satisfaction	.168
	54	Benbunan-Fich & Hiltz (2003)	Motivation	.107
	55	Karr, Weck, Sunal, & Cook (2003)	Performance	.030

Table 6 shows the 55 samples that yielded small ESs. At first glance, this large pool of small-effect samples may seem to suggest that the blended learning approaches implemented were ineffective, especially in the social science cohort where 15 out of 18 samples yielded a small ES. However, it is unwise to blatantly equate small ESs with ineffectiveness; instead, in the context of meta-analysis, it simply suggests that there is minimal statistical difference between the samples. Nevertheless, one must not gloss over the fact that once again, a big chunk of samples reported performance as the sole dependent variable. Essentially, this means that the researches involved did not examine the secondary dependent variables of blended learning, as discussed

previously. An approach that does little to improve the learners' performance does not necessarily equate to a failed approach; it might be immensely effective in improving a student's attitude towards a subject. One sample found that mobile learning encouraged students to transform "from passive learners to truly engaged learners who are behaviourally, intellectually and emotionally involved in their learning tasks" (Wang, Shen, Novak, & Pan, 2009, p. 674), or in other words, improved attitude. Even though a given blended learning approach may have failed to see drastic improvements in performance in the short term experiment, the learners' improved attitude towards learning, something the researches might have overlooked, could eventually translate to greater performance in the long run when fully implemented. This notion is supported by researchers who suggest that motivated students show greater achievement (White, 1989; Roth & Paris, 1991; Roderick & Engel, 2001; Haydel & Roeser, 2002; Gulek, 2003; Reeve, 2013; Mega, Ronconi, & De Beni, (2014).

Table 7: Samples with Multiple Dependent Variables

No.	Cohort	Sample	Dependent Variables and Effect Sizes	Average Effect Size	Strengt h
1	Language (n=14)	Toro (1995)	Performance: 2.510; Attitude: -.090	1.210	Large
2		Owston, Murphy, & Wideman (1991)	Performance: .260; Attitude: 2.010	1.135	Large
3		Uzun & Senturk (2010)	Performance: 1.030; Attitude: .450	.740	Medium
4		Reber (2005)	Motivation: .940; Satisfaction: .424	.682	Medium
5		BAŞ & Kuzucu (2009)	Performance: .530; Attitude: .580	.555	Medium
6		Farrah & Tushyeh (2010)	Performance: .090; Attitude: .960	.525	Medium
7		Woltering, Herrler, Spitzer, & Spreckelsen (2009)	Motivation: .410; Satisfaction: .580	.495	Small
8		Dracopoulos (2012)	Performance: .690; Motivation: .270	.480	Small
9		Zheng, Young, Brewer, & Wagner (2009)	Performance: -.160; Attitude: .560; Motivation: .705	.368	Small
10		Mekheimer (2012)	Performance: .310; Attitude: .280	.295	Small
11		Heiman (2008)	Performance: .060; Satisfaction: .470	.265	Small
12		Maki & Maki (2002)	Performance: .430; Satisfaction: -.270	.080	Small
13		Oh, Lee, Park, & Cho (2014)	Performance: .020; Attitude: .170; Motivation: -.120	.023	Small
14		Cheng, Lehman, & Armstrong (1991)	Performance: -.370; Attitude: -.590	-.480	Small
15	Social Science (n=11)	Adileh (2012)	Performance: 1.030; Attitude: .450	.740	Medium
16		Hwang, Wu, Zhuang, & Huang (2013)	Performance: .540; Attitude: .190; Satisfaction: .740	.490	Small
17		Scheidet (2003)	Performance: -.200; Motivation: .850	.325	Small
18		Al-Saai, Al-Kaabi, & Al-Muftah (2011)	Performance: .160; Attitude: .400	.280	Small
19		González & Birch (2000)	Performance: .275; Attitude: .435; Need for Structure: .050	.253	Small
20		Grimes & Willey (1990)	Performance: -.020; Attitude: .430	.205	Small
21		Wiechowski &	Performance: .310; Satisfaction: .020	.165	Small

		Washburn (2014)			
22		Kunkel (2003)	Performance: .300; Satisfaction: -.180	.060	Small
23		Maki, Maki, Patterson, & Whittaker (2000)	Performance: .050; Attitude: .480; Satisfaction: -.420	.037	Small
24		Alavi, Wheeler, & Valacich (1995)	Performance: .030; Attitude: .020; Satisfaction: -.075; Knowledge Acquisition: .100	.019	Small
25		Gratz, Volpe, & Kind (1993)	Performance: .010; Attitude: .010	.010	Small
26		Gardner, Simmons, & Simpson (1990)	Performance: 1.720; Attitude: 1.300	1.510	Large
27		Lim, Kim, Chen, & Ryder (2008)	Performance: .480; Satisfaction: .680	.580	Medium
28		Sun Jeong & Sun Kim (2014)	Attitude: .190; Satisfaction: .800; Knowledge: .680	.557	Medium
29		Akpan & Andre (1999)	Performance: .930; Attitude: .140	.535	Medium
30	Science and Technology (n=11)	Faul, Frey, & Barber (2004)	Performance: -.050; Satisfaction: .730	.340	Small
31		Claus (1990)	Performance: .740; Attitude: -.080	.330	Small
32		Martínez-Caro & Campuzano-Bolarín (2011)	Motivation: .320; Satisfaction: .240	.280	Small
33		Podell, Kaminsky, & Cusimano (1993)	Performance: .240; Attitude: .220	.230	Small
34		Salyers (2007)	Performance: 1.035; Satisfaction: -.700	.168	Small
35		Schumacker, Young, & Bembry (1995)	Performance: -.740; Attitude: -.030; Confidence: .010	-.253	Small
36		Salyers (2005)	Performance: -.270; Satisfaction: -.330	-.300	Small

Note: The 36 samples above were identified with more than one dependent variable (multi-variable). Hence, they have multiple ESs. The table is used to calculate the average ES and subsequently, the strength.

Table 7 depicts samples from all cohorts with multiple dependent variables documented in this study. Therefore, they produced and fashioned multiple ESs. Besides the ES, the table also shows the estimation of the calculated average ES, which consequently resulted in one absolute ES for a sample. For the language cohort, 2 large ESs, 4 medium ESs and 8 small ESs were reported, making the total samples for the multiple dependent variables 14. As for the science and technology cohort, one sample generated a large ES, three samples with medium ESs and seven with small ESs. Finally, for the social science cohort, a total of 11 samples were included however, none of the samples yielded a large ES and only one sample generated a medium ES. Three samples were found with negative ESs: (a) Cheng, Lehman, & Armstrong (1991), (b) Salyers (2005), and (c) Schumacker, Young, & Bembry (1995). Once again, the root cause may be the intervention used in the treatment group backfiring, compared to the control group. Respectively, the average experimental mean and control mean for (a) Cheng et al. (1991), (b) Salyers (2005) and (c) Schumacker et al. (1995) were 73.38 and 75.54, 16.98 and 17.39, and 28.35 and 29.75. Due to the said factor, the samples obtained a negative small ES as part of the samples illustrated for this cohort. It is noteworthy to highlight that there are two samples, (a) González & Birch (2000) and (b) Kunkel (2003), that reported repeating dependent variables. For instance, González & Birch (2000) implemented two separate modules to study the same set of three dependent variables. Hence, there are two instances of performance, attitude and need for structure with dependent variables respectively yielding different ESs. Herein, the average was calculated to obtain the individual ES for each respective dependent variable before the average ES for the multi-variable sample could be determined.

Table 8: Samples with a Negative Effect Size

Cohort	No.	Sample	Dependent Variable(s)	Effect Size
Language (n=5)	1	Blake, Wilson, Cetto, & Pardo-Ballester (2008)	Performance	-.020
	2	Hu, Hui, Clark, & Tam (2007)	Satisfaction	-.040
	3	Moore & Jones (2014)	Performance	-.110
	4	Rovai & Jordan (2004)	Performance	-.440
	5	Cheng, Lehman, & Armstrong (1991)	Performance, Attitude	-.480
Science and Technology (n=3)	6	Schumacker, Young, & Bemby (1995)	Performance, Attitude, Confidence	-.253
	7	Salyers (2005)	Performance, Satisfaction	-.300
	8	Alzafiri (2000)	Performance	-.630

Table 8 highlights the eight samples from all three cohorts that yielded negative ESs. Although it may be uncommon to have treatments backfiring, there are actually plausible reasons as to why this occurred. Cheng, Lehman, & Armstrong (1991) in one of the samples listed, concluded that the control group's unexpectedly-high performance "may have resulted from over compensatory behaviour or other factors" (p. 62); in other words, unaccounted or uncontrollable factors may have played a role. In concurrence with that notion, Konetes (2009) goes as far as to posit that there are far greater, external "cultural, industrial and global forces that act to influence the field of distance learning and how programs develop" (p. 59). Simply put, an experiment is always at risk of producing unexpected results when certain factors, important yet elusive, are carelessly overlooked. One such hidden factor comes in the form of the Hawthorne Effect, or more commonly referred to as the observer effect. The term was first coined when discovered in the Hawthorne Western Electric Company Plant, Illinois, from 1924-1932; an experiment was run to determine whether the productivity of workers would increase when working conditions were altered (Mayo, 1949). It turned out that irrespective of what changes were made to the conditions, the workers' productivity always improved. In other words, the Hawthorne Effect renounces the purpose of having an experimental group versus a control group in experimental research. However, some researchers argue that the inevitability of behavioural change in the context of blended learning research is expected, therefore affecting the outcome of transmuting learning (Brown, 1992; Jones, 1992). Furthermore, another acceptable explanation is the role of confounding variables in the samples included, for instance existing knowledge, which may have contributed to the results. A fair experiment is done on the assumption that both experimental and control groups are at par in knowledge or skills, but the reality may be that the control group happened to possess the pre-requisite knowledge to outperform the experimental group.

CONCLUSION

The powerful ESs for each of the 96 samples were probed to grasp the effectiveness of blended learning in relation to various dependent variables. The ESs were calculated using the difference between the posttest mean of the treatment group and the posttest mean of the control group, subsequently divided by the overall standard deviation. Then, the numbers were interpreted using Cohen's (1988) Benchmark to yield a strength of either small, medium or large. Collectively, the findings suggest that blended learning is highly potent in increasing learners' performance; however, it could well be attributed to the majority of samples focusing on performance as either their primary or sole dependent variable. In fact, researchers should not ignore the secondary dependent variables of blended learning as they eventually lead to improved performance. Also, researchers need to take note of confounding variables that may adversely affect the results of the experiment, one such as the Hawthorne Effect (Mayo, 1949) where subjects change behaviourally when being observed. Lastly, the integration of technology into language teaching and learning creates a holistic learning setting on top of enhancing the four imperative proficiencies in acquiring language competency.

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Undergraduate Multicultural Education in the Czech Republic

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ABSTRACT

This paper focuses on undergraduate multicultural education in the education of primary school teachers in the Czech Republic. The aim of this paper is to show the current range of study disciplines focused on this topic and also to compare the frequency and contents with competence that should be acquired by becoming teachers during their study.

Key words: education, multicultural education, multicultural competence, teacher's education, undergraduate education

INTRODUCTION

The current situation of increased cultural diversity mostly affects the field of helping professions including pedagogical, health, social and psychological disciplines. The aim of these professions is to provide a support and help during intensive contact with their clients. Daily contact with individuals and groups of different cultures, ethnicities, nationalities or beliefs is not unusual for the people of these disciplines. On the contrary, it can be said that because of today's migration crisis, the frequency of such contacts may even increase. (Hladík, 2014)

Therefore, our aim is to provide an overview of multicultural education in the undergraduate level of becoming primary school teachers in the Czech Republic as an example of a possible form how to be prepared for worldwide cultural plurality.

It is necessary for social development to educate future teachers for practice, where diversity is understood as something enriching and helping to shape the value system of individuals and societies. (Preissová Krejčí, Cichá, Gulová, 2012)

Multicultural education is mostly implemented at faculties that provide teaching specialization in the form of optional courses. This situation has been discussed for more than 10 years with the opinion that it should be included as a compulsory subject in all study programs.

The Varianty Educational Program of People in Need did a research in 2007 that evaluated programs of multicultural education in the Czech Republic, focusing on providers from non-profit organizations, universities and other organizations. According to the results, the most problematic area was the area of education. Respondents claimed low preparedness of teachers for leading multicultural education, including an unsatisfactory education at faculties of education, where the way of preparing future teachers in the area of multicultural education was inadequate. Students were not familiar with key concepts of multicultural topics and they also were not able to master pedagogical methods of their teaching. According to the respondents, only a few graduates of the faculties of education were able to independently set up and lead multicultural education. In addition, a significant percentage of other graduates suffer from prejudice against certain minorities. (Bořkovcová, Hájská, 2008)

School psychologist Lukas (2008) states that multicultural education still does not have a comprehensive concept applicable to different levels of education in our country. This education is mostly taught in a frontal form in terms of enumeration of minority specifics without showing effective ways to handle these specifics. Multicultural education mostly focuses only on the Roma minority.

Nakládalová (2012), who referred about the lack of offer and inconsistency in terms of terminology and content of study subjects of multicultural education in the preparation of primary school teachers, also examined this topic. She confirmed the fact that multicultural education has a status of optional courses, which generally leads to a lack of professional readiness for pluralist class composition.

Multicultural competences of becoming teachers

Multicultural competences are the sum of knowledge, skills, abilities and attitudes that are acquired by students during multicultural education, which is the main objective of this type of education. (Hladík, 2006)

Acquiring and developing these competences is a lifelong process. It depends on age, culture and social environment of an individual. They can be observed in behavior or activities and developed by mutual sharing. (Veteška, Tureckiová, 2008)

Haapanen (1999) claims that becoming multicultural competent is a complicated process that can be described in 3 degrees. The first one is the effort to seek “multiculturalism” in yourself – being opened to diversity. The ability to analyze and understand the values and principles of a culturally diversified society is the second one. The last degree is willingness towards multicultural development. The author also describes this process as a lifelong journey.

This journey leads through real knowledge of cultures, including their specific contexts. (Preissová Krejčí, Cichá, Gulová, 2012)

The increasing efforts to unify requirements for graduates in the field of education have been reflected also among multicultural competences.

Table 1: Multicultural competences of graduated teachers (Hladík, 2006)

Knowledge	Skills	Attitudes
- in the are of respect for human rights	- orientation in multicultural reality	- respect for socio-cultural diversity
- of socio-cultural specifics of national and ethnic minorities	- to didactically process topics realted to life in a multicultural society	- respecting the need to follow human rights
- of methods and forms of taching suitable for multicultural education	- to work with a student from different socio-cultural background	- standing up against intolerance and racism
	- to solve problems of coexistence of different socio-cultural groups through a nonconflict and peaceful way	
	- to be active in the fight against intolerance and racism	
	- to connect the knowledge from multicultural education with the knowledge from other subjects	

The purpose of this paper is to show an overview of undergraduate multicultural education of becoming primary school teachers in the Czech Republic with the focus on the frequency and possible differences among goals and contents of this type of education. The reason is to identify the readiness of becoming teachers for the current migration crisis in Europe because of the possible contact and work with these people of different nationalities and cultures.

METHODS

In accordance with the goals of this paper to examine undergraduate multicultural education, the content analysis was used to find the frequency and possible differences or consistency between goals and contents of this type of education.

Information portals of each university were searched in order to find out whether multicultural education is provided in study plans or not. By multicultural education was meant a separate study discipline primarily related to this this topic. The research was focused on public, private and state universities.

The keyword was the adjective *multicultural* as a valid term for this type of education in the Czech Republic since the 1990s. Other possible adjectives or titles of these study disciplines were also examined and detected. Discovered study disciplines were part of study plans in academic year 2016/2017.

FINDINGS

The importance of multicultural education as a form of preparation for life in culturally diverse society is shown among all universities that provide education of primary school teachers in the Czech Republic. This type of education is implemented in 9 universities, mostly at faculties of pedagogy but also at Faculty of Science at University in Hradec Králové and at Faculty of Science, Humanities and Education at Technical University of Liberec.

Table 2: The overview of Czech universities where multicultural education is implemented in the education of primary school teachers

University	Faculty	Study discipline
Masaryk University (Brno)	Faculty of Education	Multicultural education
Charles University (Prague)	Faculty of Education	Intercultural education
Jan Evangelista Purkyně University in Ústí nad Labem	Faculty of Education	Multicultural education Social exclusion
Palacký University in Olomouc	Faculty of Education	Multicultural education
University of South Bohemia in České Budějovice	Faculty of Education	Multicultural education in the Czech Republic and European Union
University of Ostrava	Faculty of Education	Multicultural education
University of Hradec Králové	Faculty of Education Faculty of Science	Multicultural education
University of West Bohemia (Plzeň)	Faculty of Education	Multicultural education
Technical University of Liberec	Faculty of Science, Humanities and Education	Multicultural education

As for the terminology of study disciplines, there can be seen 2 adjectives “multicultural and intercultural” among all universities with the exception of Faculty of Education at Jan Evangelista Purkyně University in Ústí nad Labem, where this type of education is also provided in subject called *Social exclusion*.

The most typical status of this education is optional course in the range of 2 hours a week in forms of seminars. This research also shows different approaches and directions these study disciplines. It can be caused by the relative novelty of this type of education because it was implemented in academic year 1993/1994 at the Department of Pedagogy of the Faculty of Philosophy at Charles University in Prague.

The introductory lessons are mostly identical in defining basic terms and concepts and other and then it differs among each university. Practical concept of multicultural education is increasing because of many requests by experts and student themselves. Especially, Faculty of Pedagogy at Palacký University in Olomouc can be seen study disciplines Multicultural education 1 and 2, where students are able to acquire multicultural competences on the theoretical and practical level. Multicultural education 1 provides basic knowledge of various socio-cultural groups in Czech and European societies and Multicultural education 2 is mainly oriented on the skills connected with practicing multicultural competences in reality.

CONCLUSIONS

The indispensability of multicultural education, as a possible form how to be prepared for worldwide cultural plurality, was confirmed by our analysis that shown the existence of this type of education among all examined universities in the Czech Republic. Differences are in terminology and contents of these study disciplines.

The awareness of the difference between declared and real content is clear. It is not entirely possible to ensure the results of any education as it is written in study plans. It depends on many circumstances that can affect this process.

However, it is necessary for every becoming teacher to have the opportunity to complete a study discipline that

helps with the preparation for culturally pluralistic composition of the class. This fact is based on the findings that majority of these disciplines are optional courses, although the discussion about changing the status to obligatory study disciplines lasts more than 10 years.

Another problem is the predominant theoretical focus of this education. Future teachers have limited opportunities during their study to acquire multicultural competences in educational reality. This fact requires constant work.

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Table 1: Multicultural competences of graduated teachers (Hladík, 2006)

Table 2: The overview of Czech universities where multicultural education is implemented in the education of primary school teachers

Understanding Technological Pedagogical Content Knowledge of Preservice Teachers in Teaching Across Subjects: A Case Study in Hong Kong

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ABSTRACT

Little research on preservice teachers' pedagogies in Technological Pedagogical Content Knowledge (TPACK) across subjects has been conducted. Broad and in-depth understandings of the teachers' TPACK patterns are imperative to enhance subject teaching in schools. This article aims to explore preservice teachers' pedagogic practices of integrating technology for teaching. By examining their pedagogies through the TPACK framework, the key question is: What pedagogic patterns do the preservice teachers interweave into their subject teaching? We explore preservice teachers' pedagogies across subjects in Hong Kong as a cross-case study. The findings suggest that the teachers preferred to use technology as various pedagogic strategies and representations for teaching. The majority preferred to integrate technologies in teaching in support of students' understanding and construction of subject knowledge. Implications of preservice teachers' TPACK practices for policymakers and teacher educators aiming to enhance teacher education are also discussed.

INTRODUCTION

Professional teachers not only need to attain content and pedagogical knowledge (Shulman, 1986), but also relevant technological knowledge to gain a wider repertoire of teaching strategies for students' learning needs in the teaching process (Ottenbreit-Leftwich, Glazewski, & Newby, 2010). Given the various pedagogical preferences, decisions and characteristics in teaching with ICT tools (Jimoyiannis & Komis, 2007), it is imperative to gain in-depth understandings of preservice teachers' pedagogy of integrating technology in teaching. As such, this proposal aims to explore preservice teachers' pedagogic patterns of integrating technology for teaching through Technological Pedagogical Content Knowledge (TPACK). Although many studies on teachers' TPACK practices have been conducted in Western societies, in-depth understandings of preservice teachers' pedagogic patterns in TPACK across subjects in different parts of the world are limited. Specifically, the following questions are addressed:

- RQ1. What are the preservice teachers' preferences for technological tools used in teaching across subjects?
- RQ2. How do the preservice teachers integrate TPACK for teaching across subjects?
- RQ3. What pedagogic patterns do the preservice teachers interweave into their teaching across subjects?

THEORETICAL FRAMEWORK

Shulman (1986; 1987) first proposed the concept of Pedagogical Content Knowledge (PCK) which refers to a synthesis of three knowledge bases: subject matter knowledge, pedagogical knowledge, and knowledge context, to examine teachers' knowledge for teaching. Recognising the contribution of technology to teaching, Niess (2005) advocated preservice teachers' development of a conception of technology in teaching different subject matter. Adapting a fourth component into Shulman's PCK, she further contextualised technology as an integral part of PCK which was enhanced as Technological Pedagogical Content Knowledge (TPCK) in which technology played a key role in teaching. Technological knowledge has become an essential part of teacher knowledge.

As a theoretical framework, Thompson and Mishra (2007) further renamed the TPCK acronym as Technological Pedagogical and Content Knowledge (TPACK) to better reflect this construct as a 'Total PACKage' that helps teachers improve student learning and emphasise 'intelligent integration of technology' in teaching. Indeed, the three types of knowledge are interrelated components of teaching. Figure 1 shows the three knowledge domains and their sub-domains in TPACK.

Such classification of the knowledge domains is debatable. Angeli and Valanides (2009) suggested viewing TPACK as a distinct form of knowledge which is different from its constituent components, while Cox and Graham (2009, p.64) defined TPACK as "a teacher's knowledge of how to coordinate the use of subject-specific activities or topic-specific activities". Nonetheless, the notion of TPACK has been widely studied across the field of integration of technology (e.g., Tømte, Enochsson, Buskqvist & Kårstein, 2015; Voogt et al., 2013).

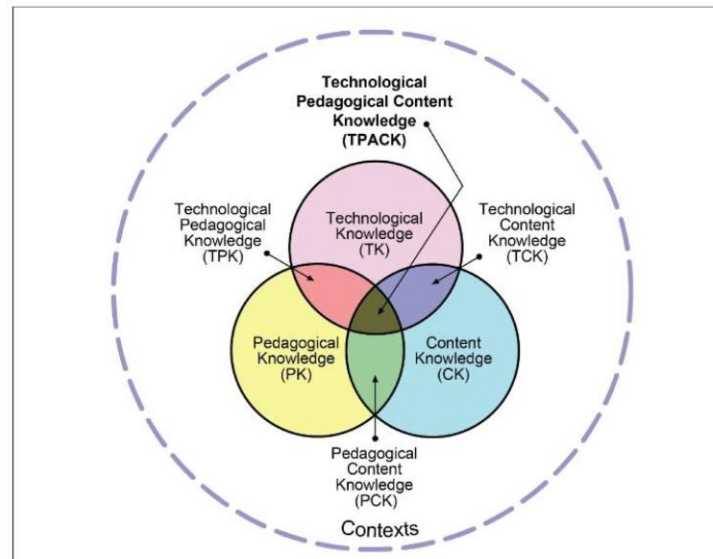


Figure 1. The three knowledge domains and their sub-domains in TPACK. (Koehler & Mishra, 2008, source <http://www.tpack.org/>)

THEMATIC UNDERSTANDINGS OF TPACK PRACTICES ACROSS SUBJECT AREAS

A number of studies have used Koehler and Mishra's (2008) TPACK to understand teachers' knowledge across a range of specific subject domains, such as mathematics (e.g., Jang & Chen, 2010; Graham et al., 2009), science (e.g., Niess, 2005) and social science (e.g., Hammond & Manfra, 2009). The findings of these studies reflect that teachers' TPACK varies across different subject domains. Subsequent studies (e.g., Chai, Koh, & Tsai, 2010) did not further investigate the differences in the preservice teachers' TPACK integration or pedagogical patterns across various subject domains.

Instead of simply integrating individual T, P and C knowledge components as per Koehler and Mishra's (2008) conception, Niess et al. (2009) adapted Grossman's (1990) central components of PCK, and further proposed the major themes of TPACK for teacher development: "Curriculum and Assessment", "Learning", "Teaching" and "Access". These themes focus on examining teachers' TPACK as the pedagogical standards that consider how teacher knowledge is incorporated into technology through which teachers' knowledge of teaching develops and is reflected. We specifically conceptualise these themes as a theoretical framework of the four-theme TPACK development for teachers. Table 1 shows the framework.

Table 1: A four-theme TPACK development for teachers.

Theme of TPACK Development	Description	Pedagogic Focus
T1 Curriculum and Assessment	<ul style="list-style-type: none"> Curriculum, the plan and treatment of the subject matter/content. Assessment, assessing the students' understandings of learning subject content. 	<ul style="list-style-type: none"> Integrate technologies into curriculum, instruction and assessment for students' understanding of subject knowledge.
T2 Learning	<ul style="list-style-type: none"> Focus on understanding subject matter/content through technology. Demonstrate how students learn, such as development of students' thinking and other generic learning skills by technology. Ensure students make appropriate use of technology for learning. 	<ul style="list-style-type: none"> Facilitate students' use of technological tools and digital materials for individual and collaborative exploration. Understand specific subject domains through technology for students' construction of knowledge.
T3 Teaching	<ul style="list-style-type: none"> Focus on delivering subject matter/content with or without the use of technology Design instructional approaches Cultivate a technology-enabled classroom environment Participate in professional development 	<ul style="list-style-type: none"> Develop instructional strategies that integrate technology in teaching and cultivating an IT-enabled learning environment in schools. Engage in professional learning in schools.
T4 Access	<ul style="list-style-type: none"> Convenient usage (whether or not students are allowed to use technology) Reduced barriers (how teachers address barriers to technology integration) High availability (how technology supports higher levels of learning and teaching) More adjustment of specific subject content available for increasing numbers of diverse students' learning needs. 	<ul style="list-style-type: none"> Allow students access to appropriate use of technology for learning in schools. School administration may be relaxed to facilitate learning within and beyond the walls of a school. Teachers' barriers to integrating technology can be addressed by building professional learning communities in schools.

Adapted from Niess et al. (2009).

METHODS

We adopted a cross-case study approach (Yin, 2014) to gain an in-depth understanding of the preservice teachers' pedagogies in teaching practicums. As a major curriculum component of teacher education, teaching practicums are about learning to teach in an authentic school setting (Lave & Wenger, 1991; Putnam & Borko, 2000). This is a significant part of teacher education programmes during which pre-service teachers are required to put their technological, pedagogical and content knowledge into practice. Thereby, the three research questions were answered.

DATA COLLECTION AND ANALYSIS

Multiple data sources were collected. First, the interviews with the preservice teachers ($n = 23$) who accepted our invitation to take part in the study were conducted in a university in Hong Kong. The teachers were asked to talk about their teaching and learning experiences as well as their rationales for integrating ICT tools into their teaching. Each interview lasted about an hour and was digitally recorded with field notes, and then transcribed verbatim. Second, a researcher observed one lesson of each participant to understand their use of ICT tools in an authentic teaching context so as to develop further questions for the interviews. Field notes were taken to record the sequence of activities, and comments were added after the observation. Third, each participant was also asked to voluntarily provide lesson plans of their teaching practicum for triangulation purposes.

Although the data were mainly collected based on the participants' self-reports, this approach was appropriate as the teachers' first-hand experiences were collected in authentic settings (Creswell, 2012). These data collected from multiple sources could provide different perspectives and triangulation for the participants' patterns of TPACK in their teaching that formed the case study. The data analysis consisted of several iterative cycles. First, the interview data were categorised into the preferences of technological tools used by each participant and subject as listed in Table 4. Second, the four themes of interweaving TPACK into teaching shown in Table 1 guided the second round of data analysis for each case. It should be noted that some data might fall into more than one theme of TPACK practice. Third, cross-case comparisons were conducted across subjects that allowed us to see patterns emerging within each subject teaching (Yin, 2014) (see Tables 5 & 6).

The constant comparative method (Strauss & Corbin, 1997) was used throughout the process of data analyses in NVivo, computer-aided data analysis software. As the data were coded separately, the inter-rater reliability between the two researchers' coding by Cohen's Kappa (Cohen, 1960) was 0.80, which suggested a high agreement among the coding. Any disagreements were resolved through discussion. Table 2 shows a sample of the coding categories and relevant quotes used for data analysis.

Table 2: A sample of the coding categories and relevant quotes.

Themes of Teacher TPACK Development	Quotes
T1 Curriculum and Assessment	<ul style="list-style-type: none"> - For teaching Art, I would link my pedagogy to the subject content of each lesson and the appropriate ways for student learning. Technology is an effective bridge between content and learning activities. - For the subject of Art, it is important to share each other's work and exchange ideas. - I would use the stop watch in PowerPoint to count the time for their discussion. This reflects their familiarity with the topic. - I used a ready-made e-learning platform to assess student learning.
T2 Learning	<ul style="list-style-type: none"> So, I set up blogs and discussion boards to allow students to share their art works. - For learning music, I used the pictures and lyrics from the Internet websites or YouTube videos to help the students understand the mood of the song.
T3 Teaching	<ul style="list-style-type: none"> - When I wanted them to discuss a subject, I would put the question posed in the PowerPoint and ask them to discuss it. - In addition, I would post some relevant art news for them to read on these platforms.
T4 Access	<ul style="list-style-type: none"> - I used a ready-made e-learning platform and other online applications to facilitate student learning.

RESULTS

In Hong Kong, the initial teacher education requires the secondary preservice teachers to choose one subject as their major, while the primary preservice teachers may choose one or two subjects as their major to study in the teacher education programme. Twenty-three preservice teachers ($n = 23$; 12 primary and 11 secondary) of a cohort of the four-year full-time Bachelor of Education programme from a university in Hong Kong voluntarily participated in this cross-case study. Each participant represented a case for examination. The participants were

all ethnic Chinese, their ages ranged from 21-26, and they were purposefully selected from a variety of subject domains. Their teaching experiences in schools were mainly gained from two rounds of practicum lasting six weeks in Year 3 and eight weeks in Year 4. There were 12 who taught in primary schools and 11 who taught in secondary schools.

Those who chose two subjects (i.e., 8 out of 12 primary preservice teachers) needed to teach both subjects in primary school during their teaching practicums. Thus, the total of subjects taught was counted as 31 rather than 23 ($n = 31$). The seven major subjects that the preservice teachers covered in primary and secondary education in this study included: Mathematics, Chinese (as a first language), English (a compulsory foreign language), Music, Physical Education, Visual Arts and General Studies. ‘General Studies’ is a core subject taught in Hong Kong primary schools that integrates science, technologies, personal, social and humanities education (Education Bureau, 2011). Table 3 shows the aggregation of the teachers’ subject profiles.

Table 3: Aggregation of the teachers’ subject profiles.

The Preservice teachers	Chinese (CHI)	English (ENG)	Physical Education (PE)	Music (MU)	Visual Arts (VA)	General Studies (GS) [†]	Mathematics (MAT)	Sub-total of teachers teaching the subjects*
Primary ($n = 12$)	1	3	3	2	2	5	4	20
Secondary ($n = 11$)	3	2	2	2	2	n/a	n/a	11
Total	4	5	5	4	4	5	4	31**

* Eight out of twelve primary preservice teachers chose to teach two subjects (e.g., one studied both Mathematics and Music). Thus, the sub-total of primary teachers teaching the subjects was 20 instead of 12.

** As the primary preservice teachers chose to teach two subjects, the total number of subject teachers was 31.

[†] General Studies is a subject that includes science, technologies, personal, social and humanities education (Education Bureau, 2011).

We further present the results in three sections: (1) preferences for technological tools for teaching specific subjects; (2) interweaving of the four themes of TPACK into teaching various subjects; and (3) preservice teachers’ pedagogical patterns across subjects by TPACK.

PREFERENCES FOR TECHNOLOGICAL TOOLS FOR TEACHING SPECIFIC SUBJECTS

To answer the first question, the preservice teachers’ preferences for technological tools used during their teaching practicums were categorised by different subjects. Table 4 summarises the choices of technological tools used by specific subjects.

Table 4: Preservice teachers’ perceived levels of using technology in teaching.

Specific subject	No. of subject teachers	Levels of using technology in teaching**		
		Light User (Below 20%)	Moderate User (between 20%-40%)	High User (above 40%)
Physical Education	5	5	0	0
Chinese	4	1	2	1
English	5	2	1	2
Mathematics	4	1	1	2
Visual arts	4	1	1	2
General Studies	5	1	1	3
Music	4	0	1	3
Total	31*	11	7	13

* Eight out of twelve primary preservice teachers chose to teach two subjects, thus the total number of teachers teaching the subject is 31.

** Those teachers who chose two subjects might have different levels of using technology in teaching the two different subjects.

Interestingly, all participants incorporated YouTube in different subject teaching in one way or another during their teaching practicums. As a common practice among the teachers, one student recalled that “I can easily search for information about up-to-date artists’ work to illustrate the music concepts from YouTube” (PT 2, MU). English, Chinese and General Studies teachers explained that one major reason for choosing YouTube was because “students usually feel more interested and engaged when we use lively and up-to-date videos found on YouTube to teach” (PT 1, ENG).

INTERWEAVING THE FOUR THEMES OF TPACK INTO TEACHING VARIOUS SUBJECTS

Various subject preservice teachers demonstrated how the teachers interwove the four themes of TPACK into their teaching. Table 5 shows the aggregation of interweaving the four themes into teaching various subjects.

Table 5: Choice of technological tools for teaching specific subjects.

Specific subject	No. of teachers teaching the subject	Choice of technological tools**						
		CD/DVD	E-book	PowerPoint	YouTube	Blogs	Discussion board	Websites ⁺
Physical Education	5	3	0	1	5	0	0	2
Chinese	4	0	1	4	4	0	0	3
English	5	2	2	5	4	1	0	3
Music	4	3	1	4	4	0	0	1
Visual Arts	4	0	0	4	4	0	1	4
General Studies	5	1	3	4	4	0	0	3
Mathematics	4	0	4	4	3	0	0	2
Total	31*	9	10	26	28	1	1	18

* Eight out of twelve primary preservice teachers chose to teach two subjects, thus the total number of subject teachers was 31.

** More than one type of technological tool might be used in each subject by individual teachers.

⁺ Websites include any form of website except social media such as YouTube, Discussion board and Blogs

According to Table 5, the number of subject teachers was 31 due to eight out of twelve primary teachers choosing to teach two subjects. Regardless of the subject taught, the preservice teachers preferred to use technology as instructional strategies and representations for teaching (T3). Besides, the rationale of the majority for using technologies in teaching was to facilitate students' understanding and construction of subject knowledge (T2), while only nine participants liked to incorporate technology for immediate class assessment or subject curriculum (T1). Some subject teachers recalled that there were difficulties in allowing students access to technologies (T4) because the computers and network connection were not available for student use in the placement schools.

PEDAGOGICAL PATTERNS IN THE FOUR-THEME TPACK DEVELOPMENT FOR TEACHERS

By comparing the teachers' cases, patterns of TPACK practices in the teaching practicum across subjects were identified as shown in Table 6. The table illustrates that the preservice teachers' patterns of practising TPACK in teaching the seven subjects occurred to a relatively wide extent, similar to Erixon's (2010) findings. This cross-case comparison has evidenced their relatively wider choice of different technological hardware and software tools in teaching various subjects in the primary and secondary placement schools.

Table 6: Integration of four themes TPACK in teaching various subjects.

Specific subject	No. of subject teachers	Theme of teacher TPACK for teaching various subjects**			
		T1	T2	T3	T4 ⁺
Physical Education	5	0	4	5	0
Chinese	4	1	4	4	0
English	5	1	3	5	0
Music	4	2	3	4	2
Visual Arts	4	2	2	4	2
General Studies	5	1	4	5	3
Mathematics	4	2	3	4	3
Total	31*	9	23	31	10

* Eight out of twelve primary preservice teachers chose to teach two subjects, thus the total number of subject teachers is 31.

** Individual teachers may choose more than one theme of TPACK in teaching various subjects.

⁺ T1: Theme 1 - Curriculum and Assessment; T2: Theme 2 - Learning; T3: Theme 3 - Teaching; T4: Theme 4 -Access

CONCLUSIONS

This is a small-scale, cross-case study in an Asian Chinese context of teacher education contributing to the in-depth understanding of the teachers' pedagogical patterns of technology integration in teaching different

subject domains. Although the results could not be generalised across different educational systems, this limitation implies that teachers' pedagogic development in TPACK can be context specific, subject to technological preferences, specific subject culture and individual school contexts. On the other hand, the results provide a broader perspective on other teachers' development of subject teaching and learning through the framework of the four-theme TPACK development for teachers. Teacher educators and policymakers can enhance and enrich the new generation of preservice teachers' TPACK practices in various preparation programmes.

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University Library's Role as a Quality Indicator of Academic Curriculum Quality Assurance

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ABSTRACT

The purpose of this study is to identify the critical roles and impacts of the university library services as a quality indicator on the teaching-learning support of the academic curriculums of Rangsit University. Rangsit University, established in 1985, is one of the large private universities in Thailand in term of the number of program offering. Currently there are total of 137 programs; 94 undergraduate programs, 34 master degree programs, and 9 doctoral degree programs. Rangsit University Library has a vision to be a digital learning resource center with excellent services. There are more than thirty millions pieces of information resources which mainly electronic ones. The Library has equipped the modern technology in information resource management and user services, for examples: integrated library system; RFID; mobile applications for e-Book, etc. The challenge of how much the Library does in serving the teaching-learning process has been raised and indicated as a quality assurance standard. This study used the analysis of document as a research methodology. The YR 2016 internal quality assessment (IQA) or self-assessment reports of every program were reviewed and analyzed. The IQA report was a quality self-assessment report comprised 6 quality standard elements. In this case, the 6th quality standard element and its indicator concerning with library and teaching-learning facilities was investigated and analyzed with content analysis into 4 following categories: 1) characteristics or types of library services and supports 2) level of library satisfaction of students and faculty members 3) comments or feedbacks on library services and supports and 4) suggestions for the future development. The findings of this study were beneficial to the Rangsit University Library in developing its own services and practices in order to serve the teaching-learning processes. Additionally, the Library could target the specific group of users in each program in managing and enhancing users' expectations and satisfactions.

Keywords: university library, academic curriculums, academic programs, quality assurance, Rangsit University

INTRODUCTION

Rangsit University, established in 1985, is one of the large private universities in Thailand in term of the number of program offering. Currently there are total of 141 programs; 94 undergraduate programs for, 37 Master Degree programs, 1 Graduate Diploma and 9 Doctoral Degree programs. Rangsit University is the only private university which has been assessed on education standard quality by the Office for National Education Standards and Quality Assessment (Public Organization) and rated "Very good quality" (Rangsit University, 2017)

The curriculums are broadly categorized into five groups as follows;

- 1) Faculties of Medical and Health Sciences: College of Medicine, Faculty of Dentistry, Faculty of Pharmacy, Faculty of Medical Technology, Faculty of Nursing Science, Faculty of Physical Therapy, Faculty of Science, Faculty of Optology, College of Oriental Medicine and Faculty of Radiological Technology.
- 2) Faculties of Engineering and Technology: College of Engineering, College of Information and Communication Technology, College of Agricultural Innovation Food and Biotechnology and Institution of Aviation.
- 3) Faculties of Humanities and Social Sciences: College of Social Innovation, College of International, Institute of Diplomacy and International Studies, Faculty of Liberal Arts, Faculty of Communication Arts, Faculty of Law, Faculty of Education and Graduate School.
- 4) Faculties of Art and Design: Conservatory of Music, Faculty of Architecture, Faculty of Arts and Design and Faculty of Digital Art.

5) Faculties of Economics and Business Administration: College of Government, Faculty of Business Administration, Faculty of Accounting, College of Tourism and Hospitality and Faculty of Economics.

Every program or curriculum have been evaluated and assured the quality by the Internal Quality Assurance (IQA) for Higher Education Standard organized by the Commission on Higher Education, Ministry of Education. The IQA framework is consisting of six standard elements: 1) curriculum standardization 2) graduation 3) learners/students 4) faculties/instructors 5) learning-teaching process, learning outcome evaluating process and 6) learning facilities (Ministry of Education, 2014). Regarding to the IQA standard, the University has been required to assure its curriculum annually. One of those indicators is the quality of learning facilities which included laboratory, dormitory, technology support, library, books, journals, online databases and other electronic resources. All those facilities must be enough and ready for usage. The quality indicator shall be considered by the level of user's satisfaction and its continuous improvement process.

Rangsit University Library has a vision to be a digital learning resource center with excellent services. With its own 6 story-building, the Library houses more than thirty-five millions books and printed materials and more than thirty-four millions items of electronic resources. As a central library, it serves all academic programs in teaching-learning-researching process. The Library has equipped the modern technologies and tools in managing information resources and user services, for examples: library integrated system; single search tool; electronic interlibrary loan service; RFID; mobile applications for e-Book, etc. (Rangsit University Library, 2017)

The Library itself has done a standard LibQUAL+ survey on its user's satisfaction and needs annually. The result has been used for its library strategic development and enhancing the quality of services. In the year 2016, Rangsit University Library (2016b) did a survey on 1,307 user's samples and revealed the level of user's satisfaction at a good level (\bar{X} 3.77 out of 5). The samples were satisfied with library service staff (\bar{X} 3.93); library physical and facilities (\bar{X} 3.90); information access (\bar{X} 3.74); library technology (\bar{X} 3.73); information resources (\bar{X} 3.72); and library service communication (\bar{X} 3.62). Additionally, the modern technological application, information resource development; and information access skill development were insisted as the user's requirements.

Even though, the result of its survey was at a high level of satisfaction, the Library found there might not apparently serve the needs of the particular curriculum or programs. With the new challenges and expectations in higher education, university library must take part of learning outcome process. This led to this study in according to find to which extent the library support the quality of the university curriculum and their teaching-learning process.

THE STUDY

This research aimed to identify the critical roles and impacts of the university library services as a quality indicator on the teaching-learning support of the academic curriculums of Rangsit University. This study used the analysis of document as a research methodology. The YR2016 internal quality assessment (IQA) reports of 134 academic programs; specifically the report on the 6th quality standard element was analyzed and presented into 4 following categories: 1) characteristics or types of library services and supports 2) level of library satisfaction of students and faculty members 3) comments or feedbacks on library services and supports and 4) suggestions for the future development.

FINDINGS

The results of the IQA report reviewed and analyzed of 134 programs; 89 bachelor degrees, 36 master degrees and 9 doctoral degrees showed as following:

1. The characteristics or types of library services and supports

The results showed in Table 1, the library services used by the faculty members and students in most programs were 1) request for purchasing and usage the information resources (books, journals, e-resources, etc.); 2) Online database access services; 3) Library orientation, Information literacy & database searching trainings, respectively. There

were 15 out of 134 programs do not mention any library facility or service used in teaching-learning process of their programs.

Table 1 Library services and supports

Library services and supports	Bachelor	Master	Doctoral	Total N=119
1. Request for purchasing and usage the information resources (Books, journals, e-resources, etc.)	76	28	7	111
2. Online database access services	25	24	8	57
3. Library orientation, information literacy & database searching trainings	30	14	6	50
4. Research support services	5	15	5	25
5. Interlibrary services	1	8	4	13
6. Other services (Library & reading promoting events, study room service, etc.)	3	3	-	6

2. The level of library satisfaction

The 76 programs were satisfied with the library services at a high to very high level (as shown in Table 2). However, there were 58 programs do not mention the certain level of library satisfaction in their reports.

Table 2 The level of library satisfaction

Programs N=76	Level of satisfaction		Translate	
	Lowest	Highest		
Bachelor (N=48)	3.70	4.80	High	Very high
Master (N=21)	3.71	4.83	High	Very high
Doctoral (N=7)	3.56	4.60	High	Very high

3. The comments or feedbacks on library services and supports

As shown in Table 3, the 52 programs had feedbacks on library services and supports as following: 1) not enough information resources, especially textbooks on specific fields; 2) lack of information access skill, especially online database searching (students); 3) more learning and tutoring areas needed; and 4) longer opening hours during final examination period.

Table 3 The comments or feedbacks on library services and supports

Comments/feedbacks	Bachelor	Programs		Total N=52
		Master	Doctoral	
Number of Information resources	19	10	3	32
Information access skills	1	5	2	8
Learning and tutoring areas	5	2	-	7
Opening hours	3	1	1	5

4. The suggestions for the future development

The suggestions for library mentioned in the thirty IQA reports were grouped into 4 issues as following: 1) more information resource purchasing; 2) more and frequently online database training courses providing; 3) learning common and research common areas providing; and opening hour extension during an examination period and summer term; and 4) developing an efficient communication channel between the programs and library.

CONCLUSIONS

Most of the programs of the Rangsit University were satisfied with the university library at high and very high levels. Nevertheless, the comments or feedbacks on library services and supports which specified by most of the programs were the less number of information resources, lack of information access skill, less learning and tutoring area, and inappropriate opening hours. In order to support the library future development, the programs suggested that the library needed to plan for information resource purchasing budget, organize the information searching and access training courses which suitable for various level of users. Additionally, the library should plan for physical renovation in order to provide more spaces for learning, tutoring and research services. Moreover, the library should consider extending its opening hour during the final examination period and summer term. Last but not least, the efficient communication between the programs and library should be developed in order to creating a better understanding and promoting the usage of library services.

DISCUSSIONS

The study indicated that the curriculums or programs needing the support in information resource purchasing or subject collection development. Most of them insisted the number of books, journals and other materials were not enough. This would be challenge for the library in cooperating with the programs in purchasing planning as same as studying the use of information resources in each programs,

The levels of satisfaction on library services were mostly rated at a high and very high level while the result of the satisfaction survey done by the Library was lower (Rangsit University Library, 2016b). However, not any program got the score lower than 3.51. Those results might be different from the sample size and survey instruments. The Library itself used the standard LibQUAL+ questionnaire (Kyrillidou and Maciel, 2015) while each program could develop their own.

However, revealing the problems, feedbacks, or comments from the members of programs which actually never been responded directly to the Library, was very important. When administrating the satisfaction survey, it was seldom that the library got the open-ended question answered. It was quite challenged for the Library on how to get the direct feedback or suggestion from its users. With the suggestion of creating more efficient communication channels between the library and users was very worth considering, especially via social network media such as Facebook, Line etc.

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Using Systems Thinking as an Efficient Tool for Teaching Transfer of Creative Innovations

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INTRODUCTION

The problem with each product and service a company wants to transfer to the market is that it has to be designed and manufactured so that it finds its customer. Therefore, a designer has to focus on the end user at the very beginning of the creative process. However, many examples from universities and technology transfer centres give evidence that it is so only in very few cases. To improve the situation is thus a task not only for universities, their students and teachers, but also for companies. Focusing design on the customer is a challenge of the education process at universities. That is why we decided to map out the design process in creative studios at the university in order to find out to what extent designers think about customers. We want to find out what barriers prevent transfer of innovations to the market and, vice versa, which steps allow for this process. The truth is that the approach to education in studios where students design their products for customers is not compulsory. However, it may be one of the motivators for students to come up with a better product but also to achieve better academic performance in the studio.

As Radomila Soukalová (2016) specified, an important part in the process of technology transfer, innovation and competitiveness development in the economic and social system is played by universities, particularly by their research and development centres and departments. Universities guarantee independent research and freedom of knowledge that has its rational and ethical dimension, morals and conscience shared by an independent community of teachers and students. Implementing results of research and development, thoughts and individual creativity in practice is a predisposition of continuous innovative activity and of increasing the competitiveness of national economies. Přemysl Strážnický (in Soukalová, 2016), however, points out certain pitfalls of transfer of creative innovations. He claims that the basic precondition of technology transfer is (1) knowledge that relates to the functionality of the transferred solution, (2) its applicability in the market and (3) willingness of the authors to disclose supporting information when negotiating with business partners. Přemysl Strážnický remarks that it is still true that design sells. That is due to the fact that most technical solutions repeat and a new design is a significant added value of a product that manufacturing companies are interested in.

Minaříková (2016) asserts that when applying design thinking within an organisation, the common characteristic is the user-oriented design). Innovation (i.e. change) is the objective that organizations want to achieve through design thinking. Design thinking should also help organizations when solving complex problems. Dorst (2011), among others, describes a complex problem as a situation when we know the required value, but we don't know through which product, service or system we can achieve it. We also don't know what such a product or service should look like. One of the ways how to define the design process is to describe its practical use. The label "Design process" can be perceived as a procedure aimed at achieving the desired change. This procedure starts with problem identification and continues by searching for the suitable solution (Minaříková, 2016). In a situation when we know the desired resulting value of the project, but we don't know which way we should take in order to achieve it, we find ourselves in the environment of creative project management.

Creative project management is a method of creating a new value which is based on the unique talent of the creator aspiring to create a high-quality product within pre-defined limits. The way of creating new value consists in setting relevant processes for creative project management. In addition to the processes of project management, a project manager of a creative project also needs to take into account the talent of the creator and uncertainty of future achievements that are based on the invention of the author of the design. A creative project is a temporary organization that is formed with the view to deliver original and formally perfect products that contain intellectual

property and are delivered in accordance with the objective and within limits that have been mutually agreed in advance (Svirakova, 2014). Ambrose and Harris (2011) define seven stages of the design process that are in line with the proposed procedures for creative project management: (1) define, (2) research, (3) ideate, (4) prototype, (5) select, (6) implement, (7) learn. The objective of this paper is to find barriers and advantages in the design process at the university and propose solution that will facilitate transfer of innovations. We consider transfer of innovations to be successful in the following cases:

- 1) Transfer of a product or service to the market using transfer or the relevant licence to a commercial company that incorporates the product or service in its market portfolio.
- 2) Transfer of a product or service to the market when at least one customer buys the product or service.

We can also consider innovation to be successful when the product is displayed at an exhibition, in a catalogue or presented in some other relevant ways. This definition of successful innovation is based on educational and creative mission of universities. We cannot expect every product made by students to be intended for the market. The objective of creation in studios is to make a product that is potentially innovative, interesting and valuable in its field. Such products also include models, mock-ups and prototypes. Nevertheless, for the purposes of this article, we primarily focus on the students' outcome that has been successful in the market (if only partially).

RESEARCH METHODS

For the analysis of the design process and design thinking we chose to use qualitative research. We started collecting data through questionnaires in November 2016. With respect to the fact that our target group was rather peculiar, i.e. students of art studios, we used a specific graphic form. We presumed that students would find this way of expressing familiar and we would get relevant data in a more efficient way. The questionnaires did not contain any questions, but were in the form of a calendar. There were three milestones on a timeline, the first of them concerned the initiation of their common project at the faculty and the other two were check points of the project. We addressed 85 visual art students and received back 65 filled questionnaires from the following studios: graphic design, spatial design, industrial design, product and digital design, fashion and shoe design. Work of the students from these studios is capped at the end of each term by handing over a specific innovative product in 2D visualization or as a 3D mock-up, model or prototype, which is the third milestone in the calendar-like questionnaire. In our survey we assumed that the students' goal is to carry out the assignment of the supervisor and pass the studio exam and receive the credit hours. We asked, for instance, the following questions:

- What barriers and advantages do you see in your studio?
- Have you thought-out well the problem you're solving?
- Did you set your product target at the very start?
- Do you have an idea at what stage of the design process you currently are?
- Do you have a schedule for your further activity?

We analysed the data from the questionnaires using Grounded Theory and open coding process. Grounded theory is a qualitative research method that is typically used as a means of developing theoretic and conceptual understanding of social and interpersonal phenomena. We classified the answers received in the questionnaires by topics. Each topic represented a certain problem or challenge. For each challenge we grouped the relevant phrases and pieces of sentences. After completing the analysis, we selected a questionnaire filled by a student who was successful in innovation transfer and we proceeded to the second part of the survey: an interview with a selected author of a product. We decided to conduct the interview with the author of a specific design of a fashion collection. We recorded the interview and then transcribed it word for word. We analysed the sentences from the interview in the same manner as we did with sentences in the questionnaire: we grouped them using the open coding process by topics. During the analysis of the questionnaire and interview we dealt with every single sentence, which is in line with recommended processes of Grounded Theory. We asked: What is the gist expressed with this sentence? (Corbin and Strauss, 1990). After dividing the sentences into categories, we assessed the relation between them. We wrote down the results using the mental modelling technique during which we assessed the relation between two elements: A causes B. The relation between these two elements is also expressed with the polarity of the relation. Generally, we can say: If A happens, then B is greater; or if A happens, then B decreases. We marked the polarity using the (+) or (-) sign next to the arrow.

However, events around us are more complicated. Oftentimes, they have many reasons and simplified explanation using the cause and effect is insufficient. Such thinking is referred to as linear thinking. The mental model we recorded on the basis of the assessment of primary data is imperfect. The lack of feedback suggests we need to consider wider context. However, primary data did not allow us to do so, since the student only dealt with the problems or advantages in the design process from her own perspective. Yet, this poses no problem for the survey, quite on the contrary: opinions and experience of the students were a valuable basis that we intended to gather. We continued with the analysis by applying another research method: backward mapping (Glaser and Strauss, 1967).

The backward mapping method is a strategy for the analysis of policies and their implementation that starts with the description of the desired behaviour on the lowest level of intervention, in this case with the designer or in the studio (Elmore, 1980). The analysis may continue by defining the policies, resources and support that is necessary from the highest level if the analysed problem is to be solved. Backward mapping presumes that the closer a participant is to the source of the problem, the greater his/her ability to influence it. Therefore, backward mapping method asserts that the ability to solve problems of complex systems does not depend on the hierarchical structure and system control, but rather on whether we delegate maximum powers to act at the moment when the problem occurs. Using the backward mapping method we extended the mental model of linear thinking and “closed its loops”. With this step we arrived at a better mental model that corresponds with the technique of systems thinking (Peter Senge, 2006). Summary of the ascertained conclusions resulting from the questionnaire and interviews was written using the Causal Loop Diagram (“CLD”), which contains, besides polarities, also specification of the loops (Reinforcing, Balancing). All the research methods we used are shown in the chart below (Figure 1). Particular use of mental modelling including systems thinking is described in the following parts of this article. Systems dynamic modelling is another logical step which can be used in order to further specify our mental systems model (Causal Loop Diagram). CLD is a basis for compiling a systems dynamic model as a Stock and Flow Diagram (“SFD”). Describing the SFD draft is beyond the possibilities of this article.

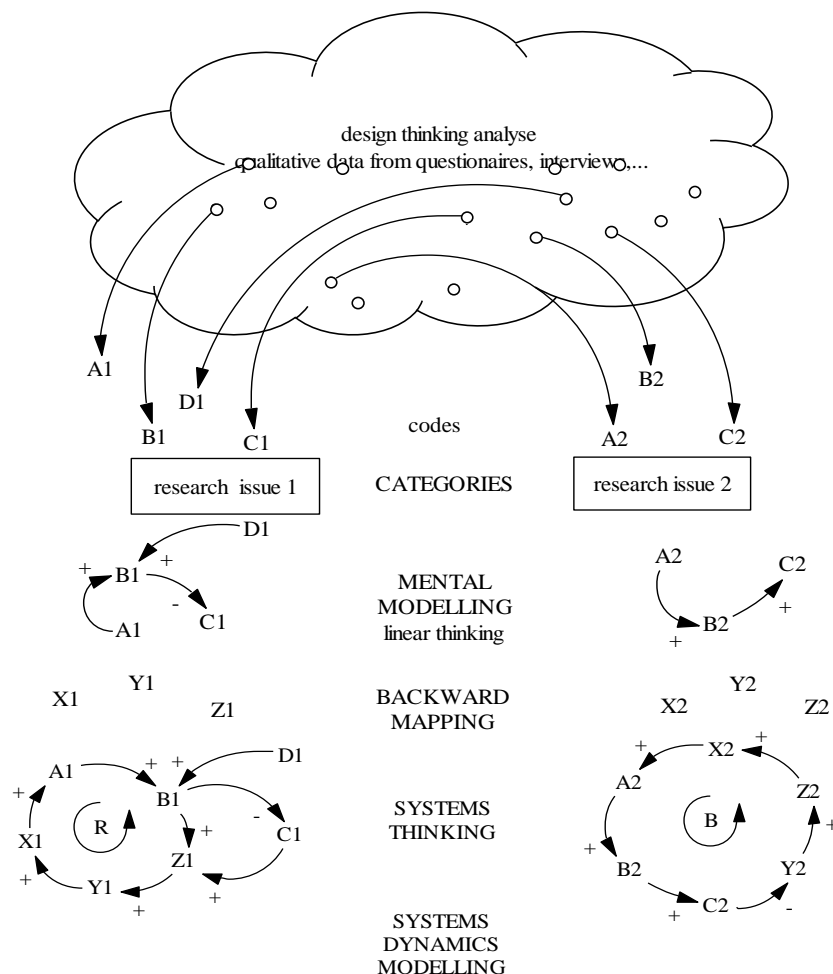


Figure 1: Research methods, inspired by Simonsen & Friberg, 2010 (own resource, 2017)

CASE STUDY FROM FASHION DESIGN STUDIO

Using the case study from the “Water for All” Project we show the possibilities of design thinking in the working process of authors creating a new innovative design. “Water for All” is a project by the Faculty of Multimedia Communication, Tomas Bata University in Zlín, which is based on the environment of cultural and creative industries. All studios under the faculty participated in it. Twelve studios, in a joint effort, dealt with “Water” as a topic of their creation from the beginning of the academic year (September 2016). The “Water for All” Project has two main objectives. The first one is systematic work with the general public. Students came up with a warning that concerned the gradual depletion of water on the Earth. They accentuated that the problems does not only concern developing countries, but also the Czech Republic and it needs to be addressed. The second objective is to instigate cooperation not only between the studios, but also between the faculty and companies that can help students implement their design drafts that concern the “Water” issue. Outcomes of the project are exhibitions, fashion shows, websites, a catalogue, Facebook campaign, conference and scientific publication. A partial outcome of the fashion show is a collection of dresses inspired by the problem of the Aral Sea. Together with the author of the collection we prepared a survey that collected data about the development of the dress collection through questionnaires (see Figure 2 below) and interviews.

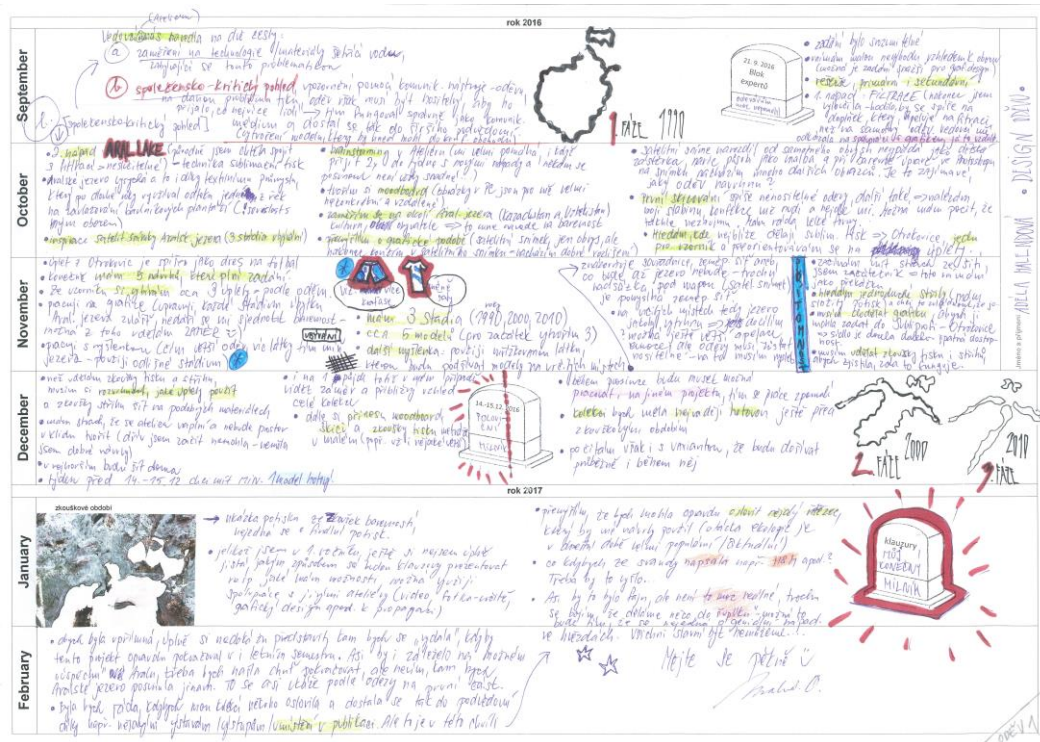


Figure 2: Questionnaire. Aral Sea. (Adela Malendova, 2016)

FINDINGS

From the primary data we identified several research problems using coding and formulated research questions. The research problems are as follows: (1) Problematic transfer of innovation to the market, (2) Pitfalls of assigning the project to the students, (3) Negative assessment by the student of the studio, (4) Designer's lack of funds to manufacture a prototype, (5) Insufficient craftsmanship competences of the designer, (6) Unclear specific experience of the designer. For further analysis using the backward mapping method we selected the first of the above defined research problems. Following the experience of IDEO, a design agency (Knapp, Zeratsky, Kowitz, 2016) we reformulated the problem so that is sounded rather open and optimistic. It is a good predisposition so that we do not get overwhelmed by problems that sound negativistic right at the beginning. That is why we formulated the research question in the following way: How might we get innovation to the market? As it showed, the answer to this question is not obvious at first sight. Introducing a product to the market was simplified to that extent that in our case it is the moment when the first customer buys the product and there is demand of other customers for the same or similar product made by the same designer. If we were to solve all the research problems, our systems model would become far too extensive. We divided designers' answers into segments and grouped them under headings, as you can see below.

Designers have their own vision, it doesn't matter if it is naive

"What if I wrote, for instance, to H&M, just to try it? It might work fine, good, but it's not very realistic, I'm afraid I'm doing something just for the drawer, I guess it's not a brilliant idea, I'd like to make an impression on somebody with my collection so that people are aware of me, for instance through exhibitions, being in a publication. God only knows what will happen, all of us cannot be famous." [AM - Questionnaire] *"I wanted to get to that store. No, it didn't work out. The initial enthusiasm is gone. The problem is that many of the shops are international, they want to work with more famous names. But it certainly caught some attention, also with respect to the fact that the (female) dean opened the exhibition in that dress. That's the best thing that can happen. This way we transfer something about us and something about our thinking." [AM - Interview]*

Product attractiveness

"...but later, as time passed, when I had great feedback from people that concerned the styles that are popular, for instance longer shirt dresses. These are clothes that are comfortable to wear and people have them in their wardrobes, wear such design, so there was a huge number of friends who contacted me and then even the dean. Well, many other people were excited about it and wanted to promote the idea and that was my point. I didn't want to draw attention to myself as the designer, but to the story about the Aral Sea." [AM - interview]

The direct speech is followed by reduced rephrasing of the statements in order to compile a mental map of linear thinking: If the product is attractive, it has a good idea and customers are interested in it, then the designer's motivation to offer it to the H&M chain store increases. There is a lack of competences necessary for negotiating with international chains and the designer doesn't have a portfolio that would be tested by the market. If the product is popular because of its shape and it is well-known in a way and linked to a strong story, it is attractive and appeals to people. It is strong motivation for the designer who is ready to present the (environmental) problem using such a product.

Figure 3 below is a mental map that shows dependences of most of the variables from the above quotes said by the designer. The mental map was made on the basis of the rephrasing of the designer's statements. The polarity of relations between all the selected elements is positive, therefore the (+) symbol. It means that the following element has the same growth (and also decrease) tendency as compared with the preceding element. If there is the (-) symbol next to the arrow pointing at the following variable, it means that the following element has the opposite growth tendency when compared with the preceding element. The elements in the figure are linearly dependent, that means they simplify the relation between cause and effect.

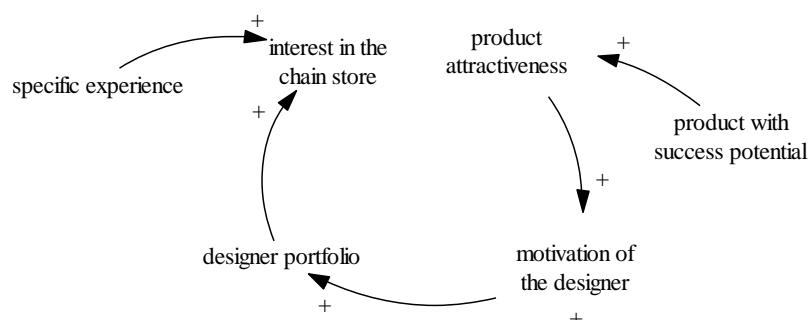


Figure 3: Mental model, linear thinking (own resource, 2017).

Explanation of Figure 3 (above): If I extend my portfolio by three more products that already sell in the market, then I'll have more chance that a chain store, for instance H&M, might be interested in my fashion designs. However, the interest in my portfolio is, among others, conditioned by specific experience, in this case by the ability to communicate with business representatives of H&M. If this ability (cause of the following event) is zero, then the effect will also be zero. As soon as I increase my specific experience, I'll increase my chance to succeed in the clothing industry. The designer's motivation increases hand in hand with the attractiveness of the product. The product attractiveness depends on its success potential.

We stated an example of linear thinking in which we used the following pattern: "A causes B" as a simplified model of reality. As it has been said, the problem of linear thinking rests in the fact that it only seldom captures the complexity of multiple causes and effects that form the reality of our story. A designer's specific experience and high-quality portfolio will probably not be enough so that their product makes its way through to a chain store. Even a designer's motivation is probably not only caused by product's attractiveness to customers. And in no case can we claim that motivation is sufficient so that designers have a wide and market-proven portfolio, while motivation will certainly be one of the factors that contribute to such a situation. Following the same principle, we analysed other sentences (primary data) of the research in the selected category (1) "Problematic transfer of innovation to the market". We went on to rephrase the selected sentences and interconnected them into one mental model.

Subsidies for designers

"Each person got CZK 5,000 for the collection, we counted it this way and that's what everyone got. It was a kind of a motivational source. This money just covered my expenses. Those who had a more expensive collection had to cope with it somehow. So I was glad I didn't have to restrict myself because of the money. We were the only studio that happened to get this money. But it was a big problem even with us, I must say for myself we didn't even know there were some restrictions on the side of the suppliers. I was lucky, because I was the first to go there, so I picked everything they had there for the one thing, the others who went there couldn't buy from them anymore. It was a great advantage for all of us, but later we found out it wasn't for everyone." [AM - interview]

Rephrasing: The grant from the studio as subsidies for a designer will increase the quality of the prototype. The restriction lies in requirements for the administrative selection of suppliers, which is due to high demands of the faculty concerning the studio's administration.

The luck of Craftsmanship

"I'm starting to be afraid of sewing. I'm a beginner and I see it as a hindrance. [AM - Questionnaire] I definitely had big problems with graphics and I couldn't choose much, I needed big resolution. It was hard to find an image that could be graphically processed so that it were in high resolution." [AM - interview]

Rephrasing: Low competences of designers decrease the quality of the designer's prototype. Such low competences concern the field of graphic design and dressmaking.

The role of the prototype presentation

Personally, I really liked it (the collection). It's such a distinct thing. It certainly caught interest because the problem of the Aral Sea impressed itself on people's mind partly also thanks to the fact that the dean opened the "Water for All" Exhibition in that dress. That's the best thing that can happen. This way we transfer something about us and about our thinking." [AM - interview]

Rephrasing: If there is interest in the product, it is also presented by authorities from the faculty and if it is presented, there is sufficient public and more and more orders are placed by customers.

The luck of capacity

"I wanted to make more dresses, but there was no time for that. If there was an opportunity to improve the dresses, I know it would be beyond my possibilities. Another problem would be that I couldn't have that made somewhere because I wouldn't have the money for that, while I wouldn't be able to make it all by myself, as it requires care and time. I think that at least my classmates would help me, we help each other, so it is a certain advantage, but definitely not over the long term. I would also have to figure out the printing technology. I would also have to print it on a different material and that would be the way. That material is not nice. The dress has a great potential to become a favourite piece. We can still work with that material. It can be adjusted by adding more colours. I know that from my customers. They say: It's a pity you don't have more of that, I'd buy the trousers straight away and I'd immediately buy such a skirt or bag. They like the printing and they would probably like to choose something on which they'd like the printing, so in the future there may be an e-shop, a website, where we could offer some pieces, something really bomber simple. I think this is how we could make use of it." [AM - interview]

Rephrasing: The number of orders exceeds the designer's capacity. Products have to be made by a competent team so that their high quality is maintained. Following customers' requirements, it is necessary to change some parameters of the prototype (fabric). In order to make these changes, more designers are needed. It is necessary to further present the product.

We drew all the above stated observations of design thinking in a mental map, the result is shown in the diagram below (Figure 4). As most of the variables of this mental model lack feedback, it is a model that is based on linear thinking. Systems thinking (in another mental model) is comprehensive and describes more aspects of reality.

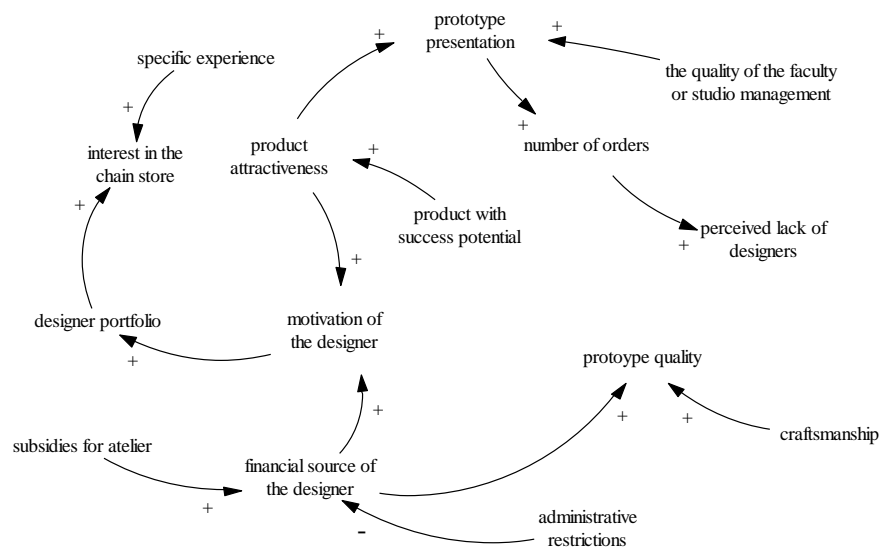


Figure 4: Mental model, all designers' opinion (own resource, 2017)

All the mentioned relations between elements (Figure 4) are strictly based on the records of the questionnaire and interview with the designer. However, these opinions do not give us, for the time being, the answer to our research question: How might we transfer innovation to the market?

RESULTS

Using backward mapping, we suggested the solution to the problem that is addressed by the research question. We investigated which elements we can include in the design process in the implementation stage and which ones we cannot. The elements we did not include in the model (right column of Table 1 below) are also discussed, but they cannot solve our problem and they are beyond the possibilities of our solution implementation.

Action and resources needed to implement new product on the market: How might we transfer innovation to the market?	
Those you would discuss with the faculty or studio management and try to model	Those you would discuss with the faculty or studio management but not try to model
Increasing the studio's production capacity Sale of products / prototypes Sharing the income from sale Making use of the prototype presentation	Increasing the competence of students in the field of graphic design and other crafts

Table 1: Backward mapping method, inspired by David Wheat (own resource, 2017)

On the basis of all the findings stated above and of the backward mapping method we prepared a back-loop diagram that is shown in the figure below. In our case, it is just a part of the project, which is why it contains exogenous variables. We chose the following variables as exogenous parameters:

- Specific experience
- The quality of faculty or studio management
- Craftsmanship
- Designers availability
- Product success potential

The *Product success potential* parameter is the result of another Causal Loop Diagram, which is subjected to a detailed analysis under the research problem (2) “Problematic assignment of the project to students” from a part of the Findings section of this article. All conclusions resulting from the backward mapping method were recorded into the mental model that we can call systemic, as it contains closed back-loops, see Figure 5 below. Blue dashed arrow marks added relations between elements we identified using the Backward mapping method.

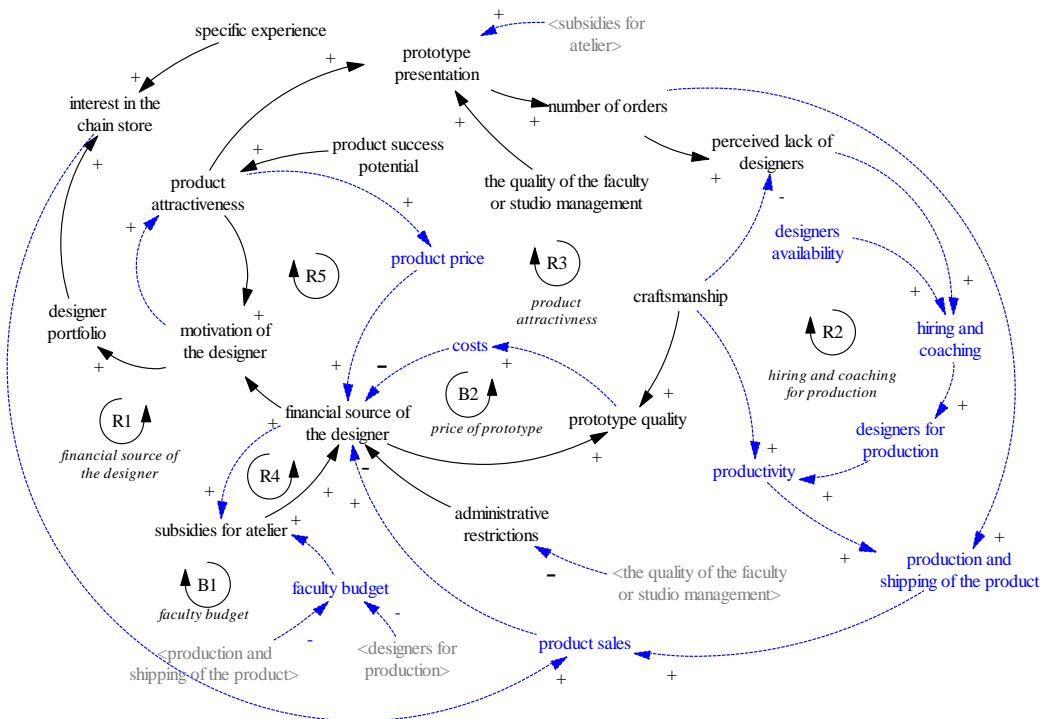


Figure 5: Mental model as a Causal Loop Diagram (own resource, 2017)

In accordance with the systems thinking method (Senge, 2006) and in order to make the back-loop diagram easy to

understand, we marked all closed loops with two symbols: (1) with R for reinforcing, which means that with every new circulation through the loop all the elements within have the tendency to grow; (2) with B for balancing, which means that the Loop has a balancing task, or – to be precise – rather counteracting, and it contains an odd number of minuses. As these are back-loops, it does not matter from which element we start telling their story. A systematic creative project does not have any explicitly defined beginning or end.

Loop R1. If the designer receives a grant, for instance from the studio, it means an increased motivation for the preparation of a better prototype. With a new prototype, designers expand their portfolio and have better chance to receive an order from a chain store. If a designer wins such an order, he/she start to sell his/her outcomes. That increases the designer's income, which means funds for his/her further work.

Loop R2 consists of ten interdependent elements of the system. The faculty's management sees there is a lack of designer in the studio with a specific task to make successful prototypes for the market. It supports a new designer who is going to make other products and the designer (the author of the idea and prototype) increases his/her possibility to sell. By selling the products, the financial situation of the designer's (author of the innovation) as well as of the studio improves, as we presume that the profit from sale will be shared by the designer and the studio. The studio increases its presentations thanks to the funds, which increases the number of orders together with the need for new designers.

Loop R3. If the designer succeeds in increasing the attractiveness of its productivity in the eyes of the customer, the designer may then expect improved possibilities of presentation of the prototype. This leads to an increased number of orders and results in a greater pressure on the manufacture and sale of the products, which, in turn, results in more money for the designer. Receiving more money motivates the designer to design new attractive prototypes.

Loops R4, R5 are complementary. R4: If the studio has higher income, it also allows higher income for the designer. R5: If the product is more attractive, customers will be willing to pay a higher price for it: this way the designer's funds increase together with the product attractiveness.

In the Causal Loop Diagram (Figure 5) we have two counteracting loops. **Loop B1** acts against the growth of designers and purchase of materials necessary for making creative products for the market. The mental model works with the presumption that the material for production and the designer are paid from the faculty budget. That means that there is less money in the faculty budget that can be used for the support of designers' new ideas. **Loop B2** is complementary and acts towards the increasing funds for the designer. The better prototype a designer wants to make, the more expensive it will be. Costs decrease the funds of the designer and the studio.

How might we...?

Now it is time to answer the research question: How might we transfer innovation to the market? According to the Causal Loop Diagram, there are two possible strategies how it can be implemented. We called the first strategy "Hiring and Coaching". It is based on increasing the capacity of designers in the studio for further production of new products intended for sale. However, such a step will be linked with an increase of costs. The faculty or studio has to buy the material necessary for manufacturing and pay for the increased capacity of the designers. We should decide whether the extra costs will exceed the income from an increased sale or not. If it were so, then the chosen way how to get innovation to the market is ineffective. A good intent leads to bad assessment, incorrect decision and deterioration of the financial situation of the designer, faculty and studio. The second strategy is based on the development of designers' portfolio and their specific experience so that they are able to negotiate with an external company, for instance with H&M. The interest of a chain store may also result in an increased sale of products. Nevertheless, specific abilities are an exogenous parameter in the Causal Loop Diagram, so they will be the result of solving a different category that is not part of this diagram (see a part of the Findings section of this article "Findings" and problem (6) "Unclear specific experience of the designer").

CONCLUSIONS

As Šusta (2015) points out, an analysed problem may be described as a system structure, which means interlinking all the components of the system. The only demonstration of the structure that we are able to capture using our senses are events. Qualitative research is based on the analysis of events, as we ask about what happened and we get answers (e.g.: "I wanted to make more dresses, but there was not time for that...; each of us got five thousand for the collection...; I know it from customers..."). We try to capture a past event in a questionnaire and recording of the interview. However, if we want to understand the system, in our case design processes in a creative project,

and support them, we need to go further. We have to reveal the structure of the researched system, which is partly invisible. As we have shown, using certain techniques, the invisible structure may be revealed and – to a certain extent – described. We chose the backward mapping method and so we could adjust the mental model of linear thinking. We complemented it with variables and closed loops and thus created the Causal Loop Diagram as a new mental model. That is one of the tasks of systems thinking. Everything that we perceive on the level of events and that we can capture on the level of behaviour patterns is evoked by the structure of the system. One of the basic sentences of the systems approach is: The structure determines behaviour (Šusta, 2015). So if we want to influence the resulting behaviour, we need to influence the systems structure. All the research methods used led us to reveal the structure of the system and enabled us to take advantage of the fact that we understand it so that we could solve the research problem. It is systems thinking. It is a process of analysis and synthesis. Synthesis may further continue by compiling the Stock and Flow Diagram (SFD) which can numerically model scenarios of how a particular problem could be solved. System dynamics model is beyond the possibilities of this article.

We found two answers, two strategies, to our research problem, which was “How might we get innovation to the market?” One of them operates with the option to sell the prototype to a chain store. However, this strategy is hindered by low specific competences of the designer. Their development is not elaborated in more detail in the article (how the solution could be implemented, specific experience is an exogenous parameter of the mental model). The second strategy “Hiring and Coaching” requires an increase in the production capacity of the studio. The strategy consists of two loops: R2 (*hiring and coaching for production*) and B1 (*faculty budget*). The two loops are counteracting, the first Loop increases the funds available for the designer, whereas the second Loop acts against the increase. The suitability of implementing the proposed strategy will depend on assessing the effectiveness of a managerial decision. It depends whether the costs invested in production at the faculty will (or will not) weaken the faculty budget to such an extent that they completely paralyse its activity. Without a sufficient faculty budget it is impossible to develop the studio and it is impossible to contribute to the support of designers’ product innovations. If the “Production Loop” is stronger, then the faculty may expect development in several spheres, e.g. development of designers’ competences, their motivation and more innovations.

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Using Vocabulary Learning Strategies to Develop Vocabulary Meaning Understanding of Mathayomsuksa 6 Students of Demonstration School Khonkaen University

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ABSTRACT

The purpose of this research was to construct and test the students' efficiency of vocabulary learning strategies exercises for Mathayomsuksa six students to compare students' using English vocabulary learning strategies to develop vocabulary meaning understanding ability layer and after using the exercises constructed. The sample group consisted of 29 of the 12th Grade Students of Demonstration School of KhonKaen University randomized by Purposive Sampling; during the second semester, academic year 2016. Two types of instruments were used; a vocabulary learning proficiency test used as a pretest and posttest together with 10 lesson plans. The research design used was as follow: One group Pre-test, Posttest Design method, and analyzed percentage and means. The result showed that in the pretest and posttest the means scores were 22.5 and 43.6 respectively. The result of t-test indicated statically $t = 25.129 \%$. From the above result, it was noticed that the students' using vocabulary strategies to develop vocabulary meaning understanding improved significantly.

Keywords: Using Vocabulary Learning Meaning Understanding

INTRODUCTION

Vocabulary knowledge plays an important role in learning English as second Language (ESL). Read (2000, p.1) stated that "words are the basic building block of language, the units of meaning from which larger structures such as sentences, paragraphs and whole text are formed" The previous statement shows the importance of vocabulary in expressing thoughts and conveying meanings and it can also be an indicator that communication will poorly be understood without a large number of words. English proficiency has been found to be closely related to vocabulary knowledge (e.g., Laufer,1998; Nation and Meara,2002). This strong relationship can be explained by the role of vocabulary in language learning. Vocabulary is considered as a very essential component of any language (Waring and Nation ,1997. To be able to achieve high language performance, learners need large and rich vocabulary repertoire to use language effectively McCarthy, 1990 and 1998). Lack of vocabulary obstructs learners' language development as a higher language level requires a higher amount of words (Waring and Nation, 1997. Hu and Nation , 2000) Nandy (1994) asserts that " The more words one is able to use correctly , the better one will be able to express oneself easily and with self-confidence and to understand the world one lives in " (p.1) Insufficient vocabulary emerges as a major problem among L2 learners, including Thai learners , causing their poor language performance in 4 skills: reading, listening, speaking, and writing skills (awangwarorose,1984 and Sukkrong 2010) Consequently , in recent years many researchers have paid more attention on finding ways to develop learners' vocabulary level. Using vocabulary learning strategies is one effective tools to enhance learners learners' vocabulary (e.g. Cunningsworth, 1995: Nation, 2001)

According to Nation (2001), large vocabulary can be acquired with the help of vocabulary learning strategies and they are useful for learner develop their vocabulary learning strategies is a powerful approach to help learners acquire large vocabulary repertoire. The main advantage of vocabulary learning strategies is that they allow learners to take more control of their own learning (Scharle and Szabo, 2000 ; Nation 2001) and also develop " learner autonomy , independence, and self-direction " (Oxford and Nyikos, 18,p.291) A number of scholars, for exam,Gairns and Redman (1986) and Sokmen (1997) , have recognized the importance of learners' independence in vocabulary learning. According to Gairns and Redman (1986), after the elementary level where student are provided with plenty of new English words in class. It is difficult for teacher to choose all useful words of them, so learners must have more responsibilities for their own learning of vocabulary. Sokmon (1997) believes that it is impossible for learners to remember all words they need in class and to acquire large vocabulary they need they need to take responsibilities for their own learning. Using vocabulary learning strategies to develop vocabulary meaning understanding is chosen to be taught in this current study based on the understanding that it is useful teaching method approved by several researchers. Furthermore, it is a method of systematic training in strategies that assists learners to enhance their learning and vocabulary knowledge (Soonthornmanee , 2002)

As discussed above, using vocabulary learning strategies to develop vocabulary meaning understanding has been shown to help learners develop their vocabulary knowledge. Thus, it is worthwhile to study vocabulary learning strategies used by Mathayamsuksa 6 students Demonstration school Khonkaen University.

LITERATURE REVIEW

The Meaning of “Knowing a word”

What does “Knowing a word” mean? Does “knowing a word” mean being able to recognize its written form and its meaning? The definition is sufficient. This is because it refers to only form and meaning, not all the other aspects of vocabulary knowledge. Vocabulary knowledge involves more than just the link between meaning and form, it is multifaceted (Lauer and Goldstein, 2004). This idea is consistent with that Oxford and Crookall (1990) who indicate that “knowing an L2 word” involves not just the ability to recognize the word or to match it with its L1 counterpart. Ling (2005) states that words are interwoven in a complex system in which knowledge of various levels of a lexical item is required in order to achieve adequate understanding in listening and reading or produce ideas successfully in speaking and writing.

According to Richard (1976), knowing a lexical item includes knowledge of word frequency, collocation, register, case relation, underlying form, word association, and semantic structure. Alongside form and meaning. There is a distinction between receptive and productive knowledge that is used by researchers when investigating vocabulary learning (Milton, 2009). Nation (2001) also applies the terms “receptive and productive” to vocabulary knowledge description covering all the aspects of what is involved in knowing a word. Therefore, we can say that receptive and productive knowledge is another aspect which is useful in understanding the L2 vocabulary learning process. Vocabulary learning strategies are considered a part of language learning strategies (Nation, 2001). For Cameron (2001) Vocabulary learning strategies are “the actions that learners take to help themselves understand and remember vocabulary items.” (p.92) Catalan (2003) based on Rubin’s (1987), Wenden’s (1987), Oxford’s (1990), and Schmitt’s (1997) definition, defines vocabulary learning strategies “the mechanism used in order to learn vocabulary learning strategies” as well as steps or actions taken by students (a) to find out the meaning of unknown words, (b) to retain them in long-term memory, (c) to recall them at will, and (d) to use them in oral or written mode (p.56). According to Intaraprasert (2004), vocabulary learning strategies are “any set of techniques or learning behaviors, which language learner reported using in order to discover the meaning of new word, to retain the knowledge of newly-learned word, and to expand one’s knowledge of vocabulary” (p.53). Many classifications of vocabulary learning strategies have been proposed by scholars (Oxford, 1990; Gu and Johnson, 1996; Schmitt, 1997). Among these classifications, one of the well-known and well-accepted among researchers, (Hamzah and Kafipour and Abdulla, 2009; Sripetpun, 2000) is that by Schmit (1997) who divided vocabulary learning strategies into 5 sub categories:

- 1) Memory strategies – connecting strategies – similar to memory learned knowledge,
- 2) Cognitive strategies – similar to memory but focusing on manipulative mechanical process
- 3) Metacognitive strategies – process of; learning and making decisions about planning, monitoring, and evaluating the best way to study,
- 4) Determination strategies – used by individuals to discover a word’s meaning without consulting other people
- 5) Social strategies – a way to learn a new word by interacting with other people

The study

To study the result of vocabulary strategies in improving the understanding the meaning of words and to compare the differences in the English language vocabulary understanding Mathayom 6 students at the Demonstration School of KhonKaen University.

Research hypothesis

Students using vocabulary learning strategies in learning English vocabulary will increase their ability in understanding the meaning of words.

METHODOLOGY

Participants The participants of the study are 29 students in Mathayomsuksa 6 students; particularly Class M.6/1, at Demonstration School of Khon Kaen University.

Research instruments and procedures

Ten prepared lesson plans on vocabulary for Mathayomsuksa 6 students. And A 50 question ability test on the students' understanding of English vocabulary. The study consisted of three phases. The first phase was a pre-test in which the subjects' vocabulary proficiency, vocabulary learning strategies were measured through the vocabulary test. The second phase was instruction in vocabulary learning strategies based on the results of the pre- test, which will be explained in detail in the following part. The third phase was a post-test in which the subjects were not only reexamined on their vocabulary proficiency and vocabulary learning strategies with the same instruments

FINDINGS AND DISCUSSIONS

In order to get the result, data was analyzed using SPSS (Statistical Package for Social Science) Descriptive statistic (means and standard deviation) are used to proving the research hypothesis. The analyzed data has been summarized demonstrated on different tables. On the basis of descriptive statistics, Table 1 and 2 have been reproduced. Table 2 shows the results of the pretest and the post-test score.

Table 1: Descriptive results of students' performance on the pretest and the posttest.

N 29	Pretest	Post test
1	21	44
2	22	43
3	20	43
4	22	44
5	22	43
6	21	44
7	29	44
8	20	43
9	22	43
10	23	44
11	21	43
12	19	44
13	18	43
14	23	44
15	21	44
16	22	44
17	31	46
18	20	43
19	19	42
20	22	43
21	21	43
22	38	43
23	21	44
24	37	47
25	22	44
26	20	43
27	18	44
28	17	43
29	22	44

Table 2-3 illustrates below:

Table 2: The results of Paired Sample Statistics

Pair 1		N	Mean	Std. Deviation	Std. Error Mean
	Pretest	29	22.55	5.004	0.929
	Post test	29	43.66	0.974	0.181

Table 2 shows that the means score on the pretest is 22.55 (S.D. = 5.004) and (S.D. Error Mean = 0.929) The mean score on the post –test is 43.66 (S.D. =0.974) and (S.E.D. = 0.181)

Table 3: The results of Pearson Correlation Analysis

Pair 1	Pretest	Post test	N	Correlation	Sig
			29	0.568	0.001

Table 3 reveals that the correlation coefficient is 0.568 by Sig. (0.001) The result suggests that there is positive significant correlation.

Table 4: The results of Paired Samples T Test

	Mean	S.D.	Mean of Difference	Std. Deviation	T	df	Sig 1 tailed
Pretest	22.55	5.004	21.10	4.523	25.129	28	0.000
Post test	43.66	0.974					

Table exhibits that there were significant differences on students' performance on the pretest mean score and standard deviation ($M = 22.55$) ($S.D. = 5.004$) and the means score the post-test was 43.66 ($S.D. = 0.974$) and the mean of difference (21.10), ($Std = 4.523$) since the T value reached 25.129 by sig 0.000 The results denote that there was a significant difference between the pre-test and the post-test means. That is using learning vocabulary strategies have been changed through the instruction in significant

CONCLUSIONS

In summary, we can say that vocabulary is an indispensable of linguistic competence. This study has endeavored to help the Mathayomsuksa 6 students using vocabulary learning strategies to develop vocabulary meaning understanding how to learn English words in a more effective way through integrated instruction in vocabulary learning strategies. The instruction was conducted in a context of Mathayomsuksa 6 students at Demonstration School of Khonkaen University. The change in strategy used and vocabulary proficiency was measured by comparing the pre-test and the post test data collected through a vocabulary test. In the basis of data analysis, the study draws the following conclusions. Firstly, the instruction in vocabulary learning strategies is effective for the Mathayomsuksa 6 students who are not adopted at using vocabulary learning strategies to develop vocabulary meaning understanding is equal to the retention of form meaning associations and have an awareness of what to do for using a word communicatively. In addition, their strategy used and vocabulary proficiency have been improved. Finally, their feedback on the instruction shows that they support the learners.

Secondly, different types of subjects benefit differently from the instruction. The subjects whose vocabulary proficiency is high and those vocabulary test scores have increased the post-test make the most progress in strategy use. Thirdly, the process of absorbing vocabulary learning to develop vocabulary meaning understanding into part of subjects' own learning ability is a long process. Although there is a significant change in the subjects' use of vocabulary learning strategies through the instruction, the results reveal the post-test score which was higher than the pre-test score supporting the hypothesis that the students' vocabulary meaning understanding is reached the higher score because of the implemented instruction. Thus strategy instruction should be continual and integrated into regular classroom teaching. Finally, using vocabulary learning strategies to develop vocabulary meaning understanding should be important factors to take into account for the design of instruction in learning strategies.

RECOMMENDATIONS FOR TEACHERS

Implementing a program to enhance using vocabulary learning strategies to develop vocabulary meaning understanding in students does not have to be overwhelming. Teachers can easily take current practices to the classroom and fit in the two recommended elements to increase word knowledge.

First, to encourage students to ask questions when new and interesting words are encountered that do not become immediately familiar. Read and discuss the same text more than one time allowing student to take ownership of the language in the environment. Second, select more words than currently recommended by basal curriculum to teach directly. Give students simplified definitions and again have opportunities for frequent and repeated use of the words, providing student the opportunities to encounter and learn more vocabulary which should be very helpful for them in the future education and also the career path.

FURTHER STUDIES

This study aimed to examine the result of vocabulary learning strategies of more research should be done with various groups of students to better understand the roles of vocabulary learning strategies. In addition to using the questionnaire, further studies should include other methods such as interview, observation, in order to get in-depth information about students' use of vocabulary learning strategies. This may also allow researchers to discover

further aspects such as students' attitudes towards learning English and student's problems with the use of vocabulary learning strategies.

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Views of the Pre-Service Science Teachers About Nanotechnology*

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ABSTRACT

The aim of this study is to reveal the views of pre-service science teachers about nanotechnology. The participants of the study were 20 pre-service science teachers attending to the fourth grade of Afyon Kocatepe University's faculty of educational sciences. The study was designed as a qualitative research. The data collection tool was an interview form with seven open-ended items which was developed by the authors. It was reviewed by field experts and used in a pilot study before finalizing. Semi-structured interviews were conducted with the participants. The data were examined using the descriptive analysis method and the frequency of the answers of participants were identified. The findings of the study showed that more than half of the participants could not define nanotechnology using a scientific language. They mostly reported that nanotechnology did not have a place in our life and it emerged due to needs. Most of the participants stated that nanotechnology is mostly used in textile industry and that there is not enough studies on nanotechnology in Turkey. It is also found that the participants had actual information about nanotechnology, not scientific knowledge about it.

Key words: science, pre-service teachers, nanotechnology.

INTRODUCTION

The word "Nano" originates from Latin and Greek, meaning to "dwarf". The terms with the prefix "nano" such as "nanotechnology", "nanoscience" are the derivatives of the word "nanometre" which refers to a length units indicating a meter's equal in a billion (Sharifzadeh, 2006). Given that nanoscience and nanotechnology are both related to different disciplines, including physics, chemistry, biology as well as materials science, electronics, and computer sciences they require an interdisciplinary approach (Drane, 2009; Meyyappan, 2004; Özdoğan, Demir & Seventekin, 2006; Luther, 2004). The essence of nanotechnology is to work at a level from 1nm to 100nm atomic, molecular and sub molecular patterns; the aim is to create, use and process small sized devices, materials nad basic systems. Nanotechnology deals with physical, chemical and biological characteristics and the changing materials and systems of patterns having nanoscale sizes. Basic goals of nanoscience and nanotechnology are to produce both the devides and materials of these devices with nanoscale and to make these devices used in daily life (Erkoç, 2008). The significance of nanotechnology depends on the fact that physical norms have different functions at the nanoscale of materials and that both substances and energy have different characteristics at nonoscale (TÜSİAD, 2008). The studies on nanoscience and nanotechnology have been supported and increased. In the 2003-2023 strategy document issued by Turkey Scientific and Technological Research Institution (TÜBİTAK, 2004) the national science and technology strategies to be followed in the period of 2003-2023 were outlined. The report identifies eight major strategical technological fields and one of them is nanotechnology. It emphasizes that Turkey should have scientific, technological and industrial background to create radical changes in nanoscience and nanotechnology. Science education programs should be updated and expanded to cover these goals. Many developed nations have updated their educational programs taking into account these developments. In Turkey the related attempts are also initiated (Erkoç, 2008). Given that individuals come across these topics in near future the awareness about nanoscience and the need for it are all related to science literacy (Sabelli, 2005; Stevens, Sutherland & Krajcik, 2009; Zenner & Crone, 2008: cited in Aslan & Şenel, 2015). The educational goal is to understand the procedures at nanoscale, nanostructures and topics at nanoscale (Roco, 2003). One of the parts of science literacy is nano literacy which refers to an understanding of nanotechnology research and applications. Covering nanotechnology in the science education

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program makes it possible to produce science literate individuals who are aware of these advances in technology. Producing such individuals will make it possible to consume nanotechnological products consciously, make correct decisions about them and produce new ideas about actual developments (Akaygün, 2010; Hingant & Albe, 2010; Laherto, 2012; Sahin & Ekli, 2013). Educating primary and secondary students about nanoscience and nanotechnology may affect their future career decisions and their academic identities. Yawson (2012) argues that such an education will make it possible to adopt nanotechnology in society and at the individual level as future careers and to have political background for educational reforms. It is certain that in such processes both science teachers and pre-service science teachers have critical roles to play.

In the study student science teachers' perceptions and views about nanotechnology were analysed.

METHOD

The study was designed as a qualitative research. Major characteristics of qualitative research include an integrated approach, revealing perceptions, flexible research design and using an inductive analysis (Yıldırım & Şimşek, 2005). The participants of the study were 20 student teachers attending to the fourth grade of Afyon Kocatepe University's faculty of educational sciences. The participants were selected using purposeful sampling technique. Pre-service science teachers were selected due to the fact that they will teach science course. The data of the study were collected through semi-structured interviews, one of the data collection ways used in qualitative research. In semi-structured interviews both structured and not structured items are asked to the participants. The most significant advantage of this technique is that it gives systematical and comparable information to researchers (Yıldırım & Şimşek, 2008). The data collection tool was developed by the authors. It was reviewed by field experts and used in a pilot study before it was finalized. The tool is an interview form with seven open-ended items. The interviews were conducted in an environment where the participants could express their views and at the time periods identified by them. The interviews were recorded. Then these recordings were transcribed. In order to establish the reliability of the data they were also reviewed by another expert and the transcriptions produced by the authors and reviewer were compared.

The interview form was consisted of the following items:

1. What do you understand from the term nanotechnology?
2. Where do we use nanotechnology?
3. What do you think about the reasons for the emergence of nanotechnology?
4. What is place of nanotechnology products in our life?
5. What do you think about nanotechnology products?
6. What is the status of nanotechnology in Turkey?
7. Should nanotechnology be taught at schools?

The data obtained were examined using descriptive analysis. In descriptive analysis the data obtained are summarized and interpreted based on the pre-determined conceptual framework or themes, direct quotations are used to support the findings and the findings are interpreted based on the cause-effect relations (Yıldırım and Şimşek, 2008). The answers of the participants to the interview items were compared and similarities and difficulties were identified. Finally, the categories were determined. These are used in the tables. Tables cover frequencies of the answers. In order to support the findings the direct quotations are given. The quotation are given using codes such as student teacher 5 (S.T.5) or student teacher 8 (S.T.8).

FINDINGS

The data obtained were categorized under thematic frameworks and their frequency is given.

Answers of the participants to the item "What do you understand from the term nanotechnology?"

As stated earlier the first item in the interview was "What do you understand from the term nanotechnology?". Table 1 presents the answers of the participants and frequency of these answers.

Table 1. Views of student teachers about the definition of nanotechnology

<i>Views of student teachers about the definition of nanotechnology</i>	<i>F</i>
(a) working with units at the level of nanoscale and producing technological products with these units,	6
(b) nanotechnology products and their use in daily life	14
Total	20

As can be seen in Table 1 fourteen student teachers defined nanotechnology as products and their use in daily life. (S.T.4): "I understand nanotechnology as the use of it in cleaning materials and in military field. Its use in

medicine, biotechnology.” (S.T.18): “I understand nanotechnology as uncontaminated dress, non-wet fabric and many innovations in medicine. Cancer cure etc.”

Six participants defined nanotechnology as working with units at the level of nanoscale and producing technological products with these units. (S.T.1): “I understand nanotechnology as transforming atoms into molecules as the smallest pattern to produce new technological products.” (S.T.12): “I understand it as a technological work made at smaller sizes. It is a discipline dealing with materials having smaller sizes.”

Answers of the participants to the item “Where do we use nanotechnology?”

The second item asked to the participants was “Where do we use nanotechnology”. Tablo 2 show their answers and the frequency of these answers.

Table 2. Answers of the participants to the item “Where do we use nanotechnology?”

<i>Views of student teachers about the use of nanotechnology</i>	<i>F</i>
(a) In textile industry and military,	14
(b) In health-related fields,	13
(c) In construction materials and electronics,	4
(d) In industry and painting materials,	3
(e) In cleaning products,	2
(f) In biotechnology, at homes, in foods, agriculture, biochemistry, physics, chemistry, biology, technology and education.	1
Total	37

As can be seen in Table 2 fourteen participants thought that it is used “in textile and military”. Thirteen participants thought that it is used “in medicine”, four “in construction materials and “in electronics”, three “in industry and painting”, two “in cleaning materials” and one “in biotechnology, at homes, in foods, agriculture, biochemistry, physics, chemistry, biology, technology and education”. (S.T.6): “We use it in textile industry, foods, paints.” (S.T.9): “We use it in cleaning materials, textile, military, agriculture.” (S.T.12): “In waterproof dress, industry, military, cameras.” (S.T.15): “I think that nanotechnology is used in military fields, constructions, in textile. I know that it is used in medical fields to produce micro devices for heart.” (S.T.17): “We use nanotechnology in the fields such as military, medicine, physics, chemistry, biology, computer devices and electronics.”

Answers of the participants to the item “What do you think about the reasons for the emergence of nanotechnology?”

Another items asked to the participants in the interview was What do you think about the reasons for the emergence of nanotechnology? Table 3 presents the answers of the participants to this question and the frequency of these answers.

Table 3. Answers of the participants to the item “What do you think about the reasons for the emergence of nanotechnology?”

<i>Views of the participants about the reasons for the emergence of nanotechnology</i>	<i>F</i>
(a) needs,	10
(b) to make life easier,	7
(c) for treatments,	3
(d) to be productive and for security purposes,	2
(e) for cleaning, military and quality life purposes,	1
(f) I do not know.	1
Total	24

Table 3 shows that ten participants reported that nanotechnology emerged due to “needs”, seven to “make life easier”, three for “treatment of illness”, two for “to be productive and for security purposes” and one stated that it emerged due to for “cleaning, military and quality life purposes”. One participant did not state any view about it. (S.T.3): “It emerged due to the fact that new and better products were needed especially for the field of medicine.” (S.T.7): “Nanotechnology emerged in order to meet the needs of people.” (S.T.10): “It emerged in order to make life easier.” (S.T.13): “It emerged in order to make devices more functional.”

Answers of the participants to the item “What is place of nanotechnology products in our life?”

In the interviews the participants were also asked to answer the following question: “What is place of nanotechnology products in our life?” Table 4 indicates their answers and the frequency of these answers.

Table 4. Answers of the participants to the item “What is place of nanotechnology products in our life?”

<i>Views of the participants about the place of nanotechnology in their life</i>	<i>F</i>
(a) no place,	10
(b) everywhere,	8
(c) in textile industry,	5
(d) in the fields of medicine and military,	2
(e) in physics, chemistry, biology,	1
(f) in cleaning materials, furniture, electronics, construction.	1
Total	27

As can be observed in Table 4 there were ten participants who argued that nanotechnology had no place in their life. However, eight of them suggested that it was everywhere. The others cited the major fields in which nanotechnology is used such as textile (5 participants), medicine and military (2 participants), physics, chemistry, biology (1 participant) and cleaning materials, furniture, electronics, construction (1 participant). (S.T.1): “Maybe it is used in all fields, but not in my life.” (S.T.7): “In fact it is used everywhere. Today nanotechnology is used for everything in daily life from shoes to beds.” (S.T.8): “In military field. It is also used in medical fields. Also in physics, chemistry, biology.” (S.T.19): “We also use it in daily life. In paints, glasses.”

Answers of the participants to the item “What do you think about the products of nanotechnology?”

The participants were also asked to answer the following question: What do you think about the products of nanotechnology? The answers by the participants and the frequency of their answers are given in Table 5.

Table 5. Answers of the participants to the item “What do you think about the products of nanotechnology?”

<i>Views of student teachers about the products of nanotechnology</i>	<i>F</i>
(a) useful,	11
(b) making life much easier,	9
(c) no harmful,	5
(d) useful due to the fact that these products make the treatment of illness much easier,	4
(e) I do not know its damages,	3
(f) It may have damages,	3
(g) It may be hazardous due to radiation and internal structure.	1
(h) useful due to the fact that these products decrease environmental pollution	1
Total	38

As can be seen in Table 5 eleven participants considered the products of nanotechnology as “useful”. Nine of them thought that “it is useful to make life much easier”. Five of them stated that nanotechnological products are “not harmful”. Four participants argued that “useful due to the fact that these products make the treatment of illness much easier”. Three of them did not have any information about these products. Three of them assumed that “nanotechnological products may be harmful”. One participant further argued that “it may be hazardous due to radiation and internal structure”. On the other hand, another participant stated that “nanotechnological products are useful due to the fact that these products decrease environmental pollution”. (S.T.13): “Nanotechnological products are very useful. These products are mostly functional. They are durable, and therefore, significant. Uncontaminated rugs and windows provide effective time management.” (S.T.14): “I think that nanotechnology is not harmful. Because it makes life much easier. People effectively manage their time when they use nanotechnological products.” (S.T.3): “They have no damage. These products should be used in every domain of daily life. But it may be expensive.” (S.T.2): “I do not know its damages but I know the advantages which are mostly in the field of medicine.”

Answers of the participants to the item “What is the status of nanotechnology in Turkey?”

One of the interview items was What is the status of nanotechnology in Turkey? The answers of the participants and the frequency of these answers are given in Table 6.

Table 6. Views of student teachers about the use of nanotechnology in Turkey

<i>Views of student teachers about the use of nanotechnology in Turkey</i>	<i>F</i>
(a) In Turkey there is no nanotechnology studies,	18
(b) I am searching for studies in Turkey,	7
(c) I do not have any idea about it,	7
(d) nanotechnology studies in Turkey are at the level of development,	5
(e) I follow the nanotechnology studies in Turkey,	2
(f) in military fields there are nanotechnology studies,	2
(g) in medicine and paint there are nanotechnology studies in Turkey.	1
Total	42

Table 6 shows that eighteen of the participants reported that “there is no study on nanotechnology”. There were seven participants who stated that they searched for nanotechnology studies in Turkey. The same number of participants did not have any information about the nanotechnology studies in Turkey. There were five participants who reported that “the nanotechnology studies in Turkey were at the level of development”. Two participants stated that “they followed the nanotechnology studies in Turkey”. One participant maintained that “the nanotechnology studies in Turkey were in the fields of medicine and paint”. (S.T.1): “I know that such studies are not well developed in Turkey. I do not come across such studies in Turkey. When I see a related study I follow it.” (S.T.9): “I think that many people do not have enough information about the nanotechnological studies in Turkey. I think these studies have become common in recent years.” (S.T.8): “I think that there is no widespread place for such studies. I do not have much information about it.” (S.T.17): “Again on this topic Turkey is not developed. But I know there are nanotechnology studies in Turkey. I heard that there is a TÜBİTAK project. Again in Gebze there is another project.”

Answers of the participants to the item “Should nanotechnology be taught at schools?”

Table 7 shows the distribution of the answers of student teachers about the question concerning the teaching of nanotechnology in schools.

Table 7. Views of student teachers about teaching of nanotechnology in schools

<i>Views of student teachers about teaching of nanotechnology in schools</i>	<i>F</i>
(a) It should be taught,	20
(b) all students should be given updated information about it,	6
(c) It should be taught in detail at the university level.	2
Total	28

Table 7 indicates that all participants reported that “nanotechnology should be taught at schools”. On the other hand, six participants reported that “actual information about it should be given to all students”. Two participants argued that “teaching of nanotechnology should be more detailed”. (S.T.2): “I think that it should be taught. Because it is one of the significant development of future.” (S.T.5): “Yes, it should be taught, and it must be given to all students. Because it makes many thing easier. Uncontaminated rugs and dress. It helps us in many fields. So it should be taught at schools.” (S.T.12): “Maybe it is taught at universities, but students should know the functions of it. I think that they could understand its functions. In the universities teaching of nanotechnology should much more detailed.” (S.T.17): “It should be explained. I think that people should be conscious at schools. For insatnace, I am 22 years old and I did not have any informatio about it before the presentation. I think that students should be made conscious about it.”

CONCLUSIONS

In the study it was found that the participants defined nanotechnology as the product and its use in daily life. More than half of the participants could not define nanotechnology suing a scientific language. Şenocak (2014) concluded that Turkish people did not hear the nanotechnology related concepts and were not familiar with it. Aydın Sayılan & Mercan (2016) found that nursery students did not have sufficient informatio about the concept of nanotechnology and its use in medicine.

The participants thought that nanotechnology is mostly employed in the fields of textile, military and medicine. Kadioğlu (2010) found that university students, including those attending science teaching departments had

lower levels of knowledge about nanotechnology and has their knowledge about nanotechnology through media outlets, especially radios and television channels. Ekli (2010) also concluded that most of the students samples did not have enough information about nanotechnology and the most significant source for their information was media outlets.

Half of the participants thought that nanotechnology emerged due to the needs of people. The others thought that it emerged as a way to make life easier. There also participants who thought that nanotechnology emerged for treatment purposes and other purposes, including cleaning, military, quality life. There are also participants who did not state any view about the reasons for the emergence of nanotechnology. Aslan & Şenel (2015) analysed the awareness of pre-service secondary and high school science teachers (science, physics, chemistry, biology) and found that their awareness was at the level of “no idea”/medium.

Half of the participants reported that nanotechnology had no place in their life. The other half of the participants stated that it was everywhere. Retzbach, (2011) examined the perceptions about science and nanotechnology, scientific roles, methodological knowledge, epistemological beliefs and beliefs about science and concluded that most of Americans do not have information about nanotechnology. Elmarzugi ,(2014) analysed the awareness of academics and students concerning nanotechnology and found that their awareness level is low. However, most of them reported that they were aware of its significance and that they wanted to improve their knowledge about the topic.

Concerning the products of nanotechnology more than half of the participants reported that such products are useful. Some of them described these products as not harmful. There are also some participants who did not have any information about the products of nanotechnology.

Regarding the status of nanotechnology in Turkey nearly all participants reported that there is no sufficient study on nanotechnology in Turkey. Although nanotechnology is very popular term in science, technology, industry and even in politics, research suggests that there are many teachers and students who do not know it in detail and that it is not taught at universities and schools at the desired level (Enil & Köseoglu 2016).

All of the participants emphasized that nanotechnology should be taught at schools. Gököz-Sagun & Akaygün (2014) reported in the study on high school students that in early ages skills, information and awareness about nanoscience and nanotechnology should be acquired. Atabaş (2012) found that primary school students regarded the topic of nanotechnology attractive and did not experience difficulty in learning about it. The author also suggested that this topic may be added to the educational programs. However, research suggests that nanotechnology may be taught as a separate topic or it can be integrated with science education program through concepts and facts which makes it possible to teach it using an interdisciplinary approach (Ak, 2009; Daly, Hutchinson & Bryan, 2007; Stevens, Sutherland, Schank & Krajcik, 2007). In order to teach nanotechnology-related topics to students in a productive way science teachers should have necessary background information about it.

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Vocational Skill Mobility and Its Effect on Occupational Engagement Among Tradesmen and Craftsmen in Building Sector

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ABSTRACT

Building sector in Nigeria has suffered skill erosion overtime. Foreigners with special skill has mobilized their skill into the sector and there had been mass exodus of imported skills into the sector thereby forcing citizens to jettison idea of engaging indigenous artisans in the face of superior skills and knowledge. The aim of the study is to appraise the vocational skills and competence of the indigenous and foreign artisans, vocational mobility in building sector, job mobility pattern among artisans, sectors involved, attendant effects, both favorable and unfavorable, and possible ways of addressing identified threat.

The study engaged 120 questionnaire using random sampling technique. The questionnaire was designed in Likert scale, structured on semantic rating scale 1 to 5. The study identified the following reasons among others reasons behind the disparity in occupational engagement among artisans in Nigeria building sector, the reasons include: inadequate skill and knowledge by indigenous artisans, no vocational focus, half-baked knowledge of the work, poor workmanship and poor finishing and poor education background or lack of former education among others.

The study recommended the following factors as panacea to the problem; reinvigoration of artisans competence, continuous training of the artisans, value reorientation of artisans, promoting technology transfer among indigenous artisans and foreign artisans.

Key words: Vocation, Value, Orientation, Mobility. Engagement.

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1. INTRODUCTION

Construction sector determines pattern of economy of nation, it is reputed to have been major provider of employment in a nation workforce. Construction industry is widely acknowledged as the capital intensive active sector through execution of capital project thereby diffusing money into system. However, in recent times there have been labour shortages in various segment of the industry.

Notwithstanding labour shortages, there have been strict competition thereby mounting pressure on the sectors in the industry. Many workers are inter switching from one sector to the other thereby creating differential availability of workforce across board. In lieu of the overbearing pressures in meeting manpower needs, training of workforce was inevitable, therefore, tradesmen, artisans, skilled labour semi-skilled labour and low-skilled migrant workers are often allowed into the sector.

This method has tendency of reducing manpower difficulty. However, in most of the construction sector all over the world without prejudice to Nigeria construction sector, migrant-transnational workforces from Togo, Ghana, Cameroon and Republic of Benin are variously employed at much lower rates of remuneration also often with less better working conditions, sometimes are engaged on temporary work visas or without any visas restriction because of ECOWAS pact of no restriction in trade and bilateral relation. However, the industry resolve to augment labour shortage with migrant craftsmen has created imbalance in the workforce gradually pushing the local skill men and artisan out of trade in the face of migrant craftsmen and artisan superior skill. It is to this end that the study appraised the vocational skills and competence of the indigenous and foreign artisans, vocational mobility in building sector, job mobility pattern among artisans, sectors involved, attendant effects, both favorable and unfavorable, and possible ways of addressing identified threat.

1.1. STATEMENT OF PROBLEM

Building construction companies in recent times have suffered severely at the hands of poor performing indigenous artisans and craftsmen. This has caused distrust among various stakeholders in the building construction industry and in some cases forced companies out of business (Beach 2003). Nowadays, construction companies in Nigeria have resulted to seeking for better performing artisan and craftsmen form neighbouring West African countries. This is as a result of poor work carried out by indigenous artisans and craftsmen. According to Buchanan, Baldwin & Wright 2011; D'Arcy, Gustafsson, Lewis & Wiltshire (2012) also Bill, Mitchell & Welters, (2007), indigenous craftsmen and artisans have for long failed to perform optimally as required. The poor performance of craftsmen has for a long time had tremendous negative effect on the projects and this has become worrying. According to Kinetic Group (2012a), most construction firms in Nigeria are very narrow, because they seem to focus on the financial gains forgetting the people that make the job and money. This might also be a factor that has led to the decline of artisan and craftsmen performance and it would be evaluated so as to devise strategies for improvement.

The various challenges faced in the training of artisans and the types of trainings they undergo would be thoroughly evaluated. This would enable us determine the root cause and provide strategies for improvement.

2. RESEARCH METHODOLOGY

Random sampling technique was used in this project, contingency approach was deployed using composite approach, and the approach involves the use of qualitative and quantitative methods to examine the intricacies of skills and migration in the construction industry,

Similarly, A profile of the industry over a 4 year period from 2012 to 2015 was compiled using data from Bureau of employment this toes the line of submission of Morgan (2004), It was combined with interview survey of small and medium-sized construction companies and indigenous construction firms.

- a) Sampling Method: Samples are picked at random using Random sampling method with a sample of 80 students. The sampling was done from population frame of students offering technical-based courses.
- b) Sample size: Sample size of 80 students of technical based courses and programme was adopted in the study
- c) Data Collection Instrument: A structured questionnaire in Likert scale was administered on student of technical based discipline, Eighty (40) questionnaires was administered on the students to harvest their perspective. The responses were further collated, analyzed with SPSS software, processed with Mean Item Score method and presented in tables and charts (Amusan, Oluwunmi, Owolabi and Joshua 2013)
- d) Methods of Data Analysis: Mean item scores was used in processing the summarized questionnaire. Simple percentages was used to present percentage composition of student performance, number of male and female graduating from programmes and percentage of male and female over the period of three years winning award in the technical related programmes.

Also, academic performance index factor was processed with mean item scores. Data were presented in tables and other modes. A scale 1 to 5 was adopted for questionnaire calibration, with 1 representing “strongly disagree (SD)” 2 – being disagree (D) 3 – being neither agree nor disagree (N), 5- being strongly agree (SA). Agreement index of the respondents was generated using the relation $M.A.I = 5S.A + 4A + 3S.D + 2D + 1N/5(S.A + A + S.D + D + N)$.

$$M.A.I = \frac{1 \sum(A_{ij})}{N \sum(A_{ij})}$$

.. where M.A.I = Mean Agreement Index A=

Agreement variable i = Lower boundary, j = Upper boundary

N = Frequency of Variable Σ = Summation Notation.

3. SCOPE AND LIMITATION OF THE STUDY

The study and the data used are limited to the frequency of migrant tradesmen, craftsmen, skilled labour and semi-skilled labour.

4. RESULTS AND DISCUSSIONS

In this section results of the analysis is presented in tables. The following measured variables are analyzed and commented; vocational skills and competence of the indigenous and foreign artisans, vocational mobility in building sector, job mobility pattern among artisans, sectors involved, attendant effects, both favorable and unfavorable, and possible ways of addressing identified threat.

4.1 CROSS SECTIONAL COMPONENT OF RESPONDENTS

S/N	RESPONDENT IDENTITY	FREQUENCY	PERCENTAGE(%)
1	Professional	30	25.00
2	Masons	10	8.33
3	Tilers	10	8.33
4	Plasterer	10	8.33
5	Roofers	10	8.33
6	Concreters	10	8.33
7	Carpenters	10	8.33
8	Steel workers	10	8.33
9	Plumbing	10	8.33
10	Painting	10	8.33

Table 4.1 presents the component of the respondents. 30 percent was allocated to professionals while 8.3% was allotted to each of the trades. The selected trades includes; mason, plasterers, tillers, roofers, concreters, carpenters, steel workers, plumbing and painting. Highest percentage was allocated to professionals because of the fact that they are more knowledgeable about all the trades. Equal percentages was allocated to other trades in turns for fair and equal opportunity.

4.1 VOCATIONAL SKILLS AND COMPETENCE OF THE INDIGENOUS AND FOREIGN ARTISANS

S/N	VOCATIONAL SKILL	Indigenous[%]	Ghana[%]	Togo[%]	Republic of Benin[%]	Cameroun[%]
1	Project management	80	5	4	6	5
2	Masonry	45	40	5	5	5
3	Tilling	25	3	4	65	3
4	Plastering	45	40	6	4	5
5	Roofing	45	40	5	5	5
6	Concreting	60	30	5	5	-
7	Carpentry	47	23	10	10	10
8	Steel work	45	40	6	6	3
9	Painting	45	7	40	3	5
10	Plumbing	60	25	5	5	5

Vocational skills and what each of the countries are noted to be popular for are presented in table 4.1 above. 80% of the respondents belong to project management cadre and they are indigenous professionals, that is, Nigeria. The following trend was observed, Indigenous masons and Ghanaian masons shared the masonry sector in 45 and 40 percent respectively. It was observed that Ghanaians are competing with Nigeria in this sector. Similar trend was observed in Plastering, Roofing, Steel work and Painting. Also, Beninois competed with Nigerian in sharing Tilling jobs in the Tilling sector, while Togolese competed with Nigerian in executing jobs in Carpentry and painting sector.

4.2 VOCATIONAL MOBILITY IN BUILDING SECTOR

S/N		Masonry	Tilling	Plastering	Roofing	Concreting	Carpentry	Steel work
1	Masonry	-----	Yes	Yes	----	Yes	Yes	-----
2	Tilling	Yes	-----	Yes	----	Yes	-----	-----
3	Plastering	Yes	Yes	-----	-----	Yes	-----	-----
4	Roofing	--	---	---	-----	-----	Yes	Yes
5	Concreting	Yes	Yes	Yes	Yes	-----	Yes	Yes
6	Carpentry	-----	-----	----	Yes	Yes	-----	-----
7	Steel work	-----	-----	-----	-----	Yes	Yes	-----
8	Painting	Yes	Yes	Yes	yes	----	Yes	---
9	Plumbing	-----	Yes	-----	-----	Yes	-----	-----

Table 4.2 presents extent of mobility of different vocations presented among the sampled artisans on site. The survey cut across different nationals. This borders about inter-operability of different vocations. The implication of this is that a trade could be practiced by more than one tradesmen. For instance, in table 4.2, a mason, tiller and plasterer, are working as tiller, plasterer, concreter and carpenter. Similarly, concreter, mason and plasterers also works as tiller, carpenters and steel worker, while plasterers are working as painter. The reason could be that the trades are interdependent on one another. In construction work the operations are executed in sequential order and one trade sometimes have to wait on other trade to complete their task before continuing, in this way on-job learning and skill transfer usually take place. Another reason is scarcity of job or trade in a sector that could lead to trade migration (Buchanan, Baldwin & Wright 2011; D'Arcy, Gustafsson, Lewis & Wiltshire 2012).

4.3 JOB MOBILITY PATTERN AMONG ARTISANS AND GEOGRAPHICAL SPREAD (COMPARATIVE ANALYSIS)

S/N	Occupational Engagement	GEOGRAPHICAL SPREAD (%)					
		Nigeria	Togo	Ghana	Cameroun	Benin Republic	Others
1	Masonry	15	64	5	5	5	6
2	Tilling	11	79	5	3	2	--
3	Plastering	10	10	10	10	60	-
4	Roofing	30	10	50	5	5	-
5	Concreting	64	10	10	6	7	-
6	Carpentry	60	10	10	10	5	5
7	Steel work	50	10	5	79	5	5
8	Painting	74	5	6	5	5	5
9	Plumbing	70	5	7	6	5	7

Closely related to presentation in table 2 about job mobility is table 3 which is about pattern of job mobility among artisan within the geographical spread. Comparative analysis of the geographical spread of the artisan was presented within the context of their occupational engagement. In masonry, masonry and tilling work was prevalent among the Togo and Benin republic migrant tradesmen in Nigeria on 64%, 79% and 60%. From the table it was discovered that, in masonry and tilling 64% and 79% of the tradesmen are from Togo respectively and while 15% and 11% are from Nigeria. Also, in roofing and steel work, 50% and 79% was occupied by Ghana and Cameroun respectively. However, tradesmen from Nigeria had higher percentage than other nationals in the following trades: concreting, carpentry, painting and plumbing.

4.4 SECTORS INVOLVED IN JOB MOBILITY

	Occupational Skill	M.I.S Score	Rank
1	Masonry	4.0	1 st
2	Tilling	4.2	4 th
3	Plastering	4.1	5 th
4	Roofing	3.9	6 th
5	Concreting	4.0	1 st
6	Carpentry	3.9	4 th
7	Steel work	3.8	6 th
8	Painting	3.5	7 th
9	Plumbing	4.0	1 st

In table 4.4, the component of available skills in the survey and sectors involved was presented in table 4.4, masonry, concreting and plumbing sectors has high level of mobility with mean item score of 4.0 respectively and are ranked first. Tilling sector was second sector that has high level of migrant incursion with mean item score of 4.2 and ranked fourth alongside carpentry. Plastering was ranked fifth, while roofing and steelwork ranked sixth and painting ranked seventh with mean item score of 3.5.

4.5 ATTENDANT INFLUENCE OF JOB MOBILITY ON CRAFTSMEN

	Factors	M.I.S	RANK
1	Depression	4.43	1 st
2	Lost of job engagement	4.42	2 nd
3	Loss of craftsmanship overtime	4.41	3 rd
4	Decayed knowledge	3.88	6 th
5	Lopsidedness in job spread	3.99	7 th
6	Tendency for violence	4.35	5 th
7	Sense of worthlessness	4.40	4 th

Attendant influence of job mobility on occupational engagement among tradesmen and craftsmen was presented in table 5. It was discovered that there is tendency for depression to occur on account of job migration, depression was ranked first with M.I.S value of 4.43. Loss of job engagement was ranked second with M.I.S value of 4.42, loss of craftsmanship over a period of time was ranked third. Also, Tendency to have decayed knowledge has M.I.S value 3.88 and ranked fourth. Lopsidedness in job spread, tendency for violence and sense of worthlessness has M.I.S values 3.88 and 3.99 and ranked sixth and seventh respectively. Loss of job engagement and depression top the list of the attendant challenges that follows the lopsided mobility, joblessness can create a chain reaction that can spark up further problems, there it should be prevented on account of good job spread.

Table 4.6 Factors Militating Against Adequate Skilled Labor Supply and Occupational Mobility

S/N	Factors	Professional Perception		Skilled Workers Perception	
		Mean	Rank	Mean	Rank
1	Inadequate Vocational training center	4.45	1	4.45	1
2	Non practice of traditional apprenticeship training	4.44	2	4.44	2
3	Youth no longer interested in vocational based training	4.42	5	4.42	3
4	Sense of low self esteem by construction craftsmen	4.42	5	4.42	3
5	Lack of adequate motivation by the organization and government.	4.43	3	4.42	3
6	Risk inherent in construction works	4.42	5	4.40	6
7	Low wages and income	4.40	8	3.99	7
8	Job insecurity	3.88	10	3.97	8
9	Free entry and exit nature of the trades.	3.99	9	3.88	9
10	Availability of quick money yielding alternatives	3.75	10	3.86	10
11	Inclusion of private firms in artisans training	4.42	5	4.41	5
12	Lack of legislation controlling foreign migrant entry in to the trade.	4.43	2	4.42	3
13	Lack of law defining extent of occupational engagement of indigenes and foreigners.	4.43	2	4.42	3

In table 4.6, factors militating against adequate skilled labour supply and occupational mobility was presented in table 4.6. Perspective of professionals and skilled workers as regards the factors was presented. Inadequate

vocational training center with MIS value 4,45 was ranked first, followed with non practice of traditional apprenticeship training, M.I.S value 4.44 was ranked second. Youth no longer interested in vocational based training with M.I.S 4.42 was ranked as third alongside the following factors: Lack of law defining extent of occupational engagement of indigenes and foreigners, Lack of legislation controlling foreign migrant entry in to the trade, Lack of adequate motivation by the organization and government and sense of low self esteem by construction craftsmen.

Table 4.7: Reasons for choosing to work in current location

<i>Interview questions</i>	Frequency %	<i>Interview questions</i>	Frequency%
1. You grew up here/have always lived here?	55	8. Family Challenge?	15
2. Family reasons?	6		
3. Employer sent you here?	36	9. An employer sent you?	13
4. Came to the area to take up this or another job?	5	10. Availability of more regular opportunities?	35
5. There are more jobs available in this area?	6	11. More jobs are available here?	20
6. Construction work is better paid in this area?	3	12. Availability of better paid jobs?	5
7. Wanted to move to the area because you like it or not?	1	13. Prefer living here?	5

Interview was conducted among the migrated tradesmen and artisans, the result is presented in table 4.7. Major reason indicated was being born at the location of the job and grew up there. This was scored 55 percent, being sent by an employee to the job location where they were found was scored 36 percent, availability of more regular opportunities scored 35 percent. Availability of job opportunity was also accepted as one of the reasons adduced for the phenomenon of labour migration this is in line with Haukka, S (2011), Amusan L.M, Oluwunmi A.O., Owolabi J.D and Joshua O(2013

Furthermore, the following reasons are also stated as one of the reasons for migrating to the location of job availability: There are more jobs available in the area; construction work is better paid in the area; wanted to move to the area because of good prospect; family challenge and availability of better paid jobs this toes line of submissions in Mavromaras. Mahuteau & Wei, (2013); Karmel, Lim, & Misko, (2011) and McGuinness & Wooden (2009).

RECOMMENDATION

The following facts are recommended as a way to proper management of vocational skill mobility and its effect on occupational engagement among tradesmen and craftsmen in building sector.

Government should enact a control law defining the extent of occupational engagement of indigenes and foreigners, enacting of law regulating entrant of foreign and migrant tradesmen into the construction sector, promulgation of protective decree for indigenous artisan.

Also, recommended includes; provision of adequate vocational training center, reopening of practice of traditional apprentice training programme, stimulating youth interest in traditional apprentice training, government and organization should adequately motivate people at the grass root for artisan training. Finally, the free entry and exit nature of the industry should be prevented and inclusion of

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Water Consumption Strategy for Sustainable Surface Water Quality Management in Amphawa District, Samut Songkram Province

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ABSTRACT

The purpose of this research were to identify strategies for sustainable surface water quality management for water consumption from October 2015 to July 2016. Data was obtained via community participation and integrated with the Water Quality in the Amphawa District, Samut Songkram Province. This study was divided into four components: degradation of surface water quality and land use pattern in Amphawa, Samut Songkram Province; community participation in surface water quality management for human consumption; identify the needs of the community for sustainable surface water quality management for water consumption; and the application of participatory geo informatics to determining the Water Quality Index in the Amphawa District, Samut Songkhram Province. The results of the focus group were encouraged some mitigations such as releasing wastewater into pre-treatment grease trap before discharge directly in water resources. In addition, reuse of water for agriculture is recommended. The community also needs to construct a dam in order to protect the canal from leaving waste. So they legislated the regulations for homestay and resort and also needed to raise awareness and discharge fee. The major problems of water degradation were related with saline intrusion, water shortage in dry season, and waste littering into water body. The community needs to solve water issues through improvement in their knowledge of water management and conservation, as well as through collaboration to the project by local stakeholders and governments. Integrated water resource management can also be initiated by enhanced awareness, participation, volunteer activities and law enforcement to protect water resources by using geographic information systems.

INTRODUCTION

Amphawa is a center of agro-tourism as such, the Amphawa District has long term plans to capitalize on this, to develop and restore the environment (Utarasakul, 2013). Plans include the development of waterfront recreation and architectural tourism; and in the process to cultivate good moral traits into Amphawa villagers in order to retain their culture and environment. They intend to promote local tourism in the Amphawa District which now contains 3 types of aquatic ecosystems. Using a large amount of fertilizers and pesticides may induce irreversible disturbance to the natural habitats (Popradit et al., 2015). Therefore, restoring the pH balance is the primary aim in the development of the aquatic ecosystem, because Amphawa, which mostly consists of plains and canals, is currently best suited for agricultural development.

In 2010, the situation in the Mae Klong River and tributaries was critical. Neighbouring provinces located upstream were dumping wastewater treated into the Mae Klong River. As such, the Mae Klong River was not a suitable water source for drinking. In some areas, canal water and ground water had been directly consumed without verification from authorities as to its suitability for human consumption and so may have been harmful to the health of Amphawa's population. In 2011-2014, researchers studied surface water in Amphawa. They have found degraded water in Suan Luang Sub-district, which is close to community and industrial areas. The degraded water had been classified on 4th type of Water Quality of water pollution dept). The researchers (ref) (Kasemsawat et al., 2013) studied comparisons of surface water quality management in the orchard channels in the Lumpadong and Bang Nang Li Sub-districts, such as in lychee orchards, and coconut groves. have been standardized as 3rd type by PCD Water Quality Index of aquatic water quality (Kasemsawat et al., 2013, Kasemsawat et al., 2014) discovered the

effects causing the degradation of surface water quality (which are?). According to overall description of Bang Nang Li, Kwae Aom and Suan Luang, they had been classified in 4th type of aquatic water quality. The analysis of the degradation of surface water quality, land use in agriculture, and in the industry of Bang Nang Li Sub-district was at a lower average which could indicate it is near a degenerated crisis and the comparison of surface water quality is in the 4th type of aquatic water quality. The study mostly showed the factors the average level of the water quality index in the range of 31-60 which is classified as degraded water quality and the standard of surface water (Kasemsawat et.al, 2013) by PCD Water Quality Index of the degradation that effects to the water consumption (Kasemsawat et al., 2014). The analysis was conducted using the Water Quality Index need to introduce this earlier when first talking about water quality to assess the use of the water flowing through Bang Khon Thi District to Amphawa District. For Kaew Om Canal, the average water quality index of the water that passed through Bang Khon Thi District and Amphawa District were equal, which was degraded when compared by the standard surface water quality and was in 4th type of aquatic water quality. So, the aim of people needs were surface water quality management for community's sustainable water consumption in Amphawa. The purposes of this research were to identify strategies for sustainable surface water quality management for water consumption.

STUDY

Sampling Area Description were collected at Amphawa District, Samut Songkhram Province, Thailand. Data collection were composed of participatory method and was divided into four sub-research.

1. 180 samples were collected from community area and 120 samples were collected from agricultural area from May 2015 -December 2016 by grab sampler. Water quality was measured and analyzed by Water Quality Index.
2. A questionnaire was distributed to the sample which was 402 households in the area to collect the opinions of water use. The data was analyzed via the statistical package.
3. Primary data were collected from 400 household samples using questionnaires. Interview sessions with the communities were also held to gather. The data from questionnaires and from the interviews were then analyzed to elucidate the problems and the needs of communities.
4. The methodology of this research is water measurement index and get the location from GPS. A sampling of this survey has 50 points, and this research gets five values from water quality index. That consist of 5 value Oxygen, BOD, Coliform, Fecal Coliform Bacteria, Ammonia then interpolates spatial pattern.

Data Analysis

1. Descriptive statistics for each individual including gender, age ,career, status, how they obtain information about surface water quality management. Obtained from completion of the questionnaire.
2. Open-ended question of community's needs to surface water quality management and basic statistics by percentage and frequency.
3. Study issues and community's needs to surface water quality management by finding average, SD and correlation analysis.
4. Create Geographic Information System map of surface water quality database in Amphawa, Samut Songkram

Research procedure

- 1) Provide meeting ,work planning and sampling
- 2) Explore area with people in community
- 3) Making GIS database
- 4) Finding relation between land use and surface water quality for consumption
- 5) Making the surface water quality database
- 6) Discuss the opinions of people in community and organization involved and report progress
- 7) Summary and suggestion

5. Strategy finding for Sustainable Surface Water Quality Management

Provide meeting and suggest opinion form people in community by referring to this project. The meeting was held on Wednesday July 14th, 2016 in Bhummarin Temple, Amphawa District, Samut Songkhram.

FINDINGS

1. The result of degradation of water quality index (WQI) in Amphawa showed 5 factors of degradations such as : DO,BOD,TCB,FCB and NH3-N from Pollution Control Department

Table 1: result of WQI degradation in Amphawa

WQI Degradation	Garden		Commnity	
	Amount of sample	percentage	Amount of sample	percentage
Good	3	2.5	0	0.0
Fair	9	7.5	10	5.6
Poor	108	90.0	165	91.7
Very poor	0	0.0	5	2.8

Table 1 result showed that WQI degradation is in the garden orderly such as 2.5% Good, 7.5% Fair and 90% Poor. In addition, the community such as 0.0% Good , 5.6 Fair, 91.7 Poor and 2.8 Very poor.

The improvement of people participation

The analysis of the improvement of people participation in order to provide information about the surface water resource management to people in Amphawa.

1. The way to send an information to people in Amphawa learning about water resource management that can make it variously for example set up the meeting, letter, announcement, advertisement and social network.
2. The way to make people participate in community activity that can set up by inviting the representative of each organization involved attend the meeting and discuss project and activity.
3. The way to make people decision to vote referendum by inviting the representative of each organization involved
4. The way make people know the advantage of activity and invite people attend the next meeting

Overviewed problems about the Surface Water Quality Management in Amphawa district

Table 2: The overall image of analysis result of surface water quality management problem

Surface water management problem	Average	SD	Level of problem
1. Consumption problem	2.98	0.78	Moderate
2. Community problem	3.42	0.80	Moderate
3. Water quality management for consumption problem	3.20	0.81	Moderate
4. Needs of consumption problem	3.56	0.90	High
5. The effect of consumption and others	3.51	0.83	High
Overall	3.33	0.72	Moderate

Table 3. Analysis result on the communities need to manage surface water quality for consumption as a whole

The communities need to manage surface water quality	Average	S.D.	Demand levels
1. The communities need to solve water usage problem	4.23	0.68	High
2. The need for communities to manage water quality.	3.97	0.76	High
3. The communities need to build/gain knowledge	3.56	0.93	High
4. The communities need for participation	4.06	0.76	High
5. The communities need for management of water sources	3.91	0.66	High
Overall	4.02	0.61	High

Geographic Information system of surface water quality database in Amphawa, Samut Songkram

The analysis results after studying the surface water quality in Amphawa showed that 50 samples in canals and Mae Klong River between May 2016 - December 2016 that consist of all 5 parameters such as DO, BOD, TCB, FCB and NH₃-N orderly. Amphawa is located in 3 aquatics ecosystem, the WIQ results found that are fair, degraded and very degraded which are in 3, 4, and 5 types of surface water according to the standard of Pollution control

department. In addition, WQI result in 3 canals are fair such as Klong Suan Luang, Klong Ta Sang and Klong Wat Suan Luang. The WQI result in 46 canals are degraded as follows:
WQI result in 1 canal that very degraded is Wat Nang Wong. The study of WQI in Amphawa that we used Kriging interpolation, and Spatial interpolation to find WQI all of 10 levels from highest to lowest orderly for defining equal interval.

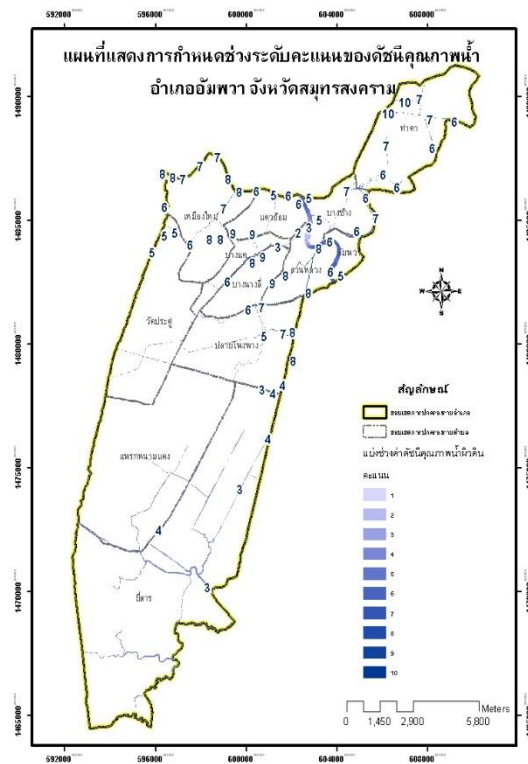


Figure 1: Map of Water Quality Index in Amphawa District

From Figure 1, the highest water quality index was located in Tha Ka District where as the lowest water quality index in Bang Chang, Muang District.

The participation of study strategy finding for Sustainable Surface Water Quality Management that summarized are as follows:

1. The results of the focus group were encouraged some mitigations such as releasing wastewater into pre-treatment grease trap before discharge directly in water resources.
2. Reuse water for agricultural use is recommended.
3. Community also needs to construct dam in order to protect waste into the canal.
4. Regulations for homestay and resort by community participation also needed to raise awareness and discharge fee.
5. The major problems of water degradation were related with saline intrusion, water shortage in dry season, and waste littering into water body.
6. The community needs to solve water issues by creating knowledge of water management and conservation and also develop contribution project between local stakeholders and governments.
7. Integrated water resources management can also initiated by enhance awareness, participation, volunteer activities and law enforcement to protect water resources by using geographic information systems.

CONCLUSION

The research can conclude as follows

The strategy for sustainable surface water quality management in Amphrawa ,Samut Songkram Province with 4 projects can be summarized as

1. Water quality index in the agricultural area is still more quality than the community.
2. The participated behavior in surface water quality management of people found that is fair level, the study showed the factors of age ,education, career and living term ,in addition ,the meaning of people participation in order to realize the surface water resource issue is about 0.05%.
3. The water consumption issue that effects to community is moderate at 3.33 ,the overall image of community's needs for consumption is high at 4.02.
4. The good area is Tha Ka which is the highest water quality for consumption on the other hand Bang Chang is the lowest water quality.

Problem about the surface water quality management in Amphawa District was in the medium level with an average score of 3.33. Needs of communities in the practical surface water quality management for water consumption were in the high level with an average score of 4.02. It could be concluded that the communities desire to have public participation to solve the problems of water and water quality management

The result of this research is the best water quality index locates near Tha Ka District because this area is agriculture area and has no household not much in contrast Bang Chang District have low-water quality index because this field has a lot of tourism landmarks and has many household activities.

RECOMMENDATION

1. Local administrative organization should enhance awareness of water conservation for local people and enforce homestay and resorts to set up water treatment before discharge to water resources.
2. Water monitoring Patrol should be initiate in Mae Klong River and watershed.
3. Enforcement law and regulations in aquaculture and orchards for chemical using.
4. Control pesticides utilization in Ratchaburi and Kanchanaburi.
5. Identify point source and control SMEs activities in order to control water pollution in water resources.
6. Weed controls and removal along riverside.
7. Construct dam to protect erosion and saline intrusion.
8. Empowerment of people participation and youth for integrated water resources conservation in community

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What is the Level of Inquiry Skills of Science Teacher Candidates? Does it Change by Gender and Class Level?

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ABSTRACT

In today's education system, individuals who are searching, questioning, learning to learn, producing knowledge, reaching knowledge, analyzing information, choosing useful knowledge are needed instead of individuals who are waiting for memorizing and ready information. The expectation of these qualities can be reflected to the school process by differentiating the knowledge and skills to be gained to the students. One of the skills discussed as common basic skills is inquiry skill. In this study, it is aimed to determine the inquiry skills of science teacher candidates and to examine them in terms of gender and class level. The study constitutes a survey research conducted with the participation of a total 247 pre-service teachers receiving education in first, second, third and fourth grades at the Celal Bayar University's Faculty of Education in Turkey during the spring semester of 2014-2015 academic years. In the study, 'Inquiry Skills Scale' was used in determining the questioning skills of the teacher candidates. The aforementioned inquiry skills scale consists of 14 items and three sub-dimensions (information acquisition, information control and self-confidence). The Kruskal-Wallis and the Mann-Whitney U tests are used along with the descriptive statistics for the analysis of the data. According to the results of the analysis, the ability of the teacher candidates to inquiry skills was found in the 'above average' range. When examined in terms of gender, the inquiry skills of the students shows a significant difference in favor of male students according to the gender variable in the subscale of self-confidence. From here, it can be said that the students' self-confidence towards inquiry skill is higher in male students than in female students. According to the other sub-problem class level, there was no statistically significant difference between the classes. Although there is no significant difference, it is seen that the 4th grade level is higher than the other grade levels when the rank average scores are examined. Some suggestions have been made about the development of inquiry skills for these results.

Keywords: science education; inquiry skills; gender; grade level

INTRODUCTION

In order to keep pace with the developing and changing world conditions, individuals have to spend more effort to improve their knowledge and skills in recent years, when we are in the age of information. For this reason, there is a need for individuals who are researching, questioning, solving the problems they are faced with, having high level inquiry and scientific thinking skills instead of the individuals memorized by taking ready knowledge today. The expected qualities of future individuals play a shaping role in how science education should be given. On the basis of phenanthropes is to make sense of the events taking place in nature and it is a scientific discipline based on the question of science nature. It is extremely important for young learners to understand and learn the concepts related to science in a way that they will form the basis of science courses in advanced classes (Osborne, 2007). For this reason, some skills will be given to the students to acquire the right knowledge at the young age. The expectation of these qualities can be reflected to the school process by differentiating the knowledge and skills to be gained to the students. As it is known, according to 2004 education reform in Turkey, curriculum emphasizes cognitive and constructivist learning approach instead of behavioral approach. It is the skill of using correct,

effective and beautiful Turkish language in the educational reform program which is aimed at making and learning the vision of the curriculums, common thinking skills, critical thinking skills, creative thinking skills, communication skills, *research and inquiry skills*, problem solving skills, information technology skills, entrepreneurial skills (Yetkin & Daşcan, 2008). As shown in the program, intended to gain common skills identified and one of these skills, the skill is expressed directly. The science program revision in 2013 and the science-based learning strategy in the science curriculum were based on the research inquiry-based learning strategy. Inquiry learning centered on meaningful and lasting learning is based on the process of inquiry, and students are also responsible for their own learning and development of their skills (Spronken-Smith, Angelo, Matthews, O'Steen & Robertson, 2007). In the process in which the interrogator learns, problems or questions are created and students try to solve the problems or to find answers to the questions (Wood, 2003). The process in which researches are conducted in the solution of the questions asked, the information is analyzed and the learning is carried out at the same time and the data obtained at the same time is converted into useful information is defined as questioning learning (Perry & Richardson, 2001). Inquiry-based learning environments can be described as environments where learners are active, questioned, confronted with problems, discovered by exploring scientific concepts, and built into meaningful integrations in their minds. Skills are emphasized in the revised science program. This revision is included as one of the basic skills in interrogation. In the course of science lessons published in the past days, inquiry-based learning strategy continues to be used. There are three sub-domains within the skill learning area of the program. These skills are expressed under the headings of scientific process skills, life skills and engineering and design skills. In fact, it can be said that inquiry skill is a skill that every individual uses in every aspect of everyday life. The ability to inquiry students is younger and develops in a certain process. However, once these skills are gained, they can be used in any situation that is needed. It is evident that our teachers must make these skills effective for their students and they must first practice the points of complementing and acquiring skills that are present in them. Inquiry is a way of thinking, and thinking skills are the basic qualities that a person has and that he uses to live in harmony with nature, to meet the opportunities and needs of nature. It is possible to reach from Aristotle (Plato) to Dewey, James, Piaget and Thorndike when Plato (Plato) sources are examined. Research-inquiry skills, one of the common basic skills; is identify and understand the problem by asking the right and meaningful questions, to plan the research about what and how to do the problem, to predict the results, to take into consideration possible problems, to test the results and to develop ideas (MoNE 2004). According to Dewey, inquiry learning skills reflect on newly acquired knowledge and questions, asking questions about the subject, researching answers, generating and creating new information while collecting information on any subject, discussing experiences and experiences (Taşkoyan, 2008). In this case we can define the skill of inquiry as a set of skills that helps the individual to think and solve problems about himself and his environment in different ways.

Our teachers, who have an important position in training new generations to contribute to the development of the country, have had great responsibilities. That is why teachers need to have some skills in order to fulfill these responsibilities. These skills include the ability to question, think critically, solve problems, think reflective, think creatively, and use information technologies (Şen & Erişen, 2002). It seems that the most important of the skills expected of a qualified teacher is the questioning ability (Kuhn & Pease, 2008). Teachers must have both these skills and they must make them learn effectively in their teaching practice (Yılmaz & Karamustafaoğlu, 2015). When analyzing the literature, it seems that there is not much work to examine the inquiry skill of teachers and teacher candidates. Often the studies focus on inquiry-based learning. In order for the inquiry-based learning to be carried out, the inquiry skills individuals to take part can be considered as the first precondition. Yılmaz and Karamustafaoğlu (2015) examine the inquiry skill of teacher candidates according to the variables of gender, class level and the program seen in education. It was found that there was no significant difference when the total scores of teacher candidates' inquiry skill scale were examined in terms of gender, class level and program variables seen in education. According to the findings of the research, the results of the teacher candidates' inquiry skills are at a good level. Arseven et al. (2015) aim to determine the relationship between the inquiry skills of history teacher candidates and their tendency to think critically. For this purpose, the screening method was used. As a result of the study, it is seen that teacher candidates' inquiry skills are moderate. Tanışlı (2013) study, elementary mathematics teachers studied the inquiry skills of candidates in the context of pedagogical content knowledge. Aldan Karademir (2013) examines the effect of teacher candidates' inquiry and critical thinking skills on teacher self-efficacy level in doctoral dissertation. Teacher candidates' inquiry skill and critically think is above average,

teacher self-efficacy is average. It is seen that the teacher candidates do not differ significantly according to their inquiry skill, gender, education level, and mother education level.

As a result; Teachers are now a model and guiding place for information transfer. For this reason, it is necessary for teacher and teacher candidates to be informed about the importance of their inquiry and to be improved in terms of their competence. The development of teachers in this regard is a prerequisite for students to be able to encourage them to acquire these skills. However, in order to be able to develop a feature in any matter, the existing situation must first be determined. In this context, it is aimed to determine the inquiry skills of the teacher candidates. The questions to be answered in this direction are as follows.

- What is the level of inquiry skills of teacher candidates?
- Does the inquiry skills of teacher candidates differ significantly according to gender?
- Does the inquiry skills of teacher candidates differ significantly by class level?

THE STUDY

A large group of researchers gathered in the subject to be investigated, and the relationship between the measured variables can be examined (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2010: 231-232). For this reason, in the study, the screening model was used from the qualitative research methods in order to determine the questioning skills of the pre-service teachers. Research; Celal Bayar University Faculty of Education with the participation of first, second, third and fourth grade prospective teachers who were educated in the spring term of 2014-2015 academic year. 247 candidates who were studying in the first, second, third and fourth grades of the science teacher education program participated in the research as volunteers.

Inquiry Skills Scale; It was developed by Aldan Karademir and Saracaloğlu. Likert type inquiry skills scale consists of 14 items, 3 factors (information acquisition, information control and self-confidence). The Cronbach-alpha reliability coefficient for the complete scale was .82. Scale aims to measure the inquiry skills of teacher candidates. For the reliability of the test, cronbach α reliability coefficient was calculated as .83 in the research conducted by 247 science teachers. 'Always', 'mostly', 'occasional', 'rarely' and 'never' are used for the expressions on the scale of the Likert-type scale of 5. When interpreting these items, they are given always 5, mostly 4, occasional 3, rarely 2, never 1. The lowest score that can be taken from the scale is 14 and the highest score is 70. SPSS package program was used for analyzing the data. First, it is examined whether the data obtained from the participants are distributed normally.

In this context, the results of analysis of the items in the dimensions of 'information acquisition', 'information control' and 'self-confidence' dimensions of the inquiry ability test of the answers given by the teacher candidates, the results of the normal distribution test of data (Kolmogorov-Smirnov Test) in the direction of the solutions ($p < .05$) Kurtosis, skewness coefficients and standard deviation values were examined and it was determined that they did not meet the assumption of normal distribution. Non-parametric tests were used in data analysis, since the assumption of normal distribution of data was not accepted. As a result, Kruskal Wallis test and Mann Whitney U-test were used together with descriptive statistics in the analysis of the data.

FINDINGS

In this section, descriptive statistical values related to total scores of science teacher candidates' inquiry skills scale are given firstly. There are 14 questions including 6 questions for information acquisition, 5 questions for information control and 3 questions for self-confidence in sub-factors included in the scale.

Table 1: Descriptive Statistics Results of Teacher Candidates' Scores on Inquiry Skills Scale

Factor	The lowest score	Highest score	\bar{X}	SS	Level
Information acquisition	13	30	24.2	3.0	Mostly
Information control	8	25	18.2	3.6	Mostly
Self-confidence	3	15	11.0	2.9	Mostly
Inquiry skills (Total)	34	70	53.4	7.6	Mostly

In the study, "Range Span (a) = Array Span / Number of Spool Groups" formula (Tekin, 2003: 262) was used to determine the range of points used in interpreting the arithmetic mean of participant's sub-dimensions and total scores. In this context, it is seen that the average of the information acquisition factor is 24.2 (SS = 3.0), the information control factor average is 18.2 (SD = 3.6), the self-confidence factor is 11.0 (SD = 2.9) and the mean total scale is 53.4 (SD = 7.6). When these values are examined, it was determined that the teacher candidates mostly performed the skills on the scale on factor and total points basis.

The Mann-Whitney U Test was used because it was determined that the data were not normally distributed in the solution direction of the sub-problem "Does the inquiry skills of teacher candidates differ significantly according to gender?". Table 2 presents the results from the analysis of this problem.

Table 2: Results of the Mann-Whitney U Test on the Analysis of Teacher Candidates' Inquiry Skills in Terms of Gender Variability

Factor	Gender	N	Average Rank	Rank Sum	U	Z	p
Information acquisition	Female	171	125.5	21467	6235	-.5	.610
	Male	76	120.5	9161			
Information control	Female	171	121.9	20842	6136	-.7	.483
	Male	76	128.8	9786			
Self-confidence	Female	171	114.5	19577	4871	-3.2	.002*
	Male	76	145.4	11051			
Inquiry skills (Total)	Female	171	120.5	20605	5899	-1.2	.247
	Male	76	131.9	10023			

* $p < .05$

According to the table 2, the students' inquiry skills showed a significant difference in the self-confidence scale compared to the gender variable ($p < .05$). Considering the average of the rankings, it is seen that male students have more confidence in their inquiry skills than female students. This finding can also be expressed as the fact that the students' self-confidence for inquiry is higher in male students than in female students.

It was determined that the data were not normally distributed in the solution direction of the sub-problem "Does the inquiry skills of teacher candidates differ significantly by class level?" and therefore the analyzes were carried out using the Kruskal Wallis test. The results obtained from the analyzes in Table 3 are given.

Table 3: Results of the Kruskal-Wallis H Test on the Analysis of Teacher Candidates' Inquiry Skills in Terms of Grade Level Variability

Factor	Class Level	N	Average Rank	sd	χ^2	p
Information acquisition	1st Class	74	106.7	3	6.6	.087
	2nd Class	69	128.6			
	3rd Class	42	130.6			
	4th Class	62	135.1			
Information control	1st Class	74	118.1	3	1.4	.697
	2nd Class	69	122.7			
	3rd Class	42	123.7			
	4th Class	62	132.6			
Self-confidence	1st Class	74	110	3	6	.111
	2nd Class	69	122.5			
	3rd Class	42	128.4			
	4th Class	62	139.4			
Inquiry skills (Total)	1st Class	74	109.7	3	6	.112
	2nd Class	69	123.9			
	3rd Class	42	126.1			
	4th Class	62	139.7			

* $p < .05$

When the results of the analysis in Table 3 are examined, there is no significant difference between the factor scores and the class of inquiry skills of the total puer students ($p < .50$). Although there is no meaningful difference when examining the ability of teacher candidates to inquiry skills according to the class level, it is seen that the level of inquiry skills increases as the class level increases.

CONCLUSIONS

Teaching in a didactic manner by presenting and transferring scientific information as it is involved in traditional teaching will not allow science literacy to raise individuals. However, science literacy requires that individuals understand their knowledge and knowingly apply the process by which all scientific knowledge is produced. The prerequisite for this to happen is for students to learn scientific inquiry. According to Gagne, which deals with questioning by induction, scientific inquiry is the most basic goal of science education. Scientific inquiry; A set of activities characterized by a problem-solving approach to each new phenomenon that must be considered. One of the skills that individuals must possess in order to carry out a scientific inquiry is inquiry skills. Inquiring ability involves planning and conducting researches about what and how to do, solving the problems by considering correct and meaningful questions, considering the problems that may arise, evaluating the results and developing ideas (MoNE, 2004). In this context, it was aimed to determine the level of inquiry skills of prospective teachers who will be future science teachers in the study. It is also the other problem of the study to determine whether there is a meaningful difference between science and science teacher candidates in terms of gender and class level variables.

As a result of the analysis, science teacher candidates have reached the result that they "mostly" performed their inquiry skills. When the field is examined in the literature, it is generally seen that the results of this study are parallel to the results, and that the students have "intermediate and above" inquiry skills. Arseven et al. (2015) in their study history teacher candidates perform with candidates inquiry skills are seen at the medium level. Unlike these, in the study conducted by Tanışlı (2013), it is stated that teacher candidates' ability to prepare and question the inquiry skills and thus the acquirement of knowledge is not generally sufficient. Aldan Karademir (2013) have reached the result that teacher candidates are above the average of their inquiry skills, that is, they have mostly accomplished their skills.

According to another finding of the study, there is not a statistically significant difference between teacher candidates' inquiry skills and their genders. When the sub-dimensions are examined, it is seen that there is a statistically significant difference in the self-confidence dimension of the teacher candidates. It is seen that boy students are more self-confident than girl students when the average is taken into consideration. This finding can also be expressed as the fact that the students' self-confidence for inquiry skills is higher in male students than in female students. When the literature is examined, it is seen that the inquiry skills of the teacher candidates does not differ significantly according to the gender. Yılmaz and Karamustafaoğlu (2015) stated that the inquiry skills in the study conducted with the teacher candidates did not make any meaningful difference according to gender. Aldan Karademir and Saracaloglu (2013), on the other hand, found that the inquiry skills of male teacher candidates are higher than the scores of female teacher candidates in the other subscales other than the "information acquisition" subscale, and all of the scale, when the scores of inquiry skills scale and subscales are examined. Differing from these, in the master's thesis made by Işık (2011), the inquiry skills of primary school students were examined and it was determined that there is a meaningful difference between students' inquiry skills according to gender, in favor of female students.

Inquiry skills of teachers by grade level to another problem examined in this study does not differ significantly with respect to variable. Nevertheless, the average level of inquiry skills seems to increase as the class level increases. However, since the results are at a level that does not make any significant difference, the findings show that the grade level is not an effective factor in the teacher candidates' inquiry skills. Similar results are encountered when the field is examined in the literature. Likewise, Yılmaz and Karamustafaoğlu (2015) investigated the teacher candidates' inquiry skills in terms of different variables. In the study, it is stated that the teacher candidates' inquiry skills did not show any significant difference compared to class level variables.

As a result, it can be stated that the science teacher candidates mostly perform the inquiry skills but not at the desired level. In relation to the importance of this situation, many of the science curricula that have been revised for many years (MoNE; 2004, 2013 and 2017 science programs) have had considerable relevance to their inquiry skills. Despite this, the desired level can not be reached. This can be expressed in terms of the study and field literature review so that students and prospective teachers can reach the required level in inquiry skills only by developing the inquiry skills of role model teachers. In this context, it is considered that giving more attention to the activities that improve the students' ability of inquiry in education faculties will be effective in raising individuals with high inquiry skills. However, it may be suggested to conduct research on the determination of inquiry skills by studying with a wider sample of teacher candidates who are trained in various programs of different universities of education faculties.

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What to Learn from the Past: The Case Study of a Scientific Educational Laboratory

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ABSTRACT

The paper presents the case study of Venezia Giulia, with, in particular, its chief town Trieste – a region which, following the First World War, was annexed to the Kingdom of Italy after having been for a long time part of the Habsburg Empire. Precisely because of its special geopolitical situation, in the period of transition from the Habsburg Empire to the Kingdom of Italy (1918-1923), this region played the role of a didactic “laboratory”, where programmes and educational methodologies had already long been in place that were more suited to the new innovative ideas already at the fore in the international context compared to those normally used in the rest of the Kingdom of Italy. The paper illustrates some examples with particular attention to mathematics and science education.

1. THE HISTORICAL BACKGROUND

The beginning of the twentieth century, before the First World War, was a crucial moment in the development of mathematical education, for the innovation of the teaching methods as well as for the introduction of new subjects in the secondary school, first of all calculus (see Zuccheri & Zudini, 2014).

An opportunity to examine and discuss the situation of mathematics education in various countries was the Fourth International Congress of Mathematicians held in Rome (April 6-11, 1908). On that occasion, the “Commission Internationale de l’Enseignement Mathématique” (CIEM) or “Internationale Mathematische Unterrichtskommission” (IMUK) – thereafter, “International Commission on Mathematical Instruction” (ICMI) – was established, presided over by the German mathematician Felix Klein, with the aim of promoting and spreading the interest of the mathematicians in school education. Together with this commission, the journal “L’Enseignement Mathématique” played an important role allowing communication and cooperation among scholars at international level (see Schubring, 2003, 2008; Furinghetti, 2003; Furinghetti et al., 2008). It was a very fruitful period of research and deepening the understanding of teaching problems, in particular in the Middle-European cultural world.

At the end of the First World War, the city of Trieste and the surrounding region “Venezia Giulia” – now these territories belong to Italy, Slovenia, and Croatia – were annexed to the Kingdom of Italy after having been for a long time part of the Habsburg Empire and formed, with some exceptions, the so-called “Küstenland” (for a historical description of the political situation of this geographical area before and after the First World War, see Zuccheri & Zudini, 2007a, and its references). Consequently, in the period of transition from the Habsburg Empire to the Kingdom of Italy, many changes were necessary when dealing with the integration of these formerly Habsburgian territories, not only from the political, administrative, and economic, but also social, ethnic, and cultural point of view.

2. VENEZIA GIULIA AS A SCIENTIFIC EDUCATIONAL LABORATORY

Among the problems to be faced, there was the question of adapting Venezia Giulia’s school system, which differed from that of the Kingdom of Italy in many aspects (ranging from administrative rules and juridical status of the teachers to teaching programmes and curricula) (see, for more details on the subject, Zuccheri & Zudini, 2007a). In particular, concerning mathematics, the problem of changing the teaching programmes in the former Austrian territories was not of local interest, but was in response to the demands of global renewal which affected all contemporary mathematics education in the Kingdom of Italy, in the context of the international movement mentioned above.

Apart from the considerable discrepancies in content and time-tables, the fundamental difference between Venezia Giulia and the Kingdom of Italy in teaching mathematics (and scientific disciplines) lay in teaching methods, due to deep-set school principles. In fact, before the First World War, in Venezia Giulia, with, in particular, its chief town Trieste, familiarity with the German language and culture had been essential for academic studies and certain skilled professions – such as teacher in a secondary school. At that time there were no Italian universities in the Habsburg Empire, and Graz and Vienna were the usual choices of university for students from that region. Therefore, mathematics teachers of Venezia Giulia, including the Italian native speakers, had been trained at the Austrian universities and learned teaching methods based on Felix Klein’s ideas. So they were open and receptive to the Central

European literature and philosophical thought, as well as scientific culture, although they generally had very strong Italian national feeling.

Encouraged to propose their ideas for the gradual transition to the programmes of the Kingdom of Italy – in preparation for a reform that was supposed to take into account their experience, but that did not ever occur as wished –, mathematics teachers of Venezia Giulia acted on the basis of their didactic and pedagogical convictions, which were inspired by the principles held by Klein (for more details on these principles see, for example, Klein, 1925), and which they had tested during their practical teaching.

Following this situation, Venezia Giulia played the very role of a didactic “laboratory”, where programmes and educational methodologies had already long been in place that were more suited to the new innovative ideas already at the fore in the international context compared to those normally used in the rest of the Kingdom of Italy. Some of these were destined to have rich developments in the twentieth century and still resound in current research in education.

3. EXAMPLES

While in the rest of the Kingdom of Italy more attention was given to a more theoretical and formally strict teaching, in Venezia Giulia a greater emphasis was put on exercises and practical application of theoretical subject-matter, considered very important in the context of a conception of teaching through examples and not theory.

Such a practical methodology aimed to impart to students a lively and interesting view of the material, to make their minds quick and show the interdisciplinary connections of mathematics with related sciences, first of all physics. This was all in line with Klein’s programme for improving the teaching of mathematics, and not by chance, considering the course of studies that teachers in Venezia Giulia had to follow in Austrian universities. Klein, in fact, had stressed the need to adjust the teaching methods and content to contemporary cultural trends, taking into account the progress of science and linking mathematical study to everyday life, and to demonstrate the way mathematics was applied in natural sciences and technology (see Klein, 1925, pp. 226ff.).

Among the theories which emerge as having great influence in this context are those of the Austrian physicist, physiologist, and philosopher Ernst Mach. After being professor of Mathematics and of Physics at the University of Graz and then of Physics in Prague (at that time part of the Habsburg Empire), he held the chair in the History and Theory of Inductive Sciences in Vienna and was also the inspiration for the melting pot of ideas which would become famous as the “Vienna Circle” and for the new generation of physicists that was growing up then (such as Albert Einstein).

Mach is well known as giving important contributions to mechanics, acoustics, optics, thermodynamics, and hydrodynamics, as well as to epistemology and the history of science, physiology of sensations and experimental psychology; he was a rigorous scholar of perception problems, in particular, perception of movement and visual contrast (see Blackmore, 1972, 1992; Blackmore et al., 2001; Blüh, 1967; Cohen, 1968; Haller & Stadler, 1988; Heller, 1964; Janik & Toulmin, 1973; Matthews, 1990; Zudini & Zuccheri, 2016a).

Mach started his scientific and philosophical programme with the development of a theory of biologically based knowledge. Heavily influenced by Darwinian evolutionism, this theory regarded knowledge construction as a product of universal evolution, therefore as an essentially adaptive process, placed in continuity with biological processes by which living beings adapt to their natural environment. The same principles that guide the adaptation of organisms to their environment also rule the biological and psychological dynamics of human beings, including the level of knowledge, both natural and scientific (Mach, 1886, Engl. transl. 1996, pp. 71ff.).

3.1 FROM SCIENCE TO SCIENCE AND MATHEMATICS EDUCATION

Also science (with its sophisticated conceptual and mathematical instruments) constitutes a strategy that humans have put in place with the practical aim of achieving greater and more complete control on reality (see Mach, 1906), and the scientist’s activity is nothing but an adaptive biological strategy, useful for practical purposes, not unlike others used by people to survive.

In so far as nature, according to Darwin’s conception, is structured in an organic and simple way – and each one of its elements finds its place without excess or waste, in an “economical” way –, science, in order to be of real use in helping guide human beings in the world around them, must be able to provide a description of nature that is as “economical” as possible.

According to Mach’s vision, science, once constructed, should be taught and disseminated. Mach’s commitment to modern teaching and effective propagation of knowledge at all social levels was, indeed, strong, both as a professor and as a conference speaker (see Blüh, 1967; Hohenester, 1988; Matthews, 1990; Siemsen, 2010; Zudini & Zuccheri, 2016a, 2016b). Playing the role of an advocate of a modern, scientific, interactive, anti-dogmatic and secular education,

he was attentive to the need to educate the working class through the promotion of the “Volksbildungsverein” (“Association for popular culture”) and the “volkstümliche Vorlesungen” (“popular lectures”, i.e. the courses of lectures that were held by professors of the University of Vienna), as well as the edition of the “Populär-wissenschaftliche Vorlesungen” (1896), with the aim of communicating his conceptions and theories even to a non-expert reading public. Contained in the “Populär-wissenschaftliche Vorlesungen” there is the text of the conference “Über den relativen Bildungswert der philologischen und der mathematisch-naturwissenschaftlichen Unterrichtsfächer der höheren Schulen” (“On the relative educational value of the classics and the mathematico-physical sciences in colleges and high schools”) held by Mach in 1886, on the educational value of classical and scientific culture (Mach, 1896, Engl. transl. 1898, pp. 338-374). In this conference, Mach dealt with the relationship between humanities and sciences and their formative value (see Zuccheri & Zudini, 2016; Zudini & Zuccheri, 2016b), resounding modern treatises on the subject (among them, Snow, 1993). He recognized that, within the cultural development of his time – by then focused on the technical-scientific aspect –, humanities could no longer be considered the only (or even the better) means to offer a higher education. Studying science – in particular mathematics – was fundamental in helping human beings to observe and understand the world around them and thus to act in an “economic” way (see, e.g., Mach, 1889, Engl. transl. 1989, pp. 577ff.). Thus, scientific education should be consistently pursued (Mach, 1896, Engl. transl. 1898, pp. 360ff.).

3.2 SUGGESTIONS FOR THE IMPROVEMENT OF SCIENCE AND MATHEMATICS EDUCATION

Mach recommended a set of operational guidelines for improving mathematics and science education (Mach, 1896, Engl. transl. 1898, pp. 364ff.), which can be sketched out as follows (see Zudini & Zuccheri, 2016a, 2016b):

1. avoiding premature abstraction and reducing the amount of the subject matter, inasmuch as it was impossible to accumulate ideas beyond a certain level in a brain all at once;
2. using, in the presentation of a subject, examples (taken also from reading selected passages of the great classics of mathematics and science) and practical (manual and, generally, bodily) experiences to cause students to take an active part in their learning;
3. presenting, in the final classes of the higher schools, a division of the subjects into compulsory and optional, so as to enhance students’ interests and inclinations;
4. preventing the most talented students, who, for some reason, had not been able to follow a regular curriculum, from being excluded a priori from entering university and academic professions; generally, there should be no restriction of access to education and the professions.

Mach (1896) suggested, in general, a non-dogmatic teaching of mathematics and science, in which the concepts should be introduced accompanied by an experience of the events that led to their formation, taking into account how they actually developed in the course of mathematics and science and hence following a historical and natural approach, with the aim of an “economical” adaptation of thoughts to facts. To this end, and with psychological attention to the development of intellectual abilities – which resounds in modern studies on learning processes – rigour should be reached in a gradual way, without an excessive use of formulas and chains of reasoning, so as not to burden students and prevent them from forming unnecessary or incorrect concepts. Everyday language and concepts in common use should be applied as much as possible, at least in the initial phase, and new concepts, hypotheses, and theories should be introduced only when actually needed for the handling of a subject.

3.3 THE “JACOB METHOD”

Much care was taken with teacher training. Based on Mach’s ideas, a didactical method was developed, called the “Jacob method” – after Josef Jacob, who proposed it – and applied at the beginning of the twentieth century in the teaching of mathematics in the Austrian “Gymnasium” (pupils aged 11-18) (see Zuccheri & Zudini, 2007b, 2008, 2010; Zudini & Zuccheri, 2016a, 2016b). It was greatly esteemed by mathematics teachers of Venezia Giulia (in particular, of Trieste) who contributed to the above-cited process of adapting mathematics teaching in the secondary schools of Venezia Giulia to that of the Kingdom of Italy, after the First World War (see Zuccheri & Zudini, 2007a, 2010).

Jacob’s “practical method”, supported by his own teaching experience, was illustrated in a textbook to be used in training “Gymnasium” mathematics teachers and published in 1913 with a preface by Mach himself (Jacob, 1913).

The textbook proceeded step by step giving practical suggestions and including very precise didactical examples, explaining to the teachers, in a clear and practical manner, how to introduce any subject, ranging from simple arithmetical operations to calculus. This was achieved with the goal of a mathematical teaching method for secondary school level, which, conforming to Mach’s ideas, had the following aims:

1. to make the mathematical “facts” (for instance, the sum of the angles of a triangle) and their interrelations comprehensible to young people as concisely as possible, with first simple, schematic representations;
2. to educate pupils on conceptual thought, encouraging intuition and avoiding premature abstraction;
3. to increase the value of mathematics by applying it in practical life, in technology and in science.

At every step of the process of teaching mathematical concepts, Jacob, in line with Mach’s ideas, stressed the important role played by physical activities in the process of forming and elaborating the concepts themselves. In this perspective, as showed in Zudini & Zuccheri (2016a), the “Jacob method” supplies a historical example of mind-body grounded methodology that could be compared to some aspects of the modern theory of embodied cognition applied to mathematics teaching (see, e.g., Arzarello & Robutti, 2008, as well as Edwards et al., 2009, and, for more recent developments, Edwards et al., 2014).

3.4 A VOICE FROM THE PAST TOWARDS THE FUTURE

According to the above-mentioned innovative ideas (in particular, Mach’s ideas), Giacomo Furlani, a teacher of mathematics and physics at secondary schools in Trieste, showing great modernity, said in his report entitled “Rapporti fra la matematica e la fisica nell’insegnamento” (“Relations between mathematics and physics in teaching”) and presented at the Congress of “Mathesis” – “Italian Society of Mathematics and Physics” – held in Trieste (October 17-19, 1919):

While recognizing the high educational value of the study of classical languages... education may be considered as perfect as it is useful to develop harmoniously all faculties of the mind ... we must demand that it is not unilaterally formative, that it does not excessively overlook the development of those faculties which can only be cultivated with a rational scientific study ...

Therefore [the school] will have to mature in the students’ mind what time has matured in the life of humanity and especially in modern thought. If these are our ideals on education, then we must also claim ... a greater consideration of scientific teaching in school curricula ...

A language can be learned only by speaking and applying it ... You will be able to master your own language the better, the more its practice is varied, and especially in school, the more the expression in the various disciplines is attended to, through an appropriate study. So the study of mathematics ... and physics offer such opportunities in practice in one’s own language that they can be not replaced by any other study. (Furlani, 1920, pp. 27-29; the English version of the Italian original text was made by the author of this paper.)

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A Social Project Model: Our Guest Students

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ABSTRACT

The aim of the study is to investigate the opinions of preservice teachers in social studies department related to the social project called "our guest students" whose target group is Syrian students. In accordance with this purpose, the study was designed with case study method, which is one of the qualitative research methods. The sample of the study consisted of 8 preservice teachers studying their third year at Social Studies Education Department in the Faculty of Education of a state university during the academic year 2016-2017. Sampling of the study was performed according to criterion sampling, a type of purposeful sampling. The data of the study was gathered through semi-structured interview, weekly reports with photographs and a magazine article which is an end-of-study product. The data was analysed with descriptive analysis method. At the end of the study, it was found out that the main activities performed were playing games and watching films, the primary problem in the project was communication problems, the project made a lot of contributions to many skills particularly empathy skills and values specifically hospitality and preservice teachers associated the project they carried out with community service practices course.

Key Words: Social Project, Community Service Practices, Learning by Servicing, Syrian Students, Preservice teachers in Social Studies Department

1. INTRODUCTION

Awareness towards global problems is much lower than the desired level. In order to raise awareness to these global issues, probably the most effective way is to raise conscious people, and so universities, nongovernmental organizations and political corporations should carry out projects that are realistic and applicable (Aydın, 2016, preface). On the university basis, these projects are conducted through scientific studies, or based on voluntariness, or within the framework of courses. Considering the university courses, we come across community service practices, a course compulsory in all departments of education faculties.

According to Sönmez (2009) education affects the whole society and the most essential factor in this system is teachers. In this sense, community service practices course is of critical importance in order for preservice teachers not to be grown isolated from the society. In the light of this, considering that one of the most basic social problems in Turkey today is the issue of Syrian refugees, conducting activities aimed at Syrian refugees within the frame of community service practices course is regarded as crucial. Preservice teachers would absolutely give priority to Syrian students with this regard.

When it comes to the conditions of Syrian students, it can be seen that more than the half of the Syrian refugee population registered is under the age of 18, that is, this population is comprised of individuals that are in their teenage periods. These children having the trauma of both war and immigration are having educational problems as well as difficulties regarding their basic needs such as health, accommodation etc. As for their educational problems, it is also observed that Syrian children can get education in temporary education centers according to Turkish Ministry of Education Circular No:2014/21 on "Education Services for Foreign Nationals" and in schools within the corporation of Ministry of Education, they are given a good education with good facilities in the camps yet most of the Syrian refugees, therefore Syrian children, try to maintain their lives outside the camp and have to get education outside the camp and schooling rate of those outside the camp is low (The State of Syrian Refugee Children in Turkish State Schools: Policies and Implementation Suggestions, September 2015)

The reason why the study included preservice teachers in the department of social studies is that many topics and learning outcomes of community service practices course and a lot of notions regarding the issue of refugee, which

is one of the problems of today's world, such as citizenship, human rights, immigration, exile, refugee, asylee, multiculturalism, awareness, empathy, respect, tolerance etc. are closely related to social studies program. In addition, when it is considered that the emergence of social studies courses is because immigrant children will become socialised (İnan, 2014), it can be clearly seen that this issue is highly associated with social studies and preservice teachers in this fields. Then, this being the case, what kind of activities will our preservice teachers in the social studies field do, what kind of problems will they experience in these activities, what kind of solutions will they find for these problems and most importantly what will be the contributions of these activities to these preservice teachers?

1.1. The Aim of the Study

The aim of the study is to investigate the opinions of preservice teachers in social studies department related to their social project aimed at Syrian students.

1.2. The Importance of the Study

It is believed that the result of the study is of critical importance as it enlightens issues such as the activities, the problems experienced and the solutions related to these problems for preservice teachers who will carry out a project aimed at our Syrian students in community service practices course . In the literature, no scientific study has been encountered concerning community service practices towards Syrian students. Also, in some studies it was emphasized that trainings related to the adaptation of the students with immigrant status should be provided and projects should be developed to involve these students in education (Çakırer Özservet, 2015)

1.3. Sub-goals

- What are the reasons of the preservice teachers in social studies department to choose the project called "our guest students"?
- What kind of activities did the preservice teachers in social studies do within the frame of the "our guest students" project?
- What kind of problems did the preservice teachers in social studies experience and how did they solve these problems?
- What are the contributions of the "our guest students" project to the preservice teachers in social studies?
- What are the suggestions of the preservice teachers in social studies for those who will carry out similar projects to "our guest students"?
- What are the attitudes of the stakeholders towards the "our guest students" projects according to the preservice teachers in social studies?
- Is there a relationship between our guest students project and community service practices course according to the opinions of preservice teachers in social studies?

2. METHOD

2.1. Design of the Study

The study was designed with case study method, which is one of the qualitative research methods. According to Merriam (2013), case study is the method in which a limited system is described and analysed in a detailed way. The thing that is to be studied should be a limited system such as only one person, program, group, organization etc. This study focused on a school, a group of 8 preservice teachers voluntarily servicing there and their experiences related to this school. As Creswell stated (2016) in case study method, detailed information is gathered with multiple information sources and the case analysis is conducted. In this study, thanks to experiences of the preservice teachers related to the activities that they conducted with Syrian students, the data was gathered through multiple information sources- semi structured interview, documents and reports- and then analysed.

2.2. Sample of the Study

The sample of the study consisted of preservice teachers studying their third year at Social Studies Education Department in the Faculty of Education of a state university in Republic of Turkey during the academic year 2016-2017. Some activities were performed during 10 weeks by the preservice teachers in a state-funded secondary school in the city center where the university is located. In the study, the opinions of totally 8 preservice teachers were received on these activities. Sampling of the study was performed according to criterion sampling, a type of purposeful sampling. Yıldırım and Şimşek (2013) suggested that purposeful sampling enables in dept analysis of the cases that are considered to have rich information. In the criterion sampling, a type of purposeful sampling, the criterion used was "participating in the project voluntarily". The group went to the school regularly every Friday

and conducted activities for about 3 hours daily during 10 weeks. Since the size of the sample is just a case considering the focus group of the study, working with a group of 8 was considered to be satisfactory. Moreover, when weekly reports and studies were analysed, it was seen that notions and processes started to repeat and data saturation was observed with one group.

2.3. Roles of Researchers

The researchers in this study don't have the role of participant, they watched the process, conducted the focus group discussion and analysed the related documents and reports. The first researcher has been giving social project and community service practices courses at undergraduate and post graduate levels for 10 years. The second researcher has been following social project and community service practices courses closely for about 4 years. Both of the researchers have certificates of appreciation within the context of community service practices and carry out studies on social projects.

2.4. Data Collection Tools

The data of the study was gathered through document analysis (reports, photographs, magazine article) and semi-structured interview.

Semi-structured interviews were performed in social studies seminar room. The room had a u-shaped table as well as adjustable and comfortable chairs. For the interview, 7 questions that are suitable for a conversational atmosphere and daily language use were prepared. Depth interview was tried to be performed with 8 probes emerged during the interview. In the preparation process of the questions, the literature was reviewed and right after forming first draft of the items, opinion of an expert in the field was referred to. The piloting of the questions was conducted with some preservice teachers formerly accomplishing projects in the community service practices course. The interview was fulfilled by the researchers. It took one hour and thirty four minutes.

Weekly reports with photographs: The group was required to prove that they had worked at "guest students project" and so the preservice teachers were asked to present weekly reports in order to be able to give their reflections immediately before the activity lost its effect on them. The reports were written with no more than 500 hundred words. Students were asked to include the impressive events, the emotions felt, the problems faced and suggestions for solutions in their reports.

Magazine article: The preservice teachers were asked to write a magazine, limited to two pages. The reason for this was to reach the emotions and experiences of the preservice teachers from different ways. The instructions for writing were provided for students and they were informed to include content related to the target group, impressive events, the problems encountered and suggestions for solutions.

2.5. Analysis of Data

The data obtained from interview was analysed with descriptive analysis method. In this method, the data gathered is summarised and interpreted according to the pre-determined themes. The data can be arranged considering the themes on which the research questions center (Yıldırım and Şimşek, 2013). In this study, the data was also designed according to the themes on which interview questions focused. The analysis of the data was conducted in the following process:

- For descriptive analysis, the frame was designed according to interview questions. The themes that were dealt with were the reasons to choose the project, the contribution of the project, problems encountered in the project, recommendations for the project, the project and course relationship and the opinions of other stakeholders.
- Right after determining the thematic frame, the next step was processing the data. The interview was transferred to computer medium without making any changes and 16 pages of data was gathered. The data was shown to the participants and they were informed that they would remain anonymous and the data would be used for scientific reasons. The coding was conducted first and then themes were put into the final form. The main themes were determined with agreement-disagreement method.
- In the following step, the findings were started to be described. Under each theme, direct quotations were presented.
- Finally, the findings were interpreted so as to reveal cause effect relationships.

2.6. Credibility, Transferability and Consistency

In the study, regarding the credibility, long term interaction was maintained, depth oriented data was tried to be collected, expert opinion was referred to, participant confirmation was achieved. In this sense, the project called *our guest students* lasted 10 weeks and thanks to the reports presented each week, long term interaction with data was maintained. During ten weeks, participants that were in contact with the researchers were provided with a comfortable atmosphere where they could rely on the researchers to contribute to the study with the interviews. In order to collect depth oriented data, ten probes were included during the interviews. While preparing the questions for focus group discussion, expert opinions were obtained from field experts and Turkish education experts. After the whole study was finished, it was examined by the experts in the field. After the interviews, the participants were provided with the last version of the study and asked if there were any parts to be corrected or clarified to maintain member checking. Member checking was carried out through a specific meeting for this purpose. Member checking meeting was photographed with the consent of the participants. This evidence will be kept in archives for a while. Within the scope of transferability in the study detailed description was performed and purposeful sampling was used. After the data obtained from interview was described comprehensively, direct quotations were often given place to. For purposeful sampling, criterion sampling was used.

In order to maintain consistency in the research, during the coding process of the data gathered from the interviews, consistency in conceptualisation was taken into consideration.

As for the confirmability in the study, the coding and results of the study were examined by the expert in the field. **2.7.**

Ethical Issues

The participants of the study participated in our guest students projects voluntarily. Their consent was taken to conduct interviews. After the study was finished, the results that they had been waiting for excitedly were checked and then confirmed by them again. Symbolic codes were used in the quotations. Data gathered from interviews will be kept in archives for a while.

3. FINDINGS AND DISCUSSION

3.1. Findings Related to The First Sub-problem

The reasons of the preservice teachers to choose the projects are as follows:

- The city that they have been living for a long time is a cosmopolitan city and as problems have been observed about this issue
- They are our guests and it is our duty to help them
- It is a part of being human to help others
- It is necessary to find solutions to the students' adaptation problems
- Empathising with them is essential
- It is important to help them financially and morally

Some expressions of the preservice teachers supporting these reasons are as follows:

S8: *"I live in Gaziantep. Since there are a lot of people from different nationalities in my city, I believed that I can be helpful for this project. It is my duty as a human to help these people that are visitors in our country in order to meet their financial and emotional needs. That's why, I took part in this project. "*

3.2. Findings Related to The Second Sub-problem

The activities that the preservice teachers performed within the frame of the project are as follows:

- The First Week: Greeting activity
- The Second Week: Playing Game (football and volleyball)
- The Third Week: Watching Film (Like Stars on Earth)
- The Fourth Week: Playing Game (word play and dodge ball)
- The Fifth Week: Watching Videos (on alphabet, proverbs and nursery rhymes)
- The Sixth Week: Watching Animation (Ice Age 4) and Having conversation
- The Seventh Week: Playing Game (football) and Singing Turkish Songs

- The Eight Week: Playing Game and Having conversation
- The ninth Week: Watching Film (Shaun the Sheep) and Documentary (Arabic Day)
- Tenth Week: Watching Film (Shaun the Sheep cont.) and Farewell conversation

It was emphasized that these activities were conducted to establish a communication and get more closely acquainted with them, to win their trust, to improve their Turkish, to have fun time and to make intercultural comparisons.

3.3. Findings Related to The Third Sub-problem

The contribution of the project to the preservice teachers is as follows:

- Developing empathy skills
- Realising the importance of communication
- Gaining school experience
- Getting experience in learning the problems related to Syria from the first hand source and Witnessing the effects of these on the children
- Meeting new people, language and culture
- Getting the satisfaction and the excitement of having a nice, enjoyable time
- Observing the positive and negative result of multiculturalism
- Developing problem solving and communication skills

Some expressions of the preservice teachers supporting these ideas are as follows: S1: *"I can say that the first contribution of this project for me is to develop empathy skills,. I often put myself into their shoes and tried to understand the problems they have been experiencing. I realized how important the communication is. "*

3.4. Findings Related to The Fourth Sub-problem

According to the preservice teachers, the problems faced in the projects and solutions for these problems are as follows:

- Communication problems because of language level (peer translating, using body language, activities intended to improve their languages)
- Introvertness stemming from the effects of war and immigration and communication problem resulting from this (activities to win their trust, trying to understand each other)
- The project being limited to activities only in school body because of bureaucracy and restraints depending on this issue (improving the quality of the activities and making them more enjoyable)
- The aggressive attitudes towards other friends
- Cultural differences (trying to understand each other's cultures)
- Time constraint due to midterm week (performing the activities even at the least)
- Unwillingness towards learning the language and adaptation as they think they are staying temporarily
- Problems related to place because of the overlaps of the activities (performing the activities with having breaks)

Some expressions of the preservice teachers supporting these ideas are as follows: S4: *"As I mentioned earlier, the most important problem that we experienced was communication problem based on their language level. After overcoming this problem, of course we had some other minor problems as well. Even if the students had a problem, they didn't want to talk about them. "*

3.5. Findings Related to The Fifth Sub-problem

According to the pre-service teachers, recommendations for the projects are as follows:

- People that can show empathy should choose the project
- Their trust should be gained first
- It is a must to be voluntary
- The project should be preferred taking the language problem into account
- Extra scholastic activities especially trips should be arranged
- First, their speech should be given importance

- Putting away prejudices and marginalising, financial and moral support should be provided
- They should be provided with psychological support
- Offending attitudes and behaviours should be avoided
- It should be known that the project is difficult and endurance is required.

Some expressions of the preservice teachers supporting these ideas are as follows S3: *"A peaceful environment should be created for them with games and conversations through all manner of conversation. They should be given chances to talk."*

3.6. Findings Related to The Sixth Sub-problem

According to the preservice teachers the opinions of stakeholders are as follows:

Syrian Students: Their opinion was not taken about coming to Turkey. Some of them are happy to be here while some others don't want to adapt to the environment as they think they are staying temporarily. They have been longing for their hometowns, families and friends. While some of them have good economic conditions, some of them have unemployed parents.

Teachers and The principal: They supported the project. The teacher opinions related to the project is positive. They stated that they wanted to see preservice teachers at school in different projects as well

Other students: they have tendency towards violence, look from a different perspective, have negative attitudes and marginalise the guest students.

Some expressions of the preservice teachers supporting these ideas are as follows: S7: *"I observed that the other students insulted the refugee students and sometimes isolated them, especially those who are not competent enough to speak the language. They should be talked to on this issue to overcome these problems.."*

3.7. Findings Related to The Seventh Sub-problem

According to the preservice teachers, the relationship between project and community service practises course is as follows:

- Community Service Practices is regarded as finding solutions to people's problems and so it is seen related with the project
- Children/students are seen *an/the most* important part of society
- It is regarded as already a precaution for the future's society in order not to have problems
- The project is seen as reintegrating an individual into the society
- Students at childhood period cant become self sufficient and so they should be supported

Some expressions of the preservice teachers supporting these ideas are as follows: S6: *"All in all, students are also a part of our society, and even one of the most important part. If we don't win these students, in the future there may be undesired results for them and the society. In this sense, I can say that this project is related to this course."*

4.CONCLUSION, DISCUSSION AND IMPLICATIONS

4.1. Conclusion and Discussion

It is seen that our guest students project was chosen because it is a duty to solve a social problem. Considering that the basic problem about social welfare is not being able to reach the people who are actually in need (Yıldırım, 2010), it is seen that the participants took this basic problem into consideration.

In the project owing to bureaucracy problem, intramural activities specifically playing games and watching were performed. It was also observed that some other studies also included therapeutic games aimed at Syrian students (Gökşen, 2015).

Our guest students project had significant contributions to preservice teachers in social studies department. According to their statements, it is seen that they asserted that their attitudes towards Syrian students has become more positive. Accordingly, regarding the partially negative attitudes of social studies preservice teachers towards Syrian refugees (Topkaya and Akdağ, 2016), it can be inferred that these kinds of projects can develop positive attitudes.

It was observed that the most frequent problem faced was the problem of communication/language. This finding coincides with the results of other studies (The State of Syrian Refugee Children in Turkish State Schools: Policies and Implementation Suggestions, September 2015)

Preservice teachers has made some suggestions for individuals that will carry out projects similar to our guest students project. One of these suggestions is that they should get psychological support. This finding coincides with the results of other studies (The State of Syrian Refugee Children in Turkish State Schools: Policies and Implementation Suggestions, September 2015).

It was understood from the study that Syrian students, as a stakeholder of the project, has positive and negative attitudes, teachers and the principal has positive attitudes towards the project, the other students has negative attitudes towards Syrian students. The finding that the other students have negative attitudes towards Syrian students coincides with the results of other studies (The State of Syrian Refugee Children in Turkish State Schools: Policies and Implementation Suggestions, September 2015)

The preservice teachers emphasized that our guest students project is related to community services practices course. Likewise, in the studies conducted on this issue (Şeker, 2009), it can be seen that immigrants, asylees and refugees are within the framework of community service practices.

4.2. Implications

- It is suggested that activities that will be performed at the projects aimed at Syrian students should be determined first considering the problems, suggestions for solutions and sample activities in this study.
- It is recommended that the project should be expanded through getting language and psychological support.
- It is seen that the project has some certain contributions. It is suggested that preservice teachers should take part in similar projects at least for once.
- While expressing their opinions, the preservice teachers stated that the project contributed a lot to their understanding of the values such as empathy, problem solution and communication skills as well as sophistication, equality, tolerance, respect to difference, cooperation, hospitability and independence. It is suggested that studies on the contributions of this project to these skills and values should be carried out.
- It was observed that other students have negative attitudes towards the guest students. Similar projects should be conducted with the aim of changing these negative attitudes.
- This study was conducted with the preservice teachers at the level of bachelor degree. Similar studies can be performed with different education levels as well.

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Schools as Institutes of Acculturation: A Question of Belonging

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ABSTRACT

This paper considers the position of students with refugee experiences in Neo Liberal classrooms. It explicitly raises questions about the notion of belonging, school culture and invariable tensions these constructs create in the context of age - related standardized testing, the epistemological foundations of the curriculum and the inevitable context of competition that is characteristic of economy based schooling. It questions the capacities of Neo Liberal educational systems to educate these students in ways which acknowledge their relative strengths, their cultural richness and their need for holistic, supportive teaching and learning interactions. It also examines the cultural tensions that are created by educational spaces which exclusively privilege the majority culture, as is currently the case in many of the 'host' countries in which these students find themselves. The widespread focus on individualism at the expense of community and on personal achievement and gain as a replacement for collaborative, joint effort may be tolerated as a necessary evil in many western cultures, but may prove to be the ultimate devastating challenge to students with refugee experiences as their communities struggle to come to terms with the horrors of displacement and the subsequent battle to retain their sense of identity.

INTRODUCTION

The world is currently experiencing the most widespread displacement of people that has ever been known. Over sixty five million men, women and children have been forced to flee their homelands in an effort to escape, war, violence, religious and civil conflicts and widespread destruction of the lives they had previously known in their countries of origin (United Nations Refugee Agency, 2017). Over half of this number are young people and children under eighteen years of age. Those who survive face great difficulty and hardship in their quests for new homelands and many spend months and years in camps and temporary accommodations under conditions which cause further stress and trauma. Amongst those who make up this global diaspora are millions of school aged children and young people. They, together with their existing families and communities, exist in hope of finding a new homeland on which to settle, to be accepted and to belong. Currently, however, many of the countries who have agreed to accept these newcomers as citizens have political and educational agenda and policies which marginalize the disadvantaged in their own communities and which do not have the structures and services to productively accommodate the degree of religious, cultural, and social diversity that is characteristic of the displaced communities. Consequently, many individuals with refugee experiences find themselves in new homeland societies which are very different from those they were forced to flee, and into which they are expected to be acculturated and assimilated.

ACCULTURATION

There are two distinct approaches to understanding the what occurs as the result of the coming together of two dissimilar cultures. One approach is the psychological approach which seeks to understand the changes and processes of that individual experience as the result of these interactions (Berry, 2009; Berry, Horenczyk, & Kwak, 2006). In this model, acculturation is generally understood to be the 'general process and outcomes (both cultural and psychological) of intercultural interaction' (Berry, 1997, p 8). The second, original model is primarily an anthropological model which seeks to explain how people as groups begin to live their lives in the context of other, different cultures (Ogbu, 1995a, 1995b). Both of these perspectives are valuable when discussing acculturation in the context of individuals with refugee experiences as these populations usually arrive in a context which is to be their homeland with others who have similar characteristics and backgrounds. In discussions of acculturation generally, there are several factors which impact on the process of acculturation. These are identified as the size of the groups who are undergoing the changes, the reasons for the migration, how long these groups have been in contact with the majority culture to which they are attempting to integrate and the degree of difference between the two cultural groups. One factor which both perspectives of acculturation agree as a critical factor is the predictor of acculturation outcomes is the degree to which the cultural interaction is forced or voluntary (Berry, 2009; Berry, Horenczyk, et al., 2006; Berry, Phinney, Sam, & Vedder, 2006; Ogbu, 1995a, 1995b). This is a particularly important aspect to consider in case of students with refugee experiences as the contact is generally involuntary and there are limited prospects of returning to the homes from which they have fled or been forcibly displaced. This lack of choice makes these individuals more vulnerable to developing an 'oppositional cultural

frame of reference' (Ogbu, 1995a, 1995b) in which they engage in behaviour in their cultural groups which are not acceptable ways of behaving in the majority culture; or of developing negative acculturation attitudes towards intercultural contact as a result of negative interactions such as marginalization (Berry, 1997; Berry, Horenczyk, et al., 2006). This may be a particularly pertinent factor for consideration in educational settings where students with refugee experiences are regarded as 'deficit' and are perceived by themselves and others to be at a disadvantage in relation to the other students from the majority culture. Education systems which are developed in the context of the neoliberal economic politics have particular characteristics and processes which serve to privilege specific groups of students and lack the creativity and flexibility to honor diversity and difference REF. It is in these educational contexts that many students with refugee students find themselves placed in their newly settled contexts and in which they may, in many instances be at considerable risk of not developing positive acculturation attitudes and processes unless considerable accommodations are made to ensure their acceptance and inclusion (Atasay, 2015; Vickers & McCarthy, 2010).

SCHOOLS AS SYSTEMIC INSTITUTIONS

Schools are acknowledged to be the major centre of acculturation for young people (Hamilton & Moore, 2004; Stewart, 2011). They are expected to convey the culture, social expectations and behaviors of the societies in which they are placed. They frequently act as the 'gatekeepers' to other learning opportunities and prospective occupations by the implementation of the evaluative practices that are deemed appropriate for the societies in which they are placed. They are generally part of a system, the policies, characteristics and policies of which are implemented as mandatory curricula, processes and procedures. In many cases, these requirements are institutionally implemented with little or no provision for diversity or difference. A student's age, for example, determines the stage of schooling in which they are placed, what they are expected to learn and the ways in which these expectations can be achieved (Hamilton & Moore, 2004). This alone can be a source of disorientation and distress for many students with refugee experiences. Irrespective of variations in the educational backgrounds of these students, a defining characteristic is that, for some, their schooling has been at least interrupted, for others, formal schooling is a new experience as they have had little or no formal education in their previous context REF. The notion that learning is age related may also be challenging for some students and their communities as coming together to learn what needs to be learned, irrespective of age, is a more familiar concept to many students with refugee experiences, especially those from African countries REF. Despite these factors that place the learning needs of the students as a secondary consideration to the administrative practices and procedures of formal education in most countries where schooling is mandatory from a defined age, the school environment and context are recognized as critical to the potential for students with refugee experiences to develop positive attitudes and intercultural interactions towards acculturation (Stewart, 2011). Historically, students with refugee experiences were generally treated like any other students in a well-meaning effort to minimize difference and demonstrate acceptance into the school community and emphasize the need for assimilation into the mainstream culture (Berry, 1997). However, a body of evidence provides evidence that contradicts this notion as a successful strategy (Stewart, 2011), with the result that schools have mainly served to marginalize these students with potentially significant consequences for both the communities with refugee experiences and the communities to which they seek to belong.

The consequences of prioritizing institutional procedures and policies and assuming assimilation will take place has particular impact in school systems which are heavily influenced by neoliberal economic principles. Identified by their focus on individual competition, one size fits, all high stakes testing and inflexible curricula, schools in these systems have the capacity to marginalize not only students with refugee experiences, but any students with a background of disadvantage who do not identify with the complex values, beliefs and principles that are inherent in these schools and systems. Students with refugee experiences are particularly disadvantaged. The issues of language and literacy skills are always problematic as are the difficulties that many students with refugee experiences encounter when subsumed in a world of printed material. This reliance on print impacts not only on students with backgrounds of oracy, but also those students whose educational backgrounds were previously limited to the knowledge of specific religious or cultural texts. The additional stress that is created for these students is accelerated by the ways in which assessment procedures are implemented, most especially in situations where national testing regimes are implemented. Not only may the epistemologies of the curricula, and therefore the contents of the tests, be unfamiliar to them and conflict with their own cultural beliefs and ways of knowing, the language proficiencies required to engage productively with these evaluations of learning only serve to further marginalize and disadvantage these already vulnerable groups of learners. A further disadvantage for many students with refugee experiences may be their physical appearance. These may include facial features, skin colour and general physique that sets them apart from the students of the mainstream culture, resulting in cultural interactions that demonstrate attitudes of prejudice and discrimination by those belonging to the mainstream culture. Once again, this can be particularly dominant in schools and systems that are governed by policies and procedures which are exclusive and inflexible, such as those dominated by 'one size fits all' pedagogies and

curricula, deficit remedial programs which exaggerate perceived shortcomings and lack of linguistic and other social capital (Bourdieu, 1986, 1990) and which limit the choices of acculturation strategies for students with refugee experiences.

BELONGING AT SCHOOL

There are different types of acculturation and often, the strategies for some types of acculturation are either too challenging or are not possible in the contexts in which some students with refugee students find themselves (Hamilton & Moore, 2004; Stewart, 2011). Assimilation, which is an expectation in many of the countries who regularly permit an annual quota of migrants, including populations with refugee experiences, into their nations, actually means that these people are expected to forfeit their original cultures and to totally embrace the language, customs and values of the countries in which they are resettled. The opposite of this total immersion in the culture of the 'host' country is separation. This is where the individuals wish to retain their culture of origin and avoid contact with those of other cultures. As a result, these individuals do not readily acquire the language, values and customs of the country in which they are resettled and so find it difficult to sustain productive, positive interaction with others who do not belong to their cultural group. Most at risk of separation are females who do not attend school but remain at home with their communities. Integration is likely when these populations are able to retain the aspects of their culture of origin, but also be able to interact in their new cultural contexts by acquiring language, values and ways of doing that are associated with participating positively and productively in their new cultural contexts. Strategies to integrate have been found to be the successful option for those individuals wishing to adapt to life in another cultural context. There is one more option for acculturation which is especially pertinent when considering the expectations of students with refugee experiences in schools in countries with neoliberal politics and economies. This is marginalization. Marginalization is frequently the result of negative interactions with other cultural groups. Individuals reject their culture of origin because of negative perceptions and interactions with the dominant cultural group and, although they may strive towards achieving the language, norms and values of the dominant group, they are unable to do this effectively or efficiently and, consequently, they also develop negative attitudes towards the dominant cultural group. This can be a particularly problematic outcome in schools, especially those where difference and diversity are met with low degrees of tolerance and limited understanding and support systems. In many schooling contexts, students with refugee experiences simply cannot compete academically with their peers in formal school systems which prioritizes high stakes testing and one size fits all pedagogies and so cannot fully access the cultural capital of education which may lead to a gradual process of marginalization.

CONCLUSION

Acculturation is gradual process which develops over time and changes individuals, communities and the 'host' culture as interactions create new norms and perspectives. It is essential for students with refugee experiences to have significant support systems made available to them in a variety of contexts, including school contexts. It is also vital for the development of positive acculturation strategies and attitudes that students with refugee experiences experience interaction with their peers from the dominant culture, not least for the saturation of language experiences that native language speakers can provide for their classmates (Schumann, 1986). Schools have particular responsibilities as the major avenue by which students with refugee experiences can be acculturated to provide environments which are inclusive, tolerant and accepting of difference. School climate has been well established as an important indicator of student belonging and inclusion REF and consider not only the policies and practices of schools but also the ethos and 'hidden curriculum' REF. for students with refugee experiences, school climate becomes paramount to their future success, not only in academic terms but terms of their social and emotional wellbeing. The question, however, that appears not to have been asked, much less answered, by policy makers, school systems and support agencies is simply this 'How can an educational system that prioritizes individual competition and academic success accommodate students with refugee experiences?' If they cannot successfully compete, the only way they can belong in such education systems is to become the failures that are required to validate winners. Society's risk then is that the only type of acculturation that many students with refugee experiences may be able to develop is that which is least beneficial at all three levels of consideration (Berry, 1997): the individual, the institutional and the national.

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Middle-School Teachers' Opinions on Values Education

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Abstract

Values education is a process that starts in family and continues at education institutions. It is considered that individuals who form society should have main value judgments to share common social life and to live in peace together. In this study it is aimed to determine the opinions about values education of teachers who works at secondary education institutions. In the study 31 teachers who work in secondary education institutions in different cities are interviewed by using semi-structured interview form. The obtained datum is analyzed by descriptive analysis. In general, the results are obtained that there isn't sufficient briefing in schools for teachers about values education, the teachers find the values education insufficient in the schools, values education curriculum should be improved and practiced, all the teachers should run the values education together, there should be a specific values education lesson and all the teachers should be a model for the students with their behaviors. Besides, it is determined that there are problems about values education because teachers, students and parents do not attach sufficient importance to values education. In addition to this, as a solution suggestion, giving lectures about values education to trainers and families comes into prominence.

Keywords: Values, values education, secondary education

Introduction

Cultural elements that come in sight as a standard in individual's opinion, attitude and actions can be determined as value. (Çağlar, 2005). According to Katılmış and Ekşi (2011) value that is described in terms of a creature's mental, social, moral or esthetical high or beneficial quality is the key criterion that decides the individual's attitudes and behaviors. Values show alterations according to societies and time but also they form an important part of social culture. Improvement of values happen in a long period and these values guide people how to be and how to behave by leading their behaviors. (Doğan, 2004). Kıncal (2002) identifies the values as standards that are used by members of a culture to find what is wanted or unwanted, good or bad, elegant or inelegant. Özgüven (1994), stated that values interact with society's cultural identity and reflect this. In general, values are standards or criterion that affects people's preferences, interests, incentives, necessities, desires, aims, attitudes, decisions and behaviors that they reflect other people. (Tunca, 2012)

Education is responsible for endurance and improvement of the society and generating values that ensure the endurance of the society, preventing disrupting of on-going values, adapting new and old values besides gaining information and abilities to people (Akdağ and Taşkaya, 2011). Values education, which is more valuable at schools nowadays, started to come into prominence by 1920s with the first studies about character education in America (Kirschenbaum, 2000). Education is considered as the most important instrument of getting of social turmoil almost in all countries (Öztürk, 2007). Surviving healthy and solving social problems should be taught to people not to have problem in social relations (Can, 2008). Teaching values, which are stated or not stated in official school program, discipline the students according to identified rules, making contribution to students moral development and affect their characters positively are some of duties of education institutions (Akbaş, 2008). Schools raise the consciousness to students that knowledge is more valuable than illiteracy; social order is more valuable than social disorganization. Therefore, values education will continue to be there where the schools are (Leming, 2000). Values education is applied at schools in curriculums or hidden curriculums. Value education in the curriculum is expressed as direct value teaching, too. With the direct value teaching, teaching values by different methods and techniques in the lessons in a planned way is aimed (Akbaş, 2009).

Values education is a process that starts in family and continues at school. With this process, society's basic values are passed down and a frame for main social rules is formed. Individuals who form the society should have the basic value judgments to share a common social life and live together in peace. Therefore, values education has a great importance. In this regard, because of being responsible for values education at schools,

teachers' opinions are important. Identifying the opinions about values education of teachers who work in secondary education institutions is the aim of this study. In accordance with this purpose, answers to these questions were looked for.

- 1- Do teachers who work in secondary education institutions have knowledge about values education? If they have, where is the knowledge from and how did they get it?
- 2- According to teachers, which values should be gained within the scope of values education? Why?
- 3- According to teachers, is values education at schools adequate? How should be it?
- 4- According to teachers, which teaching methods and techniques or materials can be used for values education?
- 5- What kind of exercises do teachers do within the values education?
- 6- What are the problems do teachers encounter during the values education and what are their own solution suggestions for these problems?

Method

In this study interview method, which is one of the qualitative research method, was used. Interview method is preferred to detect people's views about any subject. By this way, people's experiments, attitudes, opinions, intentions and comments are tried to be understood. (Yıldırım and Şimşek, 2013).

Working Group

In this study, 31 teachers from 11 different cities and 12 different branches, who work in secondary education institutions, are interviewed. The teachers are determined by using purposeful sampling method. 11 of these teachers are female and 20 of them are male. Their average age is 31.6, their average professional seniority is 7,5 years. 21 of these teachers work in Kocaeli and 6 of them work in Istanbul. There is one teacher from Samsun, Denizli, Iğdır and Şanlıurfa in the workgroup. 7 of them are English teacher, 4 of them are Math teacher, 4 of them Imam Hatip High School profession lessons teacher, 3 of them are Turkish Philology teacher, 3 of them religious culture and moral knowledge teacher, 3 of them Physics teacher, 3 of them are History teacher. There is one teacher from Geography, Philosophy, Chemistry and Biology branches. 23 teachers of them are at license degree, 7 teachers of them master degree and one of them is at doctor's degree.

Data Collection Tool and Data Analysis

In this study datum is obtained by using semi-structured interview form, which was prepared by researchers. This form consists of 6 open ended questions. The form was put into final form in accordance with 4 education experts' opinions. The teachers, who work in Kocaeli, are communicated and made an appointment and face to face interview was made at their own school. Their answers are written down by researcher. Interviews continued 30-35 minutes averagely. The teachers, who work in other cities, interviewed with written interview forms by using e-mail. Besides, the teachers are connected with telephone and informed about questions in the form. The teachers sent back the forms by e-mail. The entire datum was analyzed by using descriptive analysis. Descriptive analyze consists of four stages. These stages are; creating a frame for descriptive analyze, processing datum according to thematic frame, describing findings and commenting them (Yıldırım and Şimşek, 2013: 256). In the study, a frame has been formed from interview questions, datum was organized according to this frame, the organized datum was identified and promoted with direct quotation and the identified datum was explained. The teachers are symbolized for the direct quotation as T1, T2, T31. While identifying some data, number of people, who express this definition, was written in parenthesis with the definitions.

Findings

The findings that were obtained by interviewing 31 teachers, who work in secondary education institutions, about values education, are presented below according to the interview questions

1. Teachers' opinions about having information about values education in secondary education institutions:

17 of the teachers expressed that there was no information about values education in their schools. 7 of the teachers expressed that they had information about this issue by chance or with their own effort.

"There was no information activity; there is no conference, too. I think it is not practiced in schools properly. I learnt the value education term only a week ago at province group leaders meeting. (T11)."

"I have information about value education relatively. There was no conference or something like this about this issue. I had the information by using the internet. (T14)."

"There was no information about this issue. A magazine that is called as value education is sent periodically to school. I know this term from the magazine. (T31)"

14 teachers expressed that they are informed about values education.

"There was a conference at the beginning of the year with some other conferences. (T19)"

"I have information about value education because I serve in value education commission. We planned monthly value education themes by adding deficient values according to themes that are determined by national education at the beginning of the year. (T15)"

"I have some information. Certain information was conveyed us at school meetings. (T29)"

2. Teachers' opinions about which values should be added to students as part of values education:

Moral values (13), respect (12) and honesty (9) are the prominent values. Other values were expressed as; sense of responsibility (6), national and cultural values (5), being fair (5) helpfulness (4), having indulgence (4), love (4), the proprieties (3), mercifulness (2), empathy (2), leadership (1), self-confidence (1) and being patient.

"I think students should have the moral values. It is necessary to be a good person. All the necessary characteristics to be a good person are available in the moral values. (T4)"

"I think it is necessary to gain moral values and respect because these are the needs for today's students. (T16)"

"If there are any lack of being respectful and tolerant each other, not telling lies, knowing responsibilities and cooperation values, we can't train character-wise people and this will be a big problem socially in the future. (T25)"

"It is important to teach moral, national and cultural values. Morality is the key element that makes a society civilized and keeps it alive. National and cultural values are important factors gain the society its own identity and associated the past and the future. (T26)"

3. Teachers' opinions about the applied values education at schools

All the teachers expressed that the applied values education at schools is inadequate. The suggestions for effective values education are as below;

Values education should have its own curriculum and has a particular lesson (11) or it should be in all the lessons and teachers should be in cooperation (10) and values education should be given practically with social activities (10). Other suggestions are; teachers should be a model to students (5), seminars should be given (3) and school-family cooperation should be provided (2).

"I find values education inadequate. There can be a separate lesson for this. At schools, something is hung on show boards, only. I think it decreases the affect. (T6)"

"Values education at school is absolutely inadequate. Values education should be given at all lessons at least 5 minutes. It should be a collective work. All the teachers should emphasize a value together and all the students should be exposed to it simultaneously. (T21)"

"I think it is inadequate. There should be a separate values education lesson but also the teaching should be effective. Also, I think teachers can be effective as role model. Al the teachers should discharge the responsibility. (T25)."

"I do not find it adequate. It is too superficial. I think it cannot be done a separate lesson time, too. You can teach something student in a lesson time but teaching a value is a long process that takes 1 week, 1 month and maybe 1 year. Therefore, it must be in all the lessons. (T30)"

"I think the applied values education is inadequate. There should be activities at schools and inform parents about values and values education to help them while exemplifying. If the values that are tried to be brought at school can practiced at home, there will be a success. (T22)"

4. Teachers' opinions about teaching methods that they suggest about value education:

Five of the teachers did not express an opinion about this issue. Most of the 28 teachers expressed that value education can be affective by role playing/drama technique (11), activity based technics (10) and using visual materials like photos and videos that reflect the daily life. (9) Other suggestions are; making negotiations (2), giving importance to emotional education (1) and making social projects. (1)

"It is important to be a role model so all the teachers should try to teach the values by role playing and animating in classes. Taking their teacher as an example probably has positive effects on the students. (T22)"

"Students should learn the values practically. Practice is more important than theory. I think question and answer teaching method, brain storming and learning by experience/ practice can be effective. (T3)"

"Movies and videos that contain slices of life can be showed to students for each value. (T11)"

"Some social project can be applied like going to rest homes to teach values to students. (T21)"

5. Teachers' opinions about their applications within values educations:

12 of the teachers expressed that they mention about values admonishingly. 8 teachers expressed that they try to bring students the values with examples from the real life and 7 teachers expressed that they try to bring students the values through projects and activities. Other opinions are; being a role model (6), preparing a show board (4), getting students to watch videos (4), hold a competition and giving presidents to students (4), organizing a tout to historical and cultural places (1) and peer teaching (1). 3 teachers did not express an opinion.

"I get students to watch short videos at lessons. I prefer narrating the events that I came across in my life interestingly. (T10)"

"I try to be polite and well-behaved to my students and expect them the same things. (T15)"

"I give advices to my students at lessons and mention about how they can behave morally. (T18)"

"First of all we determine a value. Then we try to do activities in all aspects to bring students in the value. Show boards are prepared for visuality. Also, we organize slogan competitions and the winners' slogans are hung on the school walls. T-shirts with these slogans are presented the winners. Moreover we want them to wear the t-shirts at school to motivate the other students. Besides, composition and poem competitions are organized to attract verbal students' attention. The winners are presented with various gifts at award ceremony in front of the school. If the value is a value like helpfulness or mercifulness, students collect money and donate the collected money to needers. Students, who have the value, from each class are chosen according to their activities and presented. (T28)"

6. Teachers' opinions about the problems and solution suggestions during values education:

11 teachers expressed that they have problems in practice because of indifference and unwillingness of the students. 5 teachers expressed the indifference of the parents and teachers ignorance of values education as a problem. The other problems that were expressed by teachers are; values education remains as a theory not practice (3), conflict between the teachers and school administration about values education (3), students are affected negatively from their social environment (2), insufficient time for values education (2), lack of information of school staff (2) and inconsistent behaviors of school staff (1). The solution suggestions of the teachers are; school staff and parents should attach more importance to values education and a team work should be done for this issue (6), activities should be organized that students can learn by doing and experiencing not only at school but also out of the school (5), training the parents about values education (3), Revising the course books and curriculums appropriately with value education (2), giving seminars to teachers and appointing them for values education (2), provide training for values education at a separate lesson time (1) and show interest and love more students (1). Also, 3 teachers expressed that they have no trouble about values education.

"I think all the teachers do not give importance to values education sufficiently. School staff thinks that values education is only organizing a show board. This is insufficient. Course books and curriculums should be organized according to values education for an affective values education and activities in classes should be increased (T2)"

"The time is insufficient for an affective values education. If it is planned as a separate lesson time and proper school activities, values education will be more affective (T5)."

"The factors like attitudes of the students, socio-economic situation of the families and social environment the importance that parents give to values education have an important role for values education and provide positive or negative affect (T11)."

"Students bring the values at school but parents do not have the values so the students do not maintain the terminal behavior in a long term. The parents should be trained about values education (T25)."

"Students' indifference and unwillingness about values education is a big problem (T28)."

"I think Ministry of National Education should provide an academic education for schools. Most of the teachers do these activities towards his/her point of interest. If there is not a counselor at the school, the activities are done unconsciously or never done. Also, extra effort is needed for these activities and everybody has not the same sensibility. Especially branch teachers have the thought of teaching only his/her own lesson. These attitudes effect the education negatively because all the teachers are responsible for values education. Besides, there is a misconception about values education. Some teachers think that only religious culture and moral knowledge teachers are responsible for values education. This is wrong. All the teachers are responsible for values education. As solution suggestions, Ministry of National Education can give seminars and organize trainings. In addition to this, each teacher can be appointed for at least one value (T30)."

Conclusion, Discussion and Recommendations

The obtained conclusions from the study that about secondary education teachers' opinions about values education are like these;

1. According to most of the participant teachers there is no training about values education to them.
2. According to the teachers moral values, respect, honesty, sense of responsibility, national and cultural values, fairness, helpfulness, being tolerant, love and etiquette are the principal values.
3. All of the teachers find insufficient the values education at schools. Their suggestions for an affective values education are as below;

Values education should have a lesson time with a special curriculum or all the teachers should do cooperative activities in all the lessons. All the social activities at school should be related with values education and all the teachers should be role model to the students. Seminars should be given about values education and parent-teacher association should be provided.

4. Most of the teachers think that values education can be affective with role playing/ drama technics, activity based exercises and visual materials like photos and videos from real life.

5. Talking about values admonishingly, giving examples from daily life, activity based exercises and projects, role modeling are the prominent teacher applications.

6. Indifference and unwillingness about values education is the most prominent student problem according to teachers. Other prominent problems are indifference of parents and not attaching sufficient importance to values education by teachers and values education remains a theory not practice. The most recommended suggestion by teachers is to attract school staff's and parents' attention to values education. Cooperative activities should be done. Both in school and out of the school certain activities that provide learning by practicing and living should be done.

Studies related with values education support the research results. It is detected in the study about values education, which identifies Turkish teachers' opinions, by Thornberg and Oğuz (2013) that teachers' main method is being a good role model to the students. Both Turkish and Swedish teachers think that students should learn to be respectful, tolerant, helpful, fair and empathize with other people. Yıldırım (2009) investigated the values education experiments of class teachers who have a critical role on transmitting the society's basic values. It was detected that teachers give priority to patriotism among the values. Teachers present some events related with real life and get the students to interrogate the situations and they help them to find the truths and mistakes. Berkan, Efendioğlu and Sürmeli (2014) expressed in their study that teachers may confront with some problems during values education process because of students' attitudes, society and environment and their own workload. Teachers especially expressed that the desired values in school are irrelevant with the family values and this is one of the biggest problems.

In the study, which Balcı and Yelken (2013) interviewed with class teachers and social studies teachers, case study, role modeling and determine the rules with students are the most effective methods according to teachers. Families' socioeconomic conditions and cultural features, lack of social activity area of schools, and negative effects of mass media and technology on students are the most frequently encountered problems of values education. Class teachers' view that available teaching material and activities are insufficient both qualitatively and quantitatively comes into prominence in the study of Şahinkaya and Kelleci (2013). Also it is expressed that there has been problems because of poor content and lack of a values education curriculum. In addition to this, role modeling is commonly used method in values education by teachers.

Arthur and Revell (2006) investigated teachers' values education experiments and detected that they have different point of views in values education. Teachers expressed that values should be structured according to education principles and the values can be brought in each lesson and they can be enhanced.

It came into view in consequence of Kurtdeğir-Fidan's (2009) study that the most important thing is living with the value in daily life towards values education. Values education is as much important as knowledge. There are problems about values education because of knowledge based lesson structure and the different meanings that people attribute the same value. Values education should be done by schools and parents cooperatively. Otherwise, students seesaw between the values at school and at home. Therefore, they must make a choice or have confusion. At this point, parent-teacher association has a very important duty. Parents should be informed about the values education at school by parent-teacher association and if it is necessary, parents should be integrated the education with certain educational activities like seminars and conferences (2006).

Arpacı (2013) reached the conclusion at the end of his study that curriculums should be organized according to values education and there should be several sample values education activities to help teachers.

Ministry of National Education wanted all the public and private schools to separate the first lesson for values education and do certain activities to create behavioral change with the 2010/53 memorandum (MEB, 2010). In this direction, teachers can interest in values education at schools actively if the necessary support is given to the teachers. Besides, efficiency of values education can be increased by visual and aural materials. To improve the values like love, mercifulness, empathy etc. visits to senior centers and society for the protection of children can be made. Biographies of people who devote his life to service of mankind can be used for students' activities.

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Peer Bullying among High School Students: Turkish version of Bullying Scale

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Abstract

The aim of study was to conduct the reliability and validity studies of the Turkish version of The Forms of Bullying Scale (FBS; Shaw et al., 2013). The Turkish form of the scale was applied on 357 high school students. Scale was examined by the reliability analysis and confirmatory factor analysis within the scope of the adaptation study. Analysis results showed that the uni-dimensional structure well fit ($\chi^2=198.22$, $sd=33$, $p=0.00$, $RMSEA=.11$, $NFI=.94$, $NNFI=.93$, $CFI=.95$, $IFI=.95$, $SRMR=.61$). Cronbach alfa reliability of the scale was .86. The scale can be used by experts in the field in order to determine whether or not bullying behaviors differ in terms of demographic factors. Research was discussed in the literature.

Keywords: *Bullying, peer bullying, confirmatory analysis*

Introduction

Recognizing emotions and controlling behaviors in adolescence period, in short experiencing this period in a healthy way has an important effect on individual's position in the society in his/ her later life and his/ her position among adults (Duran and Eldeleklioğlu, 2005). Depending on increasing physical power and environmental conditions, there may be an increase in the frequency of enjoyment of violence and behaving violently in adolescence period (Kulaksızoğlu, 2004). Bullying is the most common one among young population and at educational environments (Carney, 2000). Bullying can be defined as a violent behavior because of the power imbalance between the victim and the bully (Smith and Brain, 2000). Studies represent that bullying is not for once but it is a recurring activity (Besag, 1999; Carney, 2000; Ma, Stewin & Mah, 2001). Earlier times there were some attitudes that considered bullying in terms of two categories, namely physical and verbal bullying. However, recent studies show that bullying can be seen in several forms like physical, verbal, psychological and social bullying (Besag, 1999; Ma, Stewin & Mah, 2001; Monks & Smith, 2006). In terms of understanding how bullying affects individuals, it is important to understand why students bully other students. Direct bullying may consist of hitting, mocking, threatening or other physical harassment types. On the other hand, indirect or relational bullying may cover cutting someone dead, sending that person Coventry or gossiping about that person (Ahmad & Smith, 1994; Smith & Sharp, 1994). Bullying tyrants mostly come from families in which parents do not involve in the children's lives, and in which the environment is not suitable for caring. Students who show bullying behavior at schools are more prone to be the victim at their home (Batche and Knoff, 1994; Olweus, 1993). Students who show bullying behaviors experience more behavioral problems, have difficulty in terms of expressing themselves or misstate themselves. Students who show bullying behaviors at schools are more prone to involve in problematic behaviors. Therefore, those students maintain these problematic behaviors at their adulthood, and this behavior may result in criminal activities (Juvonen, Graham & Schuster, 2003; Wolke, Woods, Bloomfield & Karstadt, 2001).

Studies indicated that teachers were defined as the last persons who were aware of the bullying situations (Cranham and Carroll, 2003). Moreover, researches represented that generally bullying takes place in corridors or lavabos in which teachers are not there (Berger, 2007; Conoley, 2008; San Antonio & Salzfass, 2007). Teachers' unresponsiveness to relational (or indirect) bullying makes students regard bullying behavior as acceptable and tolerable (Crothers and Kolbert, 2008; Yoon and Kerber, 2003). In other words, students begin to think this harmful behavior as acceptable because of teachers' unresponsiveness. Bullying may result in permanent negative consequences like suicidal ideation (Alavi, Roberts, Sutton, Axas, Repetti, 2015). Thus, teachers, psychological counselors, school administrators and parents should take precautions. Furthermore, they should be aware of what the bullying concept means and which behaviors it includes. In this regard, it is thought that peer bullying scale will shed light on experts in the field and education experts.

Method

Study group

The peer bullying scale was applied to 357 high school students. 198 (56%) female and 159 (44%) male students were included in the study. The average age of the sample is 15.6.

Bullying Scale

The Peer Bullying Scale (Shaw, Dooley, Cross, Zubrick and Waters, 2013), consisting of 10 items and a uni-subscale, has a 5Likert-type rating. The reliability coefficient of the scale was calculated as .86. Within the context of the scale adaptation study, the English form of the scale was translated by the researcher into Turkish language and opinions were obtained from psychological expert lecturers in the field. Within the scope of the

research, confirmatory factor analysis, corrected item-total correlation and internal consistency coefficient (cronbach alpha) were examined for reliability of the scale.

RESULTS

As a result of the analysis made to determine the item total correlation of the peer bullying scale, the corrected item correlation coefficients were found to vary between .49 and .68.

Table 1. Correlation Points of the items

Items	<i>r_{ix}</i>	Items	<i>r_{ix}</i>
1	.53	7	.49
2	.55	8	.68
3	.58	9	.60
4	.68	10	.60
5	.66		
6	.55		

For the whole scale, Cronbach's (α) coefficient was found to be .86.

Structure Validation

The fit index obtained as confirmatory factor analysis of the scale show that the uni-dimensional model is well fit as a result of second-order confirmatory factor analysis. Standardized regression weights of confirmatory factor analysis are given in Figure 1 and Figure2:

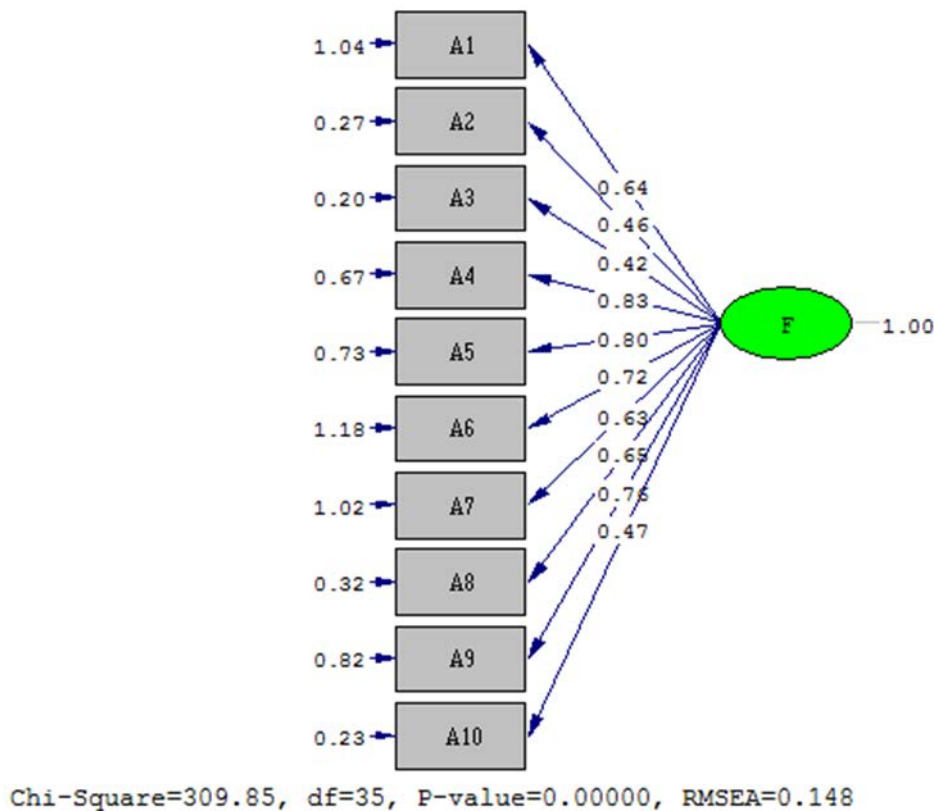


Figure 1: First-order confirmatory factor analysis

Standardized regression weights of second-level confirmatory factor analysis are shown in Fig.2

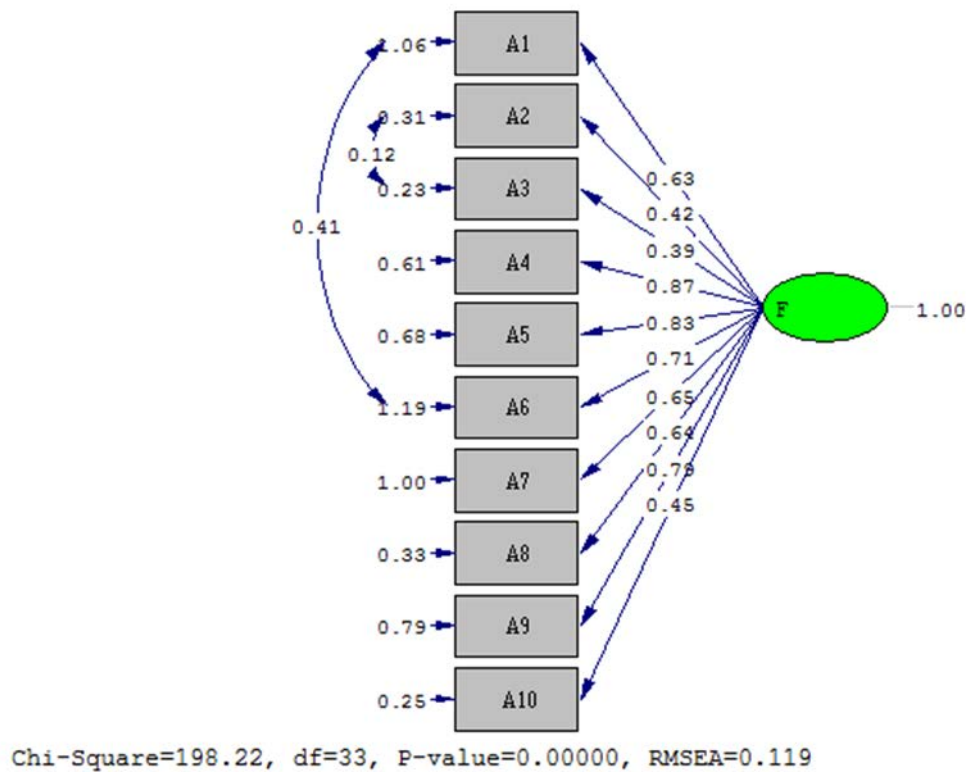


Figure 2: Second-order confirmatory factor analysis

Discussion

Analysis represented that Peer Bullying Scale showed good validity and reliability. Item discrimination analysis indicated that adjusted correlation coefficients changed between .49 and .68. First, Shaw, Dooley, Cross, Zubrick and Waters (2013) found internal consistency coefficient as .85 in their original study. Moreover, they found adjusted correlation coefficients between .44 and .67. In this context, the original study results support the present study. Furthermore, other scale studies in the literature also support current findings. Determination of Peer Bullying Scale- Adolescent Form that was developed by Pişkin and Ayas (2007) consists of 53 items and 6 subscales. The Bully-Victim Determination Scale- Child Form, developed by Pişkin and Ayas (2011), showed .87 internal consistency reliability coefficient. Kutlu and Aydın (2010) found .83 internal consistency reliability coefficient for bullying scale in their pilot study that aimed to develop peer bullying scale. All of the abovementioned scale studies support the findings of the current study. The scale was administered as 5-point Likert. Indeed, it was represented as 1 (I did not do that), 2 (I did only once or twice), 3 (I did once a month), 4 (I did once a week), and 5 (I did several times per week). Other peer bullying scale development studies also used the same format as a frequency in terms of response (Gültekin and Sayıl, 2005; Mynard and Joseph, 2000; Olweus, 1993). Nowadays education has focused on the need of students' maintaining a reliable life at schools and transforming schools as an attraction center. Trust and peace at school environment has arisen as an important concept in terms of educational administration paradigm in these days. Student's comfort, resulted from reliable school environment, may also affect that student's motivation at school life significantly. Thus, it is thought that it is important to recognize bullying concept, transformed as a school syndrome, and increase awareness (Yaman, Eroğlu and Peker, 2011). Bullying events, experienced at schools, may result in negative consequences in certain parts of the students' lives who are subject to, who act as a bully, and even who are unconcerned but witness to those events. Moreover, these events may affect the social atmosphere of the school negatively, so that it may be more difficult to maintain educational activities healthfully (Ayas, 2008). In this regard, in terms of preventing and decreasing bullying events, administrators, teachers and parents should take on important tasks. In fact school psychological counselors can use peer bullying scale and do individual and group counselling. In addition, peer bullying scale can be used in school climate and psychosocial scanning activities. Moreover, the scale can be used by experts in the field in order to determine whether or not bullying

behaviors differ in terms of demographic factors. In the present study, the scale was administered to secondary education students, further reliability and validity studies should use different participants.

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AKRAN ZORBALIĞI ÖLÇEĞİ

Her sorunun karşısında bulunan; (1) **Yapmadım** (2) **Bir ya da İki kez yaptım** (3) **Ayda Bir kez yaptım** (4) **Haftada bir kez yaptım** (5) **Haftada birkaç kez yaptım** anlamına gelmektedir

1-Kötü bir şekilde birisi ile alay ettim	1	2	3	4	5
2-Birine ait olan sırları onu incitmek için başkalarına bilerek söyledim	1	2	3	4	5
3-Sahip oldukları arkadaşlığı bitirmeye çalışarak birisine zarar verdim	1	2	3	4	5
4-Birisini kasıtlı olarak tehdit ettim	1	2	3	4	5
5-Birisine Kasıtlı olarak fiziksel zararda bulundum	1	2	3	4	5
6-Birinin ismi ile dalga geçtim	1	2	3	4	5
7-Birisine onlara söylediğim şeyi yapmadıkları sürece onlardan hoşlanmadığımı söyledim	1	2	3	4	5
8-Birinin eşyasına kasıtlı olarak zarar verdim	1	2	3	4	5
9-Birisi ile konuşmayarak ona zarar vermeye çalıştım	1	2	3	4	5
10-Birisi hakkında yalan söyleyerek diğerlerinin onu sevmemesini sağladım	1	2	3	4	5

Teachers' Work Engagement: A Qualitative and Quantitative Study

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Abstract

The purpose of this study was to adapt the teachers' engagement scale into Turkish culture and to take teachers' opinions on work engagement within the scope of qualitative questions prepared on the basis of scale items. Mixed method was used in this research study. According to direction of the research objectives, quantitative and qualitative data were obtained. In the first phase of the study, a scale adaptation study was conducted. In the second phase, interview questions were prepared for qualitative research with reference of scale items and applied to the teachers. Teachers' Work Engagement Scale (TWES) developed by Klassen and the others (2012) was adapted to Turkish within the scope of the scale adaptation study. The Turkish version of the scale was applied on 270 teachers, and it was examined within reliability analysis and confirmatory factor analysis. It is seen that three dimensional model has a good fit in the factor analysis study conducted for the scale. ($\chi^2=60.01$, $sd=22$, $p=0.00002$, $RMSEA=.08$, $NFI=.97$, $NNFI=.97$, $CFI=.98$, $IFI=.98$, $RFI=.96$, and $SRMR=.42$). The reliability coefficient of the scale was found as .89. Interview method was used in the study for the qualitative data. A semi-structured interview form consisting of four open-ended questions, which is compatible with scale items, was prepared by the researchers. Direction of the expert opinions the final form had been given to the interview form. An interview was done by using purposive sampling method with the participation of 20 teachers who work in 2 high schools from İnegöl, the city of Bursa. As a result of the research study; the majority of teachers have the opinion that they are satisfied with the work environment in the school and they are willing to work but the workload is too high. In addition, all teachers have positive feelings when practicing their teaching profession.

Key Words: Teaching profession, work engagement, teacher.

Introduction

Education concept generally involves science, knowledge, learning and development processes. The concept is designing approaches to learners being adjust to current system. It is a maturation process that makes the learners to discover not only the world but also themselves (Yayla, 2005). Learners ought to have self-esteem that helps them to form their future life from system of education. The system should adapt to new century by changing trends and needs of 21st century (Forrester, 2009). In this case, learners are active members within the teaching and learning process. One of the essential approaches is that learners' skills include to reach behold, administrate their own improvement (Soobik, 2014). There are kinds of factors that have effect on learners such as treatment, being focused and achievement. From this point of view, teachers have vital role in teaching (Esmer, 2016).

Teachers hold the future of the country in their hands. Teachers' readiness has an essential role in success of learners. The well-organized curriculum is not enough without teachers making real difference. Teachers are in the center of education, so that their efficiency has an undeniable role in their teaching progress (Katitia, 2015).

Self-efficacy is a view of person's strong feeling about his/her abilities on gained success. Teacher self-efficacy has an impact on their teaching attitudes and encouragement of their learners. It is related to level of job stress and job pleasure. Although teaching brings satisfaction, it also causes stress arising from learners, co-workers due to a lack of awareness of success (Klassen & Chiu, 2010). Thus self-efficacy impresses jobs satisfaction because of being successful at work (Yakın & Erdil, 2012). Jobs satisfaction has a strong connection with work engagement which is a positive, affective-motivational state of fulfillment that is characterized by vigor, dedication and absorption (Schaufeli, Salanova & Gonzalez-Roma & Bakker, 2002). Considering these factors, teacher engagement is getting more important than previous years (Caprara & Barbaranelli, 2006).

Teachers' engagement has a direct proportion with professional satisfaction. For instance, when teachers don't have sense of belonging to their workplace, they feel unqualified in teaching process which requires updating their activities (in de Wal, den Brok, Hooijer, Martens & Van den Beemt, 2014). There is a relationship between teachers' engagement and emotional exhaustion. In case, if teachers have high exhaustion situation they feel less engaged. On the other hand, teachers are more effective when they have willingness. Work conditions are also one of the reasons the changing level of engagement. It can be said that engaged teachers make better the education system (Klassen, Aldhafri, Mansfield, Purwanto, Siu, Wong & Mc-Conney, 2012).

Employees need to develop good relationships with their colleagues and management in order to be more productive in their work, and also they need to feel that they are valued and part of the workplace. This is also the same for the teachers. However, there is a big difference between teaching profession and other occupational groups. The aim of the teachers is educate a good person and prepare him/her to for his/her life. Mistakes made in non-teaching professions can be compensated; however, it is not possible to compensate for mistakes in education. For this reason, it is necessary to keep teachers' work engagement at the highest level. The happiness of the teacher is the happiness of the individuals whom he/she trains, so it means that there will be a happy society in the future. In this regard, it is aimed to adapt the teachers' work engagement scale into Turkish culture and to take their opinions on work engagement within the scope of qualitative questions prepared on the basis of scale items in this study.

Method

Mixed method was used in this research study. According to direction of the research objectives quantitative and qualitative data were obtained. It is seen that mixed method is defined in similar forms in the related literature. A common definition in the context of these definitions is that the mixed method is defined as a research model in which both quantitative and qualitative data are collected and analyzed at the same time or consecutively in one-stage or multi-stage studies. (Christensen, Johnson ve Turner, 2014; Creswell, 2005; Fraenkel, Wallen ve Hyun, 2011; Gay, Mills ve Airasian, 2009; Tashakkori ve Teddlie, 2003).

A scale adaptation study was conducted for the quantitative data of the study. In this context, the validity and reliability studies of the "Teachers' Work Engagement Scale" developed by Klassen and others (2012) on the Turkish sample group were conducted. The Turkish version of the scale was applied on 270 teachers, and it was examined by reliability analysis and confirmatory factor analysis. It is seen that three dimensional model has a good fit in the factor analysis study conducted for the scale. ($\chi^2=60.01$, $sd=22$, $p=0.00002$, $RMSEA=.08$, $NFI=.97$, $NNFI=.97$, $CFI=.98$, $IFI=.98$, $RFI=.96$, and $SRMR=.42$). The reliability coefficient of the scale was found as .89.

Besides, the interview method for qualitative data was used in the study. In accordance with the scales, a semi-structured interview form consisting of four open-ended questions was prepared by the researchers. The last form was given to interview form in the direction of expert opinions. Teachers were asked questions about what situation they were satisfied or not with the work environment in the school, whether they were willing to go to the school and why, what are the feelings that make them feel like they are doing the teaching profession and why, also whether there was a lot of workload and if so what reasons. An interview was made by using purposive sampling method with the participation of 20 teachers who worked in 2 high schools from İnegöl, the city of Bursa. The group of study constituted by 8 female, 12 male teachers. The average age of the teachers is 33.5 and the seniority average is 7.05. A thematic frame was identified based on the interview questions with the purpose of data analysis. In this context, firstly the data were coded separately by the researchers. Later, data

were brought together and findings were formed with the agreement. The interviewed teachers are presented as G1, G2, G3

Findings

Study 1

The Group of Study

The scale study was applied on 270 teachers. The sample consists of 164 (61%) female and 106 (39%) male teachers within the scope of the research. The average age of the sample is 32.9.

Teachers' Work Engagement Scale

The inclusion of the Teachers' Work Engagement Scale, (Klassen et al., 2012), which consists of 9 items and three subscales, is based on a Likert score of 7. The reliability coefficient of the scale was found as .89. Within the scope of the scale adaptation study, the English form of the scale was translated into Turkish by the researchers and opinions which are about the stage of study were obtained from academic members of the faculty. Within the context of the research, confirmatory factor analysis, corrected item-total correlations and reliability were examined.

Item Analysis and Reliability

As a result of the analysis performed to determine the item separability of the scale, the corrected correlation coefficients were found to vary between .51 and .76. The results of the analysis are presented in Table 1.

Table 1. TWES Item Correlation Scores

Item No	<i>r_{jx}</i>	Item No	<i>r_{jx}</i>
1	.64	7	.51
2	.76	8	.71
3	.70	9	.60
4	.71		
5	.75		
6	.61		

The

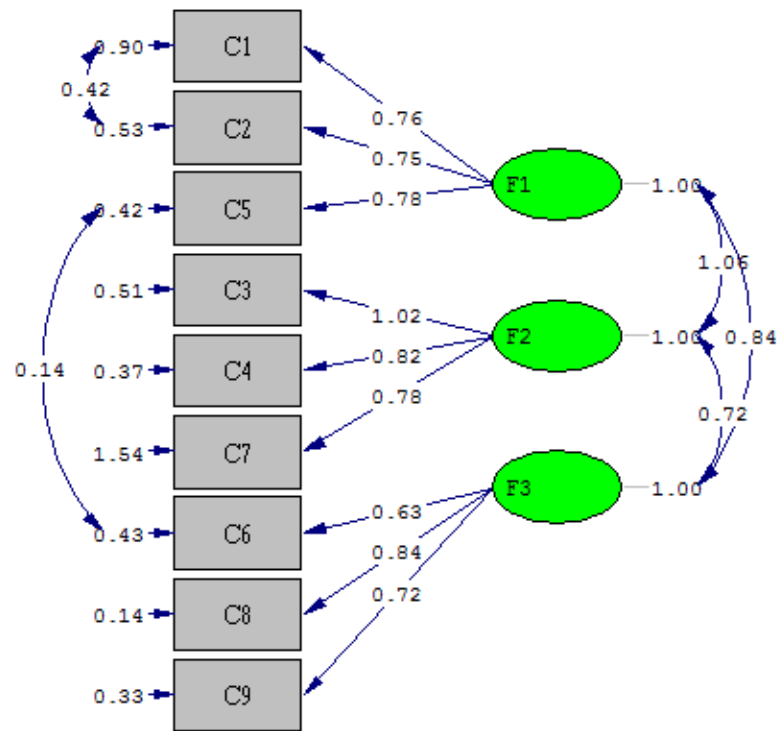
the whole scale was found as .89

Cronbach's (α) coefficient for

Construct Validity

The fit indices obtained as a result of confirmatory factor analysis of the scale ($\chi^2=60.01$, $sd=22$, $p=0.00002$, $RMSEA=.08$, $NFI=.97$, $NNFI=.97$, $CFI=.98$, $IFI=.98$, $RFI=.96$, and $SRMR=.42$) show that the three-dimensional model fits well.

Standardized regression weights of confirmatory factor analysis are given in Figure 1:



Chi-Square=60.01, df=22, P-value=0.00002, RMSEA=0.080

Study 2

In the study, findings founded as an analysis of the qualitative data on teachers' work engagement are presented in tables below. Teachers' opinions on the school working environment are presented in Table 2.

Tablo 2. Teachers' opinions on the school working environment

Themes (Categories)	Codes	n	%
Satisfied Situations	Having an effective communication among teachers based on understanding (G1, G2, G3, G4, G5, G7, G9, G10, G11, G14, G15, G16, G18, G19, G20)	15	75
	School management supports teachers in almost every aspect (G1, G4, G9, G10, G11, G12, G13, G14, G15, G17, G18, G19, G20)	13	65
	Sufficient physical facilities in working environment (G6, G7, G10, G13, G18)	5	25
	Good discipline level in the school (G11, G17)	2	10
	Paying attention to general hygiene of the school (G11)	1	5
	Rapid resolution of technical problems in school (G3)	1	5
Dissatisfied Situations	Transportation problem (G6, G16, G17, G18, G20)	5	25
	Students' low level and interest towards to lessons. (G7, G8, G11, G12, G13)	5	25
	Technical problems experienced in school (G3, G4, G10, G17)	4	20
	The presence of students who break the classroom. (G5, G12, G14)	3	15
	Different discipline understanding among the teachers (G2, G3, G20)	3	15
	Replacing teachers oftenly (G6, G7, G11)	3	15
	Security problems (G8, G18)	2	10
	Lack of interest of parents (G8, G20)	2	10
	High workload (G14, G15)	2	10
	The communication problems between teachers and students (G9)	1	5

When Table 2 is examined, it can be said that the majority of the teachers are satisfied with the working environment in the school. The situation that teachers are most pleased with the school is an effective communication among teachers based on understanding (%75). In orderly the other opinions are school management supports teachers in almost every aspect (%65), sufficient physical facilities (%25), good discipline level (%10), paying attention to general hygiene of the school (%5), and rapid resolution of technical problems in school (% 5). G₉ teacher expressed his/her satisfaction with the school he served as follows; *"First of all, the principals and the administrators all carefully evaluate what you bring to their fronts and open up your way. They really support what you want to do. I experienced many negative examples in the school where I had worked before (recklessness of administrators, teachers' jealousy among themselves etc.), but here I have not experience and feel in the same way. The most important observation of mine is that both administrators' and my colleagues' relationship is respectful, caring and properly."*

The primary situations what teachers feel dissatisfied are transportation problem (%25), students' low level and interest towards the lessons (%25). In orderly the others are expressed as, technical problems experienced in school (%20), The presence of students who break the classroom (%15), different discipline understanding among teachers (%15), replacing teachers oftenly (%15), security problems (%10), lack of interest of parents (%10), high workload (%10) and the communication problems between teachers and students (%5). G₁₇ teacher expressed his/her opinion for this situation by saying; *"I am not satisfied with the difficulty of transportation to school and the technical problems we have experienced in the working environment."* G₁₁ teacher expressed the situations why he/she dissatisfied by saying; *"I am not satisfied with the reasons that reluctant behaviors of the students towards the lessons, and frequent teacher replacing because of trying to replace the lack of some branch teachers with paid teachers."*

The opinions of the teachers about whether or not they come to the school willingly and reasons of these are presented in Table 3.

Table 3. Teachers' opinions about whether or not they are willing to come to the school

Themes (Categories)	Codes	n	%
Yes, I think I come to school willingly. Because...	I love teaching proffession. (G1, G2, G4, G9, G11, G12,G15, G17, G18, G20)	10	50
	The fact that I have good communication between the teachers encourages me to come to school. (G5, G16, G20)	3	15
	I think I am making something new. (G3, G7)	2	10
	I enjoy teaching. G3, G5)	2	10
	Every student is special and observing their differences encourages me. (G10)	1	5
No, I do not think that I come to school willingly. Because...	I am dissapointed by the reluctance and negative behaviors of the students. (G6, G8, G13, G14, G19)	5	25
	I think there is high number of teaching hours are. (G8)	1	5
	I think that teachers' room environment is not sincere. (G13)	1	5

According to Table 3, it can be stated that majority of the teachers come to the school with a willingness. The prior reasons for coming school willingly is the love of teaching profession (50%). The others reasons in orderly were expressed as, good communication among the teachers (%15), thought of making something new (%10), to enjoy teaching (%10) and the idea that students are special and valuable (%5). G₂ Teacher stated his/her opinions as; *"I perfectly willing and happy coming to school. I practice my profession eagerly because I love my job and my branch."* G₅ teacher expressed his/her eagerness by saying; *"Yes, I come to school willingly. I enjoy teaching lessons in the classroom. Also I am happy to be in the school because of good relationship among the teachers."* The prior reasons why teachers are not willing to go to the school is students' reluctant and negative attitudes (20%). The high number of the teaching hours (%5), and insincere atmosphere in the teachers' room (%5) are the other reasons. G₁₃ teacher states this situation, *"There is not any occupational satisfaction because of reluctant students. There is also an insincere atmosphere in the teachers' room. So, I do not come to the school in a eager way."*

Teachers' opinions about what they feel when practicing their teaching profession is presented in table 4.

Tablo 4. Teachers' opinions about what they feel when practicing their teaching profession

Themes (Categories)	Codes	n	%
Positive Feelings	I am proud that I have an opportunity to educate good people with my profession. (G1, G3, G8, G10, G11, G14, G15, G16, G18, G20)	10	50
	It makes me happy to think that I leave a mark in the heart of the students. (G4, G5, G7, G10, G11, G16)	6	30
	I am glad to teach new things to my students. (G6, G8, G9, G12, G17, G18)	6	30
	I feel excited for the job that requires professionalism and special education. (G2, G6, G13, G19, G20)	5	25
Negative Feelings	---		

According to Table 4, all of the teachers stated that they are in a positive sentiment when performing their teaching profession. In orderly; the teachers' feelings are, "I am proud that I have an opportunity to educate good people with my profession" (%50), "It makes me happy to think that I leave a mark in the heart of the students" (%30), "I am glad to teach new things to my students." (%30), "I feel excited for the job that requires professionalism and special education" (%25). G₁₆ teacher expressed his/her feelings by saying; *"Practicing teaching profession makes me feel happy and proud. Because of being to teach new things to youngs, prepare them for the life, being proud for their success, touching their heart, furthermore leaving a mark in their hearts make a person always happy. Also being here with the young people constantly keeps the soul alive, brings the obligation to keep pace with time,force to learn something new while teaching something new, in short, it is the*

factor that makes the constant renewal of the person. The most beautiful side of our profession is to be able to see the students in life who we educated.”

Teachers’ workload opinions are presented in table 5.

Table 5. Teachers’ workload opinions

Themes (Categories)	Codes	n	%
Workload is higher than normal	The paperwork we do out of the lesson is tiring us. (G1, G2, G3, G5, G7, G8, G10, G12, G14, G15)	10	50
	I think taken number of teaching hours is too high. (G6, G8, G11, G16, G17, G20)	6	30
	Organizing events for specific days and weeks increases workload. (G4)	1	5
Workload is normal	I do not think there is much work to do because we have as much time as we have. (G9, G13, G18, G19)	4	20

According to Table 5, the majority of the teachers stated that the work load is higher than normal. The first reason for this situation is the thought that the paperwork which is done out of the lesson, they feel exhausted themselves (%50). In orderly, high number of teaching hours (%30), organizing events for specific days and weeks (%5), are the reasons that increase workload. G1 teacher expressed this situation that *"There is over workload. Paperwork out of the lesson has a daunting influence "*. G8 teacher expressed his/her opinions as; *"I think that especially intense teaching hours both affects teachers’ and students’ performance negatively. On the other hand, dealing with some paperwork out of the lesson increases the workload and intensity. I think paperwork can be organized in electronic environment. In this way, the workload will be reduced a bit, and the efficiency may increase "*.

Some of the teachers have the idea that the workload is not too much (20%) because they think there is time to be competent. G18 teacher expressed his/her ideas as, *"I think there is not too high workload in teaching because, after school time, we have enough time to fulfill our other responsibilities. "*

Discussion, Conclusion and Suggestions

The purpose of this study was to adapt teachers’ work engagement scale into Turkish culture and to take teachers’ views on work engagement within the scope of qualitative questions prepared on the basis of scale items.

In the study, it was aimed to use the “Teachers’ Work Engagement Scale” developed by Klassen and others (2012) in field studies by adapting to Turkish culture. DFA was used to test the validity of the constructs of the "Teacher's Work Engagement Scale" metrics interpretation. Findings in the DFA have shown that the fit indices for the three-factor scale structure are adequate ($\chi^2=60.01$, $sd=22$, $p=0.00002$, $RMSEA=.08$, $NFI=.97$, $NNFI=.97$, $CFI=.98$, $IFI=.98$, $RFI=.96$, and $SRMR=.42$). The result of the analysis shows that the relation between the whole scale and the subscales of fit indices reveals the theoretical constructs. When the scale studies related to the concept of work engagement in literature are examined, it is seen that the national and international studies in support of the findings of the research. Klassen and the others’ study(2012) applied on 853 teachers (Australia, Canada, People's Republic of China, Indonesia and Oman), reached the conclusion that internal consistency and factor loadings are better values when compared with the three-factor structure of the one-factor structure of the nine-item Utrecht work engagement scale. This result is consistent with previous studies (Schaufeli et al., 2006). In Üstüner’s study (2009) developing an teachers’ organizational engagement scale, the reliability of the one-factor structure of the 17-item scale was found as .96. The results of the study, which is done with the participation of the teachers, support quantitative dimension of research.

According to the qualitative findings in the research, it was determined that the majority of the teachers were satisfied with the working environment in the school. In situations where teachers are satisfied are, there is an effective communication based on understading among teachers, the views that school administrations support

teachers in almost every aspect and physical facilities are sufficient. Transportation problem, the low level of interest and level of the students towards the lessons and the technical problems experienced in school were emphasized as the situations that the teachers were not satisfied. In research that Aslan and Ağrıoğlu-Bakır (2014) perceives teachers' perceptions of their engagement to the institution has come to the forefront in the sense that teachers see themselves as part of the school and they felt closer to the school because of principal's supportive attitude towards their work. In the study which is about organizational commitment (Kurşunoğlu, Bakay and Tanrıöğen, 2010; Gören and Yengin-Sarpkaya, 2014; Eğriboyun, 2014; Ertürk and Aydın, 2016), it has been determined that the teachers showed mostly affective commitment to the school. The causes of affective commitment include the fact that the administration is open to teachers and the teachers are in close relations with each other. In Tak and Çiftçioğlu's research (2008) reached a conclusion that when the teachers are satisfied with the work and the manager, the level of work engagement increases.

According to another result, it has been found that the majority of the teachers come to the school willingly. The reasons for this willingness are emphasized in the fact that they practice teaching profession lovingly and there is good communication between the teachers. The view has come to the foreground that the teachers who come to school unwillingly is the students' reluctance and negative attitudes. In the research, it was determined that all teachers felt positive emotions while practicing their teaching profession. Within these sentiments, being proud is prominent because of the reason that the teaching profession is an opportunity to educate good people. Also, the research of Turhan, Demirli and Nazik (2012) was found that teachers love the teaching profession, give a value to the profession and strive for success. Aypay's (2011) research emphasizes the importance of loving the profession for professional motivation and adopting the ideal of good human education among the qualities that the teachers should have.

According to another result reached in the research is, the majority of the teachers have the view that the workload is higher than normal. For these reasons, it come to the forefront that they feel tired themselves because of the paperwork done out of the lesson, and they practice intense teaching hours. Some of the teachers have the opinion that their workload is not too much that they can do their tasks without difficulty because of enough time. In Turhan, Demirli and Nazik's (2012) research, it was also determined that teachers had difficulty to practice their professions. Based on these results, it can be suggested to make the necessary arrangements in line with the teachers' desires in order to reduce the workload for teachers, who enjoy their profession, to not have the difficulties and to solve the problems in the working environment.

In the scope of the research, participation of only the teachers constitutes the limit of research in terms of quantitative study. It is envisaged that the research will also include individuals working in different business areas besides teachers, providing cultural and geographical contributions in increasing universal measurement power. Moreover, in the sample group of the study, different variables (age, level of education and school components) were not addressed. This situation is thought to have affected quantitative research findings. In terms of future work, the significance of the interaction of cognitive, affective, and physical components that affect individual engagement to work in different sample groups can be examined. In addition; in the qualitative aspect of the research, only in two schools and with a limited number of teachers were interviewed. The results can be compared by conducting quantitative and qualitative studies on the teachers' work engagement in different school types and at different levels.

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Öğretmenlerin İşe Bağlılıkları Ölçeği

1	Çalıştığım okulda kendimi enerji dolu hissederim.	0	1	2	3	4	5	6
2	İşimde kendimi güçlü ve enerjik hissederim.	0	1	2	3	4	5	6
3	Sabahları kalktığımda, işe gitmek için hevesim olur.	0	1	2	3	4	5	6
4	İşime karşı hevesliyim.	0	1	2	3	4	5	6
5	İşim bana ilham verir/esin kaynağı olur.	0	1	2	3	4	5	6
6	Yaptığım işten gurur duyarım.	0	1	2	3	4	5	6
7	Yoğun çalıştığım da mutlu olurum.	0	1	2	3	4	5	6
8	İşime odaklanırım.	0	1	2	3	4	5	6
9	Çalışırken işe kendimi kaptırırım.	0	1	2	3	4	5	6

Does The Undergraduate Athletes' Self Talk Levels Affect Imagery Levels?

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ABSTRACT

The purpose of this study was examined the effect of self talk level of undergraduate athletes in determining the imagery. 381 undergraduate athletes ($X_{age}=22,16 \pm 2,843$) participated in this study as a volunteers, 131 of them are female, 211 of them are male sport experience of undergraduate athletes dealing with different branches of team and individual sports (football, basketball, volleyball, tennis, track and field, bike... etc.) is $99,18 \pm 58,924$ monts.). To achieve the purpose of the study, self talk questionnaire was developed by Zervas, Stravrou and Psychountaki (2007) to reveal individual differences in terms of self talk's motivational and cognitive processes and it was adopted to Turkey by Engür (2011), and sport imagery questionnaires (STQ) which were developed by Hall et al (1998) and adopted to Turkey by Vurgun (2010) were used. For solution and interpretation of the data, descriptive statistical methods; for independent samples T-test, and Multiple regression analysis were used. T-test for independent samples was used to test difference between self talk levels and imagery levels. Multiple regression analysis performance self talk level is the determiner of imagery levels or not. Analysis performed by using SPSS and research significance was accepted as $P<0,05$. As a result of this study, it has been absorbed that undergraduate athletes' self talk levels are important determiners of imagery levels, as well as it has also been absorbed a significant difference among imagery levels statistically in terms of sport type. it hasn't been found a statistically significant difference in terms of gender.

Keywords: Self talk, imagery, athlete

INTRODUCTION

Self-talk is a perfectly natural activity in our everyday lives. Self-talk is a frequent behavior and it plays an active role in shaping our emotions and thoughts (Morris 1993). The number of studies on effectiveness of self-talk strategies has been rapidly increasing in recent years (). Self-talk strategies aim to facilitate learning and enhance performance by activating appropriate responses. Such strategies may be used to change various motor and sport tasks in athletes who received a penalty during the penalty period (Van Raalte et al., 1995)

In general, results support the effectiveness of self-talk in improvement of task performance (Hatzigeorgiadis, Theodorakis, & Zourbanos, 2004; Perkos, Theodorakis, & Chroni, 2002; Landin & Hebert, 1999; Johnson Hrycaiko, Johnson & Halas, 2004).

Imaging, envisaging, mental imagery, and mental training are terms often used by researchers, psychologists, coaches, and athletes to describe a powerful mental training method (Taylor ve Wilson 2005). During the initial development of the concept, mental training and mental imaging were terms used to describe mental imagery. Before defining a physical act, these terms are now used as general expressions to describe what sort of factors are effective during mental imagery takes place or how this imagery is exactly performed without going into detail.

In recent years, many practitioners have started to use the term “mental imagery” as an inclusive term to refer to the act of creating or reanimate an athletic performance using structural mental exercise techniques (Holmes and Collins 2001, Vealey and Greenleaf 1998). Mental imagery is believed to improve performance by promoting important mental factors which influence athletic performance (Callow and Hardy 2001, Taylor and Wilson

2005). Moritz, Hall, Martin, and Vadocz (1996) in particular advocate that mental imagery improves overall performance by mentally imaging general strategies and tactics, specific capabilities, and playing styles and by successful use of positive self-talk. Moreover, it is suggested that mental imagery can be used to help the athlete give appropriate responses to competitive stress and emotions and recreate the emotions which occur when a performance goal is achieved (Mortiz et al. 1996). Practicing sport psychologists has been investigating the working mechanism of imagery for years. Although there are studies in the literature related to imagery, there is not a single study which explains the underlying mechanism in its entirety. This study aims to contribute to the mental imagery and self-talk literature. Therefore, the purpose of the study is to investigate the effect of athletes' self-talk levels on their imagery levels.

METHOD

In this section, research group, measurement tools and statistical methods utilized in this research were exhibited.

Participants

A total of 341 athletes ($X_{age} = 22.16 \pm 2.843$), 131 female and 211 male, attending different universities volunteered to participate in the study. The sport experience of the athletes engaged in various individual and team sports (football, basketball, volleyball, tennis, athletics, cycling, etc.) was 99.18 ± 58.924 months. It was found that the athletes spent 2.69% of the week with training.

Measuring Instruments

In accordance with the purpose of the study, data collection tools included the Self-Talk Questionnaire (S-TQ), the Sport Imagery Questionnaire (SIQ), and the Personal Information Form developed by the researcher.

Self-Talk Questionnaire

The Self-Talk Questionnaire (S-TQ) (Appendix 1) was developed by Zervas, Stavrou, and Psychountaki (2007) to reveal individual differences in self-talk according to cognitive and motivational functions (Zervas et al. 2007). The questionnaire was adapted to Turkish culture by Engür (2011). It includes 11 items marked in a Likert scale (1 Never, 2 Rarely, 3 Sometimes, 4 Often, 5 Always) and 2 functions, namely the Cognitive Function and the Motivational Function. Engür (2011) found the Cronbach's Alpha value of the motivational function to be .93. The Cronbach's Alpha value of the cognitive function was found to be .87. The reliability coefficient of the overall questionnaire was found to be .95 (Engür 2011).

Sport Imagery Questionnaire

Sport Imagery Questionnaire (SIQ), which is a sport-specific measuring instrument, was developed by Hall et al. (1998). The questionnaire consists of 30 items. The functions of the questionnaire include Cognitive General (CG) Imagery, Cognitive Specific (CS) Imagery, Motivational General Arousal (MG-A) Imagery, Motivational General Mastery (MG-M) Imagery, and Motivational Specific (MS) Imagery. SIQ was adapted to Turkish by Vurgun (2010). The Cronbach's Alpha internal consistency coefficient of the questionnaire varies from 0.83 (Motivational General Arousal Imagery) and 0.91 (Motivational Specific Imagery). The reliability coefficient of the overall questionnaire was found to be .95 (Vurgun 2010).

Personal information form

For the purpose of the study, the researcher prepared a personal information form to obtain demographic information about the participants such as gender, age, branch of sports, national team status in the branch of sports, years practicing the branch of sports, and number of training sessions in the branch of sports.

Data Analysis

Stepwise Multiple Regression Analysis was used in the study. Independent Samples T test was used to determine the difference between self-talk levels and imagery levels by demographic variables of the athletes, whereas the Stepwise Multiple Regression Analysis was used to determine whether self-talk levels of the athletes was a predictor of their imagery levels or not. SPSS package program was used for analysis and $P < 0.05$ and $P < 0.01$ were accepted as statistically significant.

FINDINGS

This section includes findings obtained from the analysis performed for the purposes of the study.

Results of The Regression Analysis Performed to Determine The Role of Self-talk Level in Predicting Imagery Level

Model	β	t	p
Cognitive function	,268	3,647	,000
Motivational function	,280	3,668	,000
R=0,483; R ² =0,233; Adjusted R ² =0,229; F(2,320)=57,568; p=0.000			

The stepwise multiple regression analysis showed that imagery level had a significant relationship with both motivational function scores and cognitive function scores ($R=0.483$; $F=57.568$; $p<0.01$). Both the motivational function ($\beta=0.280$; $p<0.01$) and the cognitive function ($\beta=0.268$; $p<0.05$) had a significant and positive correlation with imagery level. Motivational function and cognitive function scores explain 23.3% of the variance in imagery level ($R^2=0.233$; $p<0.01$).

Analysis Results Related to Self-talk Levels of The Athletes by The Gender Variable

	Gender	N	Mean	Std. Deviation	t	P
Motivational function	Women	131	3,7056	,90294	1,664	0,097
	Men	211	3,5342	,96118		
Cognitive function	Women	131	3,8645	,96589	1,903	0,056
	Men	211	3,6564	,99394		

The Independent Samples T test did not show a statistically significant difference between genders in terms of the motivational function of self-talk ($t=1.664$; $p>0.05$).

The Independent Samples T test did not show a statistically significant difference between genders in terms of the cognitive function of self-talk ($t=1.903$; $p>0.05$).

Analysis Results Related to Imagery Levels of The Athletes by The Gender Variable

	Gender	N	Mean	Std. Deviation	t	p
Cognitive specific function of imagery	Women	131	5,1450	1,35624	-0,409	0,683
	Men	211	5,2014	1,16075		
Cognitive general function of imagery	Women	131	5,0305	1,10313	-1,959	0,052
	Men	211	5,2730	1,12824		
Motivational general arousal function of imagery	Women	131	4,9790	1,29794	0,717	0,474
	Men	211	4,8732	1,36895		
Motivational specific function of imagery	Women	131	5,1588	1,32264	-0,325	0,745
	Men	211	5,2076	1,39234		
Motivational mastery function of imagery	Women	131	5,2952	1,24834	-1,130	0,260
	Men	211	5,4534	1,27670		

The Independent Samples T test did not show a statistically significant difference between genders in terms of the cognitive specific function of imagery ($t=0.409$; $p>0.05$). The Independent Samples T test did not show a statistically significant difference between genders in terms of the cognitive general function of imagery ($t=1.959$; $p>0.05$). The Independent Samples T test did not show a statistically significant difference between genders in terms of the motivational general arousal function of imagery ($t=0.717$; $p>0.05$). The Independent Samples T test did not show a statistically significant difference between genders in terms of the motivational specific function of imagery ($t=0.325$; $p>0.05$). The Independent Samples T test did not show a statistically significant difference between genders in terms of the motivational mastery function of imagery ($t=1.130$; $p>0.05$).

CONCLUSIONS

The purpose of the study was to investigate the effect of athletes' self-talk levels on their imagery levels. The stepwise multiple regression analysis showed that imagery level had a significant relationship with both motivational function scores and cognitive function scores. Both the motivational function and the cognitive function had a significant and positive correlation with imagery level. Motivational function and cognitive function scores explain 23.3% of the variance in imagery level. Reviewing the relevant literature, it is seen that many researcher report a correlation between imagery and self-talk (Kendal et al., 1990; Anderson, 1997; Hardy, Gammage & Hall, 2001). In the light of this information, it can be said that our findings are supported by the literature. Another finding of our study was that there was not a statistically significant difference between genders in terms of motivational and cognitive functions of self-talk.

The Independent Samples T test did not show a statistically significant difference between genders in terms of cognitive specific, cognitive general, motivational general arousal, motivational specific, motivational mastery functions of imagery. These findings are partially consistent with those obtained by Bayköse (2014), since Bayköse (2014) reported a statistically significant difference between genders in the motivational specific imagery. Thus, the findings obtained in Bayköse's study do not support our findings in the motivational specific function of imagery.

In conclusion, it was found that the self-talk level was an important predictor of the imagery level, while no statistically significant difference was found between genders.

Authors' Disclosures of Potential Conflicts of Interest

The authors indicated no potential conflicts of interest.

Footnotes

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Exploring The Meaning Of Social Practice Through Volunteer Activities Of University Students

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ABSTRACT

The purpose of this study is to explore social practice and meaning of social practice through a multicultural mentoring activity, which is part of college students' volunteer activities. To this end, I interviewed ten students. The results of the study are as follows. First, they recognized that a variety of people must live together in a multicultural society. Second, Mentors and mentees have experienced a variety of experiences throughout mentoring activities and have learned to learn and grow. Third, the students participating in the mentoring program learned the joy of volunteering and sought more meaningful activities. Fourth, the students are always thinking about whether their activities are an activity or a social activity. Fifth, the excellence of a person's right to judge and wrong in life accomplishes an inner achievement.

Keywords: Social Practice, Multi-cultural Mentoring Activity, Internal Achievements, Community, Global Citizenship.

INTRODUCTION

People try to do socially beneficial and meaningful activities as life becomes rich. Through social activities such as volunteering, We try to enrich and enrich other people's lives as well as social activities. Likewise, university students try to do useful and rewarding activities through college life. MacIntyre(1984) defined Social benefit as social practice. He said that he regarded social practice as a collaborative human activity, and that these activities were formed and maintained in various ways to maintain society. Therefore, social practice should be beneficial to the community, not to mention what is naturally found in our lives.

Hirst(1993) said that the social rule should be respected in order to practice social practice. That is, it is necessary to judge right and wrong about whether or not one's activities are activities for the community before doing so.

University students' volunteer activities should also be considered and implemented primarily in terms of benefit from the community. Thus, university students' volunteer work begins with a good mind to contribute to society and community as a prospective social worker. It is necessary to search for activities that are more difficult to help people with disabilities than I do, but it is necessary to discover how they grow up and explore and reflect on how they grow up. In other words, exploring how college students achieve social fulfillment through various volunteer activities is an important task for a wide variety of people.

Therefore, in this study, we intend to explore social practice and meaning of social practice through a multi-cultural mentoring activity, which is part of university students' volunteer activities. Hopefully, it will serve as a basis for enhancing the social practice of college students.

THEORETICAL BACKGROUND

2.1 Multi-cultural mentoring through social practice

Scholars are discussing various aspects of human conduct and practice. First of all, Schatzki(2001) divided the behavior into a form of life according to the concept of human behavior and practice. In addition, Miller said that the practice of separating humans from internal and external lines is divided into internal and external lines, and humans act differently according to their purpose. Also, MacIntyre(1984) emphasized that the most important

thing in social practice is virtue, and fulfilling the virtues of virtue, my enemy achieved the public good. Social practice of social workers can form a healthy community in societies where social and community members form public good works of society. The realization of the inner values of the inner values is realized through the participation of the participants (Yoo Jae-bong, 2002).

The social practice of many people is mainly accomplished through volunteer work. University students also perform volunteer work for their environment and do a healthy act for society as a preliminary social worker. Volunteering activities in colleges have changed dramatically as society has changed. Though most volunteer activities such as volunteer work, medical services, and educational services were used in the past, online volunteering has increased due to the development of the internet or the network. Among university students who are popular among university students, university students can benefit from their ability to extend their skills and engage in activities related to their careers. In particular, Multi-Cultural mentoring is a form of community outreach and a form of social practice in Korean society.

Multi-Cultural mentoring is an educational ministry program designed to support students from multi-cultural families who grow up in Korean society. Multi-Cultural mentoring is a collaborative mentoring of Korean college students, whose mentors are comprised of middle and high school students in middle and high schools, and college students, students, students, students, students, students, and students in their spare time. Multi-cultural mentoring is a collaborative effort between mentors and mentees. When cooperative activities continue, they form the best performance and the best minds of each other, creating the best mental health conditions (Kim Young-soon, 2010).

The social practice of realizing the community's multi-cultural mentoring activities has led to social activism for the community to cooperate with the community's public offerings. In view of this, Park Mi-sook(2016) regarded that the multi-cultural mentoring activities were a social practice in the sense that multi-cultural mentoring activities are a cooperative activity for social minorities in society, as well as mentors and mentalities. Multi-cultural mentoring is also a source of everyday life for university students and learning the outcomes of learning in everyday life (Yoo Young-man, 2006).

RESEARCH METHOD

3.1 Collecting research participants and data

The participants chose 10 college students who were willing to participate in the study and voluntarily participate in the volunteer work. University students are mainly students participating in a multicultural mentoring program hosted by the University of Incheon in Incheon, and include the students of Education College students as well as students. The general information of the participants is as follows .:

<Table 1> Characteristics of participants

Research participants	Major	Gender	School Grade	Mentoring area	Mentoring Experience
Participants 1	Social Education	Woman	Middle	City	Three years
Participants 2	Education	Woman	Middle	City	Three years
Participants 3	Social Education	Woman	Middle	City	Two years
Participants 4	Social Education	Woman	Elementary	Farming village	Two years
Participants 5	Korean Language Education	Woman	Elementary	Farming village	Two years
Participants 6	Education	Woman	Middle	City	Two years
Participants 7	Social Education	Man	High	City	Two years
Participants 8	International Trade	Man	High	City	Two years
Participants 9	Social Education	Woman	Middle	City	Two years
Participants 10	Public Administration	Man	Elementary	City	Two years

The study explores the meaning of social practice through multi-cultural mentoring in South Korean society, which is becoming a multicultural society. From September 2015 to March 2016, the study conducted in-depth interviews of university students who participated in multi-cultural mentoring activities to analyze their experiences.

3.2 Method for research

Data collection for research was conducted in depth interviews after receiving consent from university students participating in the study. The in-depth interview was conducted by one or two participants in the study. The interview session was conducted in an hour and a half, and the interview venue was held in a quiet cafe. The atmosphere of the interview was free of charge and the interview was suspended when the data was saturated. All recorded materials were recorded in transcription and filed into files.

The data analysis was conducted by keyword actions centering on key themes. The analysis process continued to be repeated continuously and analyzed by the analysis participants by sending analyzed contents to the participants. In addition, they tried to improve the feasibility of research, including sending analyzed materials to fellow qualitative researchers.

RESULTS

The results of the study are as follows.

4.1 Living together

It is important to recognise that a variety of people must live together in a multi-cultural society when it is changing into a multi-cultural society. It is important for all members of society to recognize each other's diversity and to coexist with their culture together. University students attending Multi-Cultural mentoring activities have recognized that the various social phenomena of Korean society should be understood to recognize diverse social phenomena and recognize each other's diversity in order to coexist. Mentors are also important to mentor the Mentoring, but have sought to develop skills to understand and support each other in diverse societies. Through this, everyone learned that they should live together.

I want to let my mentee know what to do with the other person, to think about it, to look at it, to make it happen, to make it happen. (Research participants 1)

At first, I was terrified because I was a multi-cultural group. Because of the idea of multiculturalism, I think it's not just discrimination, but it's kind of like that. I have come to understand multi-cultural people and I have changed my eyes. (Research participants 8)

4.2 Growth with each other

Volunteer work is also helpful for those who volunteer, but those who participate in volunteer work feel fulfilled by volunteering to participate in volunteer work. Mentoring mentors lead to mentoring motivation through mentoring, mentoring students, mentoring, and challenging students to demonstrate their ability to learn their own learning skills, such as mentoring, mentoring, and mentoring. Both Mentors and mentees have experienced a variety of experiences throughout mentoring activities and have learned to learn and grow.

I think it's true that I'm growing up with someone I love to be seen as someone I love, rather than just believing in what I love to believe, rather than believing in what I love. (Research participants 5)

I think it's grown a lot through Mentoring. I feel good because I have changed my mind to use the mentee and watch the mentee in order to use the mentee and watch the mentee. (Research participants 10)

4.3 Expandign service consciousness

Those who do not feel satisfied through volunteer work are no longer interested in volunteer work. However, volunteer work that affects her life and value is sought to do another volunteer work. A mentor who participates in this multi-cultural mentoring will know that his small powers empower others. Through these efforts, he participated in other volunteer activities and tried to act for the socially difficult people. The college students participating in the mentoring program learned the joy of volunteering and sought more meaningful activities.

You have to do something active. Volunteer work or personal affairs don't do volunteer work. That's why I want to help others if I think about it. (Research participants 2)

At first, mentoring time is thought to be a mystery, and it is interesting to have a sense of humor rather than to fulfill the concept of volunteering and to fulfill a sense of humor rather than in middle and high schools.

(Research participants 9)

4.4 Establish a sense of community

We consider ourselves constantly question how to live, and thinking about their roles and responsibilities in relationships with others (Chang Yun-su, 2014). Thus, undergraduates are always thinking about whether their activities are an activity or a social activity. College students recognize that multicultural mentoring activities help students learn from multicultural families, as well as academic support for school life. College students recognize that this activity is aimed at reducing the outflow of multicultural families from multicultural families. The college students who participated in the multi-cultural mentoring ceremony have given a chance to rethink the community's broader community through mentoring. It protects the socially weak from such small things and strives to maintain the community well.

While growing up in the middle of learning, they grow bigger, but they grow bigger. And I want to see something bigger than me, and if that happens, I want to do something like that. (Research participants 3)

Because of the multi-cultural mentoring, we have to pay attention to those who are alienated from the public.

Having a sense of community, whether it's reflective or mentoring or mentoring, doesn't mean that you can form a community in society. (Research participants 6)

4.5 Excellent through internal achievements

The excellence of a person's right to judge and wrong in life accomplishes an inner achievement. (Aristotle) Aristoteles is said to be a person who can distinguish between good and bad things by dividing them into a good thing and not doing anything good, such as social practice, which is the source of a healthy society, which is the source of a healthy society. College students who participated in Multi-Cultural mentoring also showed their inner achievements through mentoring activities, which showed excellence. Also, many students were worried about changing society and realizing a good society.

My activities are always worrying about society, and I'm looking for answers to him. If the mentee changes both the mentee and the mentor, it can be both parallel to the two, but I'm doing the latter, which makes me change the society. (Research participants 4)

I don't think it's possible to reflect on the fact that I reflect and reflect on my values and pursue my values, and that I will not be able to form a good society when I come to society or where I come from. (Research participants 7)

CONCLUSIONS

The study seeks to explore the meaning of social practice through mentoring activities in multi-cultural mentoring. For this reason, the following conclusions were concluded by interviewing 10 college students who participated in the mentoring process.

First, college students who participated in multi-cultural mentoring have realized that various people must coexist and live together through mentoring. Secondly, through multi-cultural mentoring activities, the mentor was growing inward and internally inside. Third, college students participating in volunteer activities were expanding their sphere of service through multi-cultural mentoring activities. Fourth, college students who participated in multi-cultural mentoring were aware of what life was for, and hoped everyone would be happy, through the internal achievements of the community.

The study leaves college students with the opportunity to realize that their value has become an opportunity to realize their values and establish a community line through multi-cultural mentoring activities. These studies suggest that university students should provide opportunities and environments to provide diverse service activities.

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Relationship Between Student Teachers' Reading Music Ability and Their Musical Environments

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ABSTRACT

The aim of this research is to figure out the change of the degree in reading music ability of student teachers for elementary schools in Korea. There are 3 problems of the study. First, would time to practice be the fact that can affect the change of the reading music ability degree? Second, what factors would be affecting the student teachers' reading music ability. Third, would the student teachers who have a difficulty reading music be a problem to teach their music classes in the future? As the result, the progress change of the reading music ability of the student teachers in the research was not significant. The number of 5.7% students shows no difficulty reading music whereas 34.3% students have a difficulty with reading music. 60.3% students, however, getting accustomed to reading music during the 8-week class. It is certified that the factor of enjoying singing does not directly affect to the ability of reading music much, but affect to the students' sense of tonality and pitches. It is also found that while experience of playing the piano affects the ability of reading music, experience of learning to sing does not affect it much. It is discovered that the less confident with reading music, the more reluctant to music class for student teachers in the future.

Keywords: Reading Music Ability, Student Teachers, Musical Environments

INTRODUCTION

It is essential for the student teachers who will teach general music class in the future to read music (Abeles, 2010). In Korea almost every elementary school teacher is to teach 5 core curriculum subjects including art classes like music and fine art. It means that they must be equipped to teach music whether they have an experience of receiving music lessons before entering the college of education or not. Every college of education provides several music courses including sight-singing. Since there is no right to select students who have a high level of musical aptitude in terms of college admission, the faculty members of music education department concern about how to improve the students' reading music ability. Out of the several important researches of the music education field, Gordon (2007) affirmed that the musical aptitude grows until the age of 9 and after that the musical aptitude is to become stabilized. The result of Gordon's study implies that it is not easy for student teachers in Korea to be fully equipped unless they had adequate experience of music activities and lessons when they were young. Even though there is such limitation, student teachers should have enough training and lessons to be ready as teachers with confidence and should aware of the psychological stages of children in music education (Hargreaves, 1986). There are 3 problems of the study. First, would time to practice be the fact that can affect the change of the reading music ability degree? Second, What factors would be affecting the student teachers' reading music ability. Third, would the student teachers who have a difficulty reading music be a problem to teach their music classes in the future?

METHODS

1. Study period: September 1, 2016 ~ December 1, 2016, for 3 months.
2. Subject of the study: 159 college students (Men 75, Women 84).
3. Questionnaire: 8 questions (7 closed-questions, 1 opened and closed-one).
4. Reading music material: *Chorübungen*, Revised by Sekwang music publication 1997.
 - 4-1. *Chorübungen** No.1~No.11: For class work used for 6 weeks.
 - 4-2. *Chorübungen* No.12~No.20: For individual work used for 8 weeks.

* "*Chorübungen der Münchener Musikschule, Erste-dritte Stufe*" by Franz Müller, A music book for chorus practice setting.

STUDY

The subject and participants of the study was 159 undergraduates in the first year of the college of education and took the reading music course. The number of male students was 75(47.2%) and 84(52.8%) female students. The musical characteristics of the students are as following based on the answers from the questionnaire provided as the course was beginning. The result of the survey is followed below.

[Table 1] shows that 22% of the responding male enjoys singing while 17% female enjoying singing. The both of 39% students enjoy singing, 61%, however, does not seem to enjoy singing which is to be affecting their sense of the pitch and tonal sense as well.

Table 1: The degree of enjoying singing

Enjoyment of singing			
Answer	M(n/%)*	F(n/%)**	Total
Very likely	20(12.6)	9(5.7)	29(18.3)
Likely	15(9.4)	18(11.3)	33(20.7)
Normal	19(11.9)	31(19.5)	50(31.4)
Unlikely	12(7.6)	18(11.3)	30(18.9)
Very unlikely	9(5.7)	8(5.0)	17(10.7)
Sub	75(47.2)	84(52.8)	159(100)

* M=male, **F=female, n=number of people

To the question that they have had any experience to learn to sing, only 1.9% of the female students answered 'yes'. None of the male students answered they had any experiences to learn how to sing. They do not count the experience of singing in their general music classes from elementary to high schools. [Table 2] shows the result.

Table 2: Experience to learn how to sing

Having experience to learn to sing			
Answer	M(n/%)	F(n/%)	Total
Yes	0	3(1.9)	3(1.9)
No	75(47.2)	81(50.9)	156(98.1)
Sub	75	84	159(100)

Unlikely poor experience of learning to sing, the rate of the experience of learning to play the piano was comparatively very high. Out of the 75 male students 47(62.7%) answered they had or have learned to play the piano. 61(72.6%) female students answered the same. They answered that they had piano lessons in a private academy when they were in elementary school. The number of the both male and female who have or had experiences to learn to play the piano was 108(68%). [Table 3] shows the result.

Table 3: Experience to learn to play the piano

Having experience to learn to play the piano			
Answer	M(n/%)	F(n/%)	Total
Yes	47(29.6)	61(38.4)	108(68.0)
No	28(17.6)	23(14.4)	51(32.0)
Sub	75	84	159(100)

Majority of the students likes pop-music especially K-pop (Korean pop-music) as it shows below [Table 4]. Classic is not an attractive musical genre for this generation of student teachers. Although they have rarely experience to learn to sing, their favorite music is pop, which is song music.

Table 4: Favorite music

Your favorite genre of music			
Answer	M(n/%)	F(n/%)	Total
Classic	6(3.8)	6(3.8)	12(7.6)
World music	1(0.6)	1(0.6)	2(1.2)
Pop-music(English world)	11(6.9)	14(8.8)	25(15.7)
K-pop(Korean pop-music)	53(33.3)	61(38.4)	114(71.7)
Etc.	4(2.4)	2(1.2)	6(3.6)
Sum	75	84	159(100)

57.2% of the students answered that they possess individual musical instrument. The list of the musical instruments includes guitars, the pianos, flutes, violins, cellos, clarinet, trumpet, and so on and so forth. In male students, the number of no possessing instruments is larger than the number possessing instruments. In contrast, the double size of female students has musical instruments. See [Table 5].

Table 5: Possession of musical instruments

Possessing any musical instruments			
Answer	M(n/%)	F(n/%)	Total
Yes	34(21.4)	57(35.8)	91(57.2)
No	41(25.8)	27(17.0)	68(42.8)
Sub	75	84	159(100)

Total 62.9 % (22.6% of men and 40.3% of women) students answered that they are able to play more than one musical instrument. Their available instruments were including ocarina, recorder, and *danso*, a Korean traditional instrument. In a reference [Table 5] says that despite of not having instrument, there is a number of students who can play musical instrument. [Table 6] shows the result.


Table 6: Playable musical instruments

Available musical instruments to play			
Answer	M(n/%)	F(n/%)	Total
Yes	36(22.6)	64(40.3)	100(62.9)
No	39(24.6)	20(12.5)	59(37.1)
Sub	75	84	159(100)

13.2% of men and 5% of women students answered that they would be avoiding or try to be evitable attitude toward music class if they are possible in the future when they become elementary school teachers. At the time of the survey, they felt like music as a subject to teach is difficult and they wanted to try to be away from it if possible. If adding the number of Normal answers, the situation is critical that 47.2% almost half of the student teachers are tend to avoid general music class in the future. [Table 7] shows the result and [Table 7-a] explains further regard of the respond of the answers like ‘very likely’, ‘likely’, and ‘normal’ in [Table 7].

Table 7: Seeming to avoid music class as a student teacher

Avoiding general music class in the Future			
Answer	M(n/%)	F(n/%)	Total
Very likely	5(3.2)	1(0.6)	6(3.8)
Likely	16(10.1)	7(4.4)	23(14.5)
Normal	15(9.4)	31(19.6)	46(29.0)
Unlikely	22(13.8)	27(16.9)	49(30.7)
Very unlikely	17(10.7)	18(11.3)	35(22.0)
Sub	75	84	159(100)

 the numbers will be used for table.7-a.

Out of the 159 students, 75 students (male 36, female 39) answer that they might be trying to avoid or be reluctant teaching music classes due to some reasons. [Table 7-a] shows the reasons and the rate. One of the reasons, why to be reluctant teaching music classes is a lack of accompaniment skill with the piano for the class. The number of the rate was 34.7%. A lack of singing ability is also one of the reasons for them to be reluctant teaching music class and the rate of the answer was 29.3%. Next reason is a lack of score reading ability that they have a difficulty reading music with various keys and meters. The number of the rate was 21.3%. Lastly 14.7% of the students responds that their reason of being reluctant teaching music class is a lack of music teaching methods. Interestingly the number of female students who might be reluctant music class in the future is bigger than the number of male students.

Table 7-a: Reasons to be reluctant with music class as a student teacher

Reasons to be reluctant music class			
Answer	M(n/%)	F(n/%)	Total
lack of singing ability	6(8.0)	16(21.3)	22(29.3)
lack of accompaniment skill	14(18.7)	12(16.0)	26(34.7)
lack of score reading ability	10(13.3)	6(8.0)	16(21.3)
lack of music teaching methods	6(8.0)	5(6.7)	11(14.7)
Sub	36(48.0)	39(52.0)	75(100)

For the 3 months any changes of improvement in terms of reading music had been screened and observed by the researcher to see the students' any changes of the ability in reading music. First for the 6 weeks the 159 students (divided into 6 classes) were provided class instruction to read music and other musical activities as well. After the period the students were asked to prepare and practice *Chorübungen* individually and informed to be screened and instructed individually as well every week in the class. For the 8 weeks after the 6 week- class provided, they had a time to practice and prepare to read music, especially *Chorübungen* from No.12 which contains 7 pieces of music for practice.

Table 8: Ability degree of reading music

Degree	Poor	Mediocre			Intermediate			Total
<i>Chorübungen</i>	<i>no.12~13</i>	<i>no.14</i>	<i>no.15</i>	<i>no.16</i>	<i>no.17</i>	<i>no.18</i>	<i>no.19</i>	
M(n/%)	37(23.3)	36(22.6)	13(8.2)	9(4.2)	1(0.6)	2(1.3)	0	75(47.2)
F(n/%)	17(10.7)	21(13.2)	15(9.4)	7(4.4)	2(1.3)	3(1.9)	1(0.6)	84(52.8)
Sub(n/%)	54(34.0)	57(35.8)	28(17.6)	11(6.9)	3(1.9)	5(3.2)	1(0.6)	159
	54(34.0)	96(60.3)			9(5.7)			159(100)

[Table 8] shows the result of the 8-week individual screening and observing class. It tells that only 5.7% students approach No.17~19 of *Chorübungen* that is considered as intermediate level. Majority of the 60.3% students shows a progress getting into mediocre level while 34% students remain in poor level of reading the music. In the poor and intermediate levels, the number of men is double size less than women (10.7%: 23.3%, 1.9%: 3.8%). During the 2 months each student tried to be equipped to read music and wanted to progress their ability. Their competency of reading music, however, is not sufficient enough to lead music class.

CONCLUSIONS

The progress change of the reading music ability of the student teachers in the research was not significant which means that having time to practice for 8-week cannot be the factor to affect the students' reading music ability. The number of 5.7% students shows no difficulty reading music whereas 34.3% students have a difficulty with reading the score. 60.3% students, however, getting accustomed to reading music during the 8-week class. It is certified that the factor of enjoying singing does not affect to the ability of reading music much, but affect to the students' sense of tonality and pitches. While experience of playing the piano affects the ability of reading music, experience of learning to sing does not affect it much.

It is also discovered that the less confidence with reading music, the more reluctance to music class for student teachers in the future. It is suggested that the musical aptitude test be provided to student teachers before class begin and their reading music ability be checked how it changes throughout the class. It needs to be confirmed that degree of musical aptitude is to be affective to the reading music ability and any musical environments of the students are to be more affective one or not. New approaches to promote the ability of reading music for students are needed and any means that help students not be reluctant to music class should be found.

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Tertiary Level Students' Initial Experiences Of Learning Medical English Online

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ABSTRACT

As a part of a quasi-experimental research project, the current study was conducted at an accredited medical faculty of a mid-size university in the northeastern part of Turkey. In order to alleviate the problems including space and time limitations, crowded classrooms and lecturers' inability to perform their qualifications effectively in the classrooms which were inappropriate for language education, an online English course with a focus on EMP, English for Medical Purposes, was designed. In this online medical English course, *EMPOne' 2016*, the students had the chance to attend the course both synchronously and asynchronously. After 8 weeks of implementation, the students were invited to share their experiences and views. In this context, this content-analytic study aimed to describe these tertiary level medical faculty students' initial experiences of learning medical English in an online learning environment. The data was collected via an online structured interview. A total of 37 volunteer students responded to the interview questions. The students were asked to answer 13 questions in Turkish. The data was analyzed via content analysis method.

Keywords: online learning, online medical English, synchronous online learning, asynchronous online learning

INTRODUCTION

In the current study, there were basically two dimensions covered: Online learning and English for specific purposes (ESP). In fact, throughout the time, the same key drivers like globalization, rapid growth of Internet and technologization in different aspects of the life, particularly in education system and in branches of science like medicine paved the way for the growth of both English for specific purposes and online learning. In line with the global acceptance of English as a lingua franca throughout the world (Seidlhofer, 2005), growing need to use English for different purposes by individuals in different fields all over the world revealed ESP approach as a key solution in 1960s (Hutchinson and Waters, 1987; Johns, 2013; Master, 2005). It was basically defined as an approach to language teaching in which all decisions regarding the process such as choosing content, materials were all based on students' goal in learning target language (Hutchinson and Waters, 1987). Due to the acceptance of English in twentieth century as international language of medicine and the dominance of English in medical accounts, a new ESP branch as English for Medical Purposes (EMP) was emerged. In this context, the current study focused on medical students' learning English in an online environment which was still an infant area for the ESP studies in Turkey. "Since 2000, many universities have tried to implemented a virtual learning environment or managed learning environment (MLE) that will provide a unified technology platform from which to embed ICT in learning and teaching. These resources are usually available to all courses, modules, staff and students in the instution, and raise expectations that academic staff will provide some level of online resources to their students." (Bach et al., 2007, p. 35). As stated here, the current study conjoining online learning environment and English for Specific purposes, particularly English for medical purposes, aimed to reveal experiences gained during a first attempt of conducting online English classes in an institutional tertiary level. Despite close relationship between information technologies and ESP movement, there are fairly limited published sources in the field (Arno-Macia et al., 2006). In this respect, the current study was significant to the existing literature.

THE STUDY

The current content-analytic study constituted a part of evaluation process of an online English class with a focus on English for medical purposes. Hence, this piece of work focused on describing tertiary level medical faculty students' initial experiences of learning medical English in an online learning environment. The following figure pointed out the multilayered form of the comprehensive research process which falls in the category of longitudinal quasi-experimental research.

Figure 1: Framework of the Study



As indicated in the figure, the medical students in our case were firstly taught face to face and in the following academic year, they were taught medical English in an online classroom where they had chance to learn synchronously and asynchronously. At the step of the evaluation process, various data collection tools including meetings, online reflective journals, interviews and questionnaires were employed from different stakeholders including lecturers, administrators and students. This current study was based on the data gathered from online structured interviews which aimed to reveal these tertiary level medical faculty students' initial experiences of learning medical English in an online learning environment after experiencing *EMPonline* course for 8 weeks. As for the suggested *EMPonline* course, all the content and materials were developed originally and tailor-made with a focus on ESP, specifically EMP-based approach after covering a comprehensive needs analysis process. In line with this, the whole process was research informed and the decisions regarding the course was also negotiated. Therefore, it was planned to nurture individualized learning and learner-centered approach. It is important to note that, this experience of online education served as a pioneering model for the faculty of medicine in that it was the first experience for the students to get medical English in an online environment. Since it was a part of an official education program and there was no comparison group available or randomization, the current study was based on a quasi-experimental research process. In this part of the study, since the data came from the online interviews, it was mostly grounded in the qualitative or interpretive paradigm which "assumes the value of context and setting, and that searches for a deeper understanding of the participants' lived experiences" (Marshall and Rossman, 1995, p. 39).

Participants of the Study

Among the total of 247 medical faculty students who attended the suggested online EMP course, 37 medical students voluntarily attended online interview. These students were second year medical faculty students. They were randomly assigned to five online classrooms which were held in different times and days of the week. All the decisions regarding the class time were negotiated with the students, the lecturers, and the administrators. Accordingly, there were five English lecturers who taught these EMP-online classes. Around 50 students were randomly allocated for the suggested EMP-online course.

Setting

This study was conducted at the faculty of medicine in one of the largest state universities in Turkey during the academic year of 2016- 2017. The faculty of medicine was accredited in that up to 30 % of the courses were formally offered in English. Therefore, the medical students were taught in an English preparatory program for one year before proceeding to the content courses at the faculty. In the following years, English courses were taught at the 1st, 2nd and 3rd years of medical faculty. The current study was conducted at the second year English course. The regarding data was collected in December, 2016.

The Suggested Online Classroom

For the current study, the sophomore students were taught medical English in an online platform which was provided via *Adobe Connect* technology with which the students were previously familiar (An obligatory class, the Turkish language class, was delivered via the same platform at KTU). *Adobe Connect* technology was preferred after some negotiations with the experts in the distance education center. Thanks to the infrastructure facilities available at the distance education center and the university, the users did not need to download the software but easily logged in by clicking the link hosting the suggested *EMPonline* course. In other words, the software was available through the browser and internet. That is to say, the students and the lecturers did not have

to be technology experts. Nonetheless, the students and the lecturers were trained about how to use it during the training seminars and the orientation weeks. Also, a call center and support personnel at the distance education center were always available for an ongoing support and responding urgent technical questions. The online classroom was illustrated via the following screenshots:

Figure 2: Live classroom screenshot including an animation video and listening activity

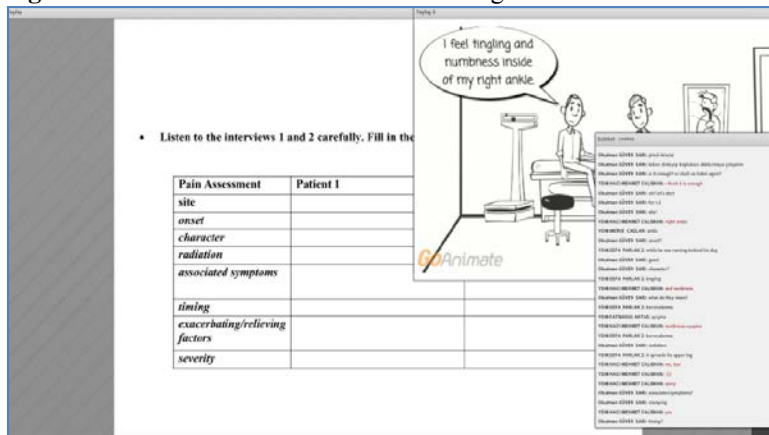
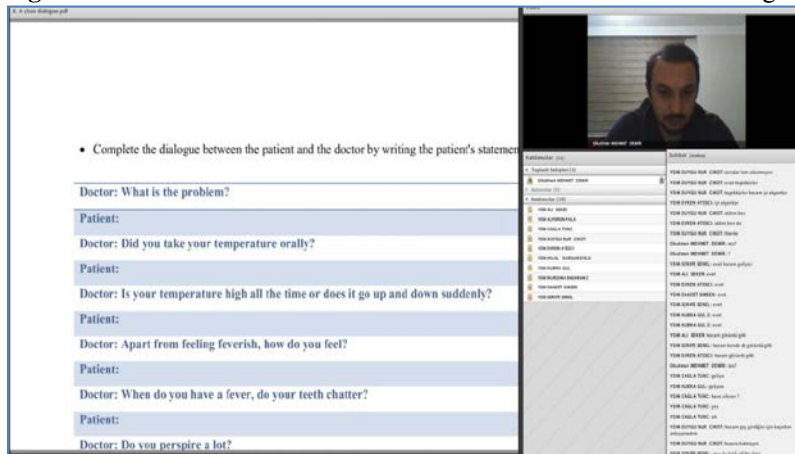


Figure 3: Live classroom screenshot including dialogue completion task



In this online medical English class which was provided via *Adobe Connect* technology, the students had both chance to attend the classroom synchronously and asynchronously since the classroom videos and materials were recorded on the system. Therefore, the students could review or study on their pace. Both the teachers and the students could share the files, computer screens or documents. Also, videos, animations or multimedia tools were easy to use and share. All types of interaction were possible and different from a traditional classroom, students and teacher could get in contact via private messaging. It was believed that it would be easier to adapt for both parties including the lecturers and the students. In order to get this online education, the users needed to have internet connection, computer, microphone and earphone. Alternatively, they had also chance to go to the laboratory available at the faculty of medicine.

As for the course content which was prepared with a focus on English for medical purposes approach, after the comprehensive needs analysis process informing all the decisions regarding the course, the course materials and content was prepared originally by the researchers. In response to the data gathered during the needs analysis process, listening, speaking and reading skills were more emphasized. Medical terminology was also promoted. The aim of this EMP-based English course was to familiarize the students in our case with basic anatomical terminology; health problems; communicative acts needed for a patient-doctor conversations, the steps during a history-taking process, physical examination and consultation process. Hence, a total of 96 language activities (including 11 starters and 11 closing & assignments) was originally created with an emphasis on EMP. In each session of the online medical English classroom, at least seven different types of activities were presented. The content was enhanced with various audio, audio-visual or multimedia tools like animation videos, listening tracks, dialogues or pictures. In the creation of the materials prepared for the current online medical English class, the path suggested by Tomlinson (2011) was mainly followed. Due to the scope of this paper, not the content but the online learning experience was taken as a main focus in the part of findings.

Data Collection and Analysis Procedures

An online structured interview was used in order to collect the regarding data. A total of 13 questions were prepared, piloted and revised by the researchers. The final form of the questions was sent to the students via *Googledocs*. Turkish that was the native language of the students was preferred as medium of data collection so that the students could reflect their opinions in depth and in order to avoid any data loss because of language.

For the data analysis part, due to the nature of questions, both qualitative and quantitative data analysis procedures were employed. This view was also emphasized in the research literature that "The best content-analytic studies use both qualitative and quantitative operations on texts" (Weber (1990, p.10). Especially, descriptive statistics including frequency & percentages were employed in the quantitative analysis part. That is to say, the data analysis part was done not only by interpreting and summarizing the data but also by presenting the recurring themes, creating categories based on the emergent codes and tabulating them with frequency values.

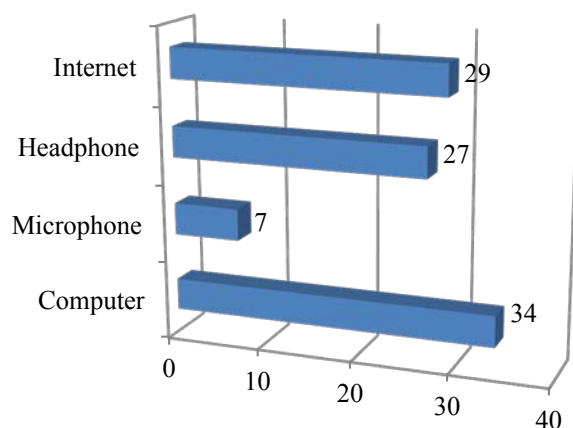
Ethical Considerations and Credibility Issues

A number of considerations were taken into account in order to decrease any threats to reliability and validity. An ethical approval by the ethical review committee at the university was obtained by the researchers before conducting the research in March, 2015. It is important to note here that the data was collected voluntarily. The consents of participants were taken verbally at meetings and also in written form as stated on the top of the data collection instruments. As for the resources used in the research process, they were available and in use after obtaining their permission within the framework of the research project. During the data analysis process, in order to avoid any bias, cross validation process was realized with external auditors.

FINDINGS

The findings were presented in line with the questions asked in the online structured questionnaire. The data was illustrated with tables of graphs accordingly. The first question was about the use of necessary equipments.

Graph 1: The Use of Equipments

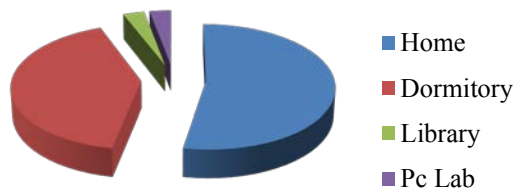


As indicated in Graph 1, most of the medical students attending the interview did not prefer to use their microphones. The use of microphone and headphone was rather low among the students responding the interview.

The second question was about attendance rate of the students. The findings indicated that only 15% of the students attended all the sessions during 8 weeks. 50% of the students attended at least 5 weeks. The rest of the students attended less than 4 weeks.

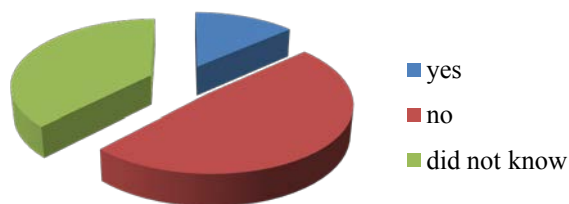
The following graph (Graph 2) pointed out where the medical students connected to the *EMPOnline* class.

Graph 2: The Students' location



Graph 2 indicated that the students mostly connected to the class at home (n=18) or dormitory (n=14). Library and laboratory were the other two responses shared by the students. The next two questions were about asynchronous use of the online classroom. They were asked whether they downloaded the classroom materials for self-study and whether they watched the recorded videos of the online classroom when they missed the online classroom. It was closed-ended question including the options: yes, no and did not know. This question was also asked to see to what extent the students were aware about the facilities provided for them. The responses given to both questions were similar. Graph 3 indicated the regarding findings.

Graph 3: Asynchronous Use: Recorded Classroom Videos and Classroom Materials



Totally 5 out of 37 students confirmed that they downloaded the classroom materials and studied on their own when they missed the class. While some students (n=18) responded negatively, the other half of the students (n=14) stated that they did not know that they could download the classroom materials for self-study or watch the recorded classroom videos.

The next two questions were about the least and the most successful parts of the suggested EMP-based online classroom as based on the responses given by the participating students. According to the content analysis, the most problematic area for the students was internet / disconnection / poor connection (n=20) and hence, communication (n=5). The other stated problem was the class time (n=4) although the students' views were taken into account in the process of the course design.

Since I connect to the class at my dormitory, internet connection is not so good. Furthermore, sometimes the voice of the teacher echoes and I cannot hear and understand the audio or video clearly.

I have trouble in listening. Sometimes I cannot hear my teacher's voice, and although I share my problem on chat box, he does not see. As a result, I miss it.

On the other hand, one of the students suggested that:

I have not encountered any problem. However, my classmates having technical problems prevented us to do activities like dialogues. If the participation increases, I believe, the class will be much better.

Regarding the successful part of the online classroom, some of the students stated that:

*It is nice to attend a class in a comfortable environment, no stress.
The class contributed me a lot in terms of my listening skill and listening comprehension.*

The content enhanced with animations is very useful. We can easily get animation videos and recorded videos of the class whenever we want.

A total of 30 responses were given to the question regarding the successful part of the online classroom. Almost half of the students (n=16) reported that they did not consider any part of the online class as successful. According to the rest of the responses (n=14), the most successful parts:

- More comfortable and easy to concentrate (n=5)
- Animations, visuals, videos (n=4)
- Listening skill
- Making fast progress
- Online learning itself
- Interaction with the teacher in English
- Video-recording of the class

The next question was about the online classroom interaction. Among 37 students, a total of 29 students responded this question. The following statements indicated the mainstream:

Unfortunately, we could not manage to interact well in the online classroom due to my classmates' problems with internet. If technical issues had been completely removed, we could have fulfilled some tasks more efficiently. Our teacher made an effort, did his best but the problems were not solved.

Interaction was bad. It was due to disconnection, sometimes we could not hear the teacher's voice. If I attended the face to face class, I would not face with such problems.

Among 29 students, only 9 students reported and believed that classroom interaction was quite fine. However, majority of the students were apparently not happy about online classroom interaction due to technical problems like internet connection. It was also suggested that any students' problem occurring during the online classroom negatively affected the other members of the classroom since a language classroom mostly focused on classroom interaction and communication skills.

In the following part of the interview, the students were asked if it would make any difference to take the current medical English course in traditional face to face mode and how. The following table summarizes the regarding responses:

Table 1: Comparative Views on the Delivery Mode

<i>Face to face would be better since...(n=17)</i>	<i>Face to face would be worse since...(n=10)</i>
<ul style="list-style-type: none"> • Online learning wastes time. • The attendance rate would be higher. (n=3) • It would be more effective. (n=4) • It would be easy for me to participate. • I would attend easily and more. (n=2) • Face to face learning with teacher is always the best one. • It would be more engaging. • There would be no technical problem • In terms of class hour (n=2) • In terms of interaction. • It would be more permanent. • It would be better to focus on a book (n=2) 	<ul style="list-style-type: none"> • It would be boring. • In terms of participation and comfort (n=2) • It is easier for me to talk online. • Now, I think online is better for me. • The attendance rate would be lower. • Online learning is more effective. • Online learning is more comfortable. • Listening and videos are more comprehensible during online learning.

Totally 30 students responded to the question. Among all, 3 students thought that there would be no difference while the rest of the students agreed that taking the same course in traditional face to face environment would be more effective. While a number of the students (n=17) stated that face to face mode would be better, it would be worse for some students (n=10) for the various reasons as listed previously. Above all, the following statement indicated that once the students got familiarized with the dynamics of online learning environment in time, their perspectives could shift from negative to positive side.

Although I had some doubts about online learning at the beginning. Now, I believe that online class is more suitable for me. If it was a face to face classroom, I could not attend the class like now.

As understood from the extract above, the students' feelings about being a student before a computer were exposed to change in time. In line with this consideration, the following question was an attempt to understand the students' feelings about being a student on the computer.

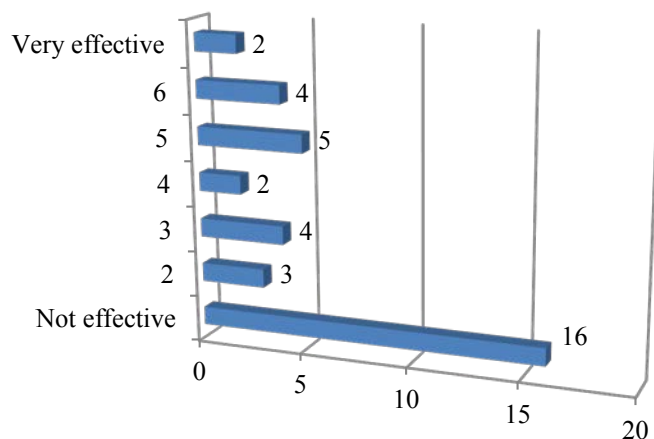
Table 2: Feelings: Being a Student on the Computer

<i>Positive feelings</i>	<i>Negative Feelings</i>
<ul style="list-style-type: none"> • Comfortable (n=3) • Pleasurable (n=6) • I feel better when I attend regularly. • Different but nice (n=2) • More useful & effective 	<ul style="list-style-type: none"> • Bad in terms of interaction • Not good / bad (n=8) • Nonsense • It is wrong, a student should be in the class. • Difficult to concentrate

As revealed in the table, the students were happy about being a student on the computer since they mostly considered it comfortable, enjoyable and effective way of learning on the other hand a number of students had negative feelings since they did not like it or found it bad. Some of them complained that it was difficult to concentrate in an online classroom or it was bad in terms of interaction. Additionally, some of the students had some prejudices or mindsets about being a student in an online classroom based on their previous experiences in traditional mode of learning. Apart from these ideas, some of the students stated that they (n=3) did not feel that they were students, which could open to both positive and negative sides. One of the students indicated another point by saying that "I can do something else when I am online, this is an advantage for the students who skip the class or do not want to listen". As inferred from the responses, the students had pretty diverse ideas about being a student on a computer.

Based on their experiences of learning medical English in an online classroom, the students were also asked to rate the effectiveness of rate the effectiveness of the online course on 7-Likert (the value 1 indicating "not effective", the value 7 indicating "very effective") as the following figure illustrated:

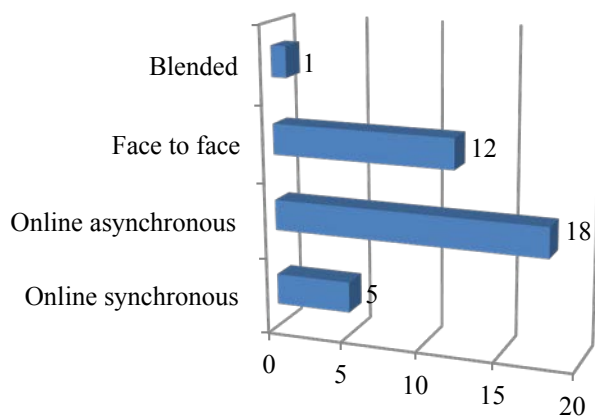
Graph 4: Effectiveness of Taking the Course Online



While 2 of the students rated 4 (the value in the middle), the majority of the students (n=23) was on the negative side. On the other hand, a total of 11 students were on the positive side in terms of effectiveness of taking the current English course online according to the responses provided in the graph.

The following question in the interview asked the students about their choice of future delivery mode. This last question was a multiple-choice question. The students were provided with the descriptions of different modes of learning including online synchronous, online asynchronous and blended learning. They were already familiar with the face to face mode. The following graph presented the regarding findings:

Graph 5: Choice of Future Delivery Mode



For the following years, as shown in Graph 5, a majority of the students preferred online asynchronous (n=18) classroom. Face to face traditional classroom (n=12) was the second choice of the students. Only 5 out of 36 students preferred online synchronous mode which was currently in use. It was inferred from the findings that this 8 week experience of online learning made most of the students feel closer to the online learning, specifically, asynchronous form of online learning.

In the final part of the interview, the students were invited to share their suggestions and additional comments. A total of 13 students shared their ideas in this section. Most of the students pointed out that the educational environment, online synchronous mode, was challenging for them and it resulted in ineffective language learning. Additionally, since it was part of official education program, it was obligatory to attend live sessions and hence, some of the students complained about attendance rule (n=4). On the other hand, a number of students shared their positive comments about the current course content, activities and methodology.

CONCLUSIONS

This content-analytic study was an attempt to describe tertiary level medical faculty students' initial experiences of learning medical English in an online learning environment. The findings regarding the low use of devices like microphone necessary for the online education and the low attendance rate indicated that most of the students did not feel familiarized themselves enough with the dynamics of online learning environment. This accordingly resulted in technology-based problems, poor classroom interaction and also ineffective language learning experience as discussed in the findings. Considering the challenging content courses and busy academic schedule in the faculty of medicine, it could yield more positive experiences with the students from different field of study where the students could share much more time to focus on their live online classroom. As Holliday (2002, p. 10) claims that "approaching the research setting appropriately involves interaction between culture of the setting and culture of the research", therefore, where, when and with whom the research was conducted, was rather important. It is essential to internalize dynamics of studying at a medical department where the students frequently expressed that they were already overwhelmed by the unbearable burden of field courses at the faculty. In this new learning context where the students feel sometimes detached, the students' feelings should be nurtured and also, they should be motivated since "learners will not automatically take ownership of their motivational disposition but need to be supported in the process" (Dörnyei, 2005, p.112). In the same vein, "motivation to learn online is complex, multidimensional and situation-dependent", the students needed to be much more extrinsically motivated than previously thought in face-to-face environment and hence, more support for external regulation was needed in order to get "positive outcomes such as quality engagement" (Harnett, 2016: 128). In the current case, majority of the students were seen to favor asynchronous mode rather than synchronous mode since they probably wanted to organize their study time, to take own control over their learning and learning pace. Yet, it was noteworthy that the majority of the students did not prefer to take courses in traditional mode, but in another online learning mode, which meant that this experience was a considerable step in a context where online learning was experienced for the first time.

ACKNOWLEDGMENT

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Robust Feature Selection and Classification Using Heuristic Algorithms Based On Correlation Feature Groups

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Abstract

The complexity of multidimensionality is one of the frequently encountered problems in the high-dimensional data space. The fact that multidimensionality in the data space increases and reaches great numbers brings about the problem that the number of non-informative ones among the features associated with the target class increases along with the data set complexity. The fact that all features included in the high-dimensional data space are not distinctive or do not contain critical information generally leads to difficulties at the learning stage. At this point, the importance of feature selection emerges. Feature selection is a problem of minimum subset selection from the original feature set for the best accuracy estimation. The neglected subject in the feature selection is ensuring that the inconsistency problem of the selected feature sets is brought to a solution. Studies carried out in recent years have focused on obtaining feature groups with which the group to which each feature belongs is associated with a class label rather than standard feature selection methods in which a single feature set is obtained. Within the scope of this study, each feature group obtained by group-based learning was presented as a solution candidate to heuristic methods. This paper proposes a novel feature selection method to Artificial Immune Recognition System (AIRS) variations in order to find robust gene sets from high dimensional microarray data. The unique feature of this feature selection method is that utilizes correlation based feature groups in order to increase the reliable classifying accuracy from optimal feature groups. We test the performance of the proposed local feature selection method for AIRS variations on high dimensional microarray data sets. We compare proposed LFSAIRS variations which are LFSAIRS1, LFSAIRS2, Parallel LFSAIRS1, and Parallel LFSAIRS2 with the Standard Genetic Algorithm (SGA), Sequential Forward Selection (SFS) and Sequential Backward Elimination (BES) approaches. Results of the robustness were evaluated by the Jaccard test and classification accuracy was evaluated using k-NN, SVM, Naïve Bayes and Random Forest classifiers. Results show that the proposed methods capable of finding robust gene subsets with high classification accuracy.

Keywords: Machine Learning, Local Feature Selection, Heuristic Approaches, Classification

Introduction

Gene expression microarray data sets due to the have characteristics such as high-dimensionality and small sample dimension their classification becomes hard. The fact that multidimensionality in the data space increases and reaches great numbers brings about the problem that the number of non-informative ones among the features associated with the target class increases along with the data set complexity. Many feature selection algorithms were developed for the purpose of reducing the dimensionality of this kind of data and improving the accuracy of classifiers. Feature selection is a problem of minimum subset selection from the original feature set for the best accuracy estimation.

Feature selection algorithms encountered inconsistency problem in many cases. One reason for the encountered inconsistency situation is the selection of the minimum feature set composed of features that give the best classifier accuracy, which is the classical purpose of feature selection algorithms. Furthermore, features having a high correlation with each other in the feature set defined by the feature selection algorithm can select different features in cases where the parameters of the feature selection algorithm are set differently. For the same feature selection

algorithm, minor variations within the train data can also result in the selection of different feature subsets every time. Another reason for inconsistency encountered in feature selection algorithms is the small number of samples in the high-dimensional data space. The main observation here is that the groups formed by the associated features are generally present in high-dimensional data and these groups are resistant to the variations of training samples. Furthermore, sub-sampling of training data and the determination of stable feature groups also make convergence possible to the structure of the original feature groups. Another observation is that each feature group is improved by being optimized with heuristic algorithms and learning is performed at the group level. Within the scope of this study, the feature groups formed by the correlation-based strategy within the feature selection framework were taken as a basis. An attempt to develop the correlation feature groups defined using high-dimensional data with the meta-dynamics of the local feature selection method to Artificial Immune Recognition System (AIRS) variations (LFSAIRS1, LFSAIRS2, Parallel LFSAIRS1, and Parallel LFSAIRS2) and the Standard Genetic Algorithms (SGA) was made. Then robust feature selection framework compared with Sequential forward selection and backward elimination methods.

Creating correlation based feature groups from high-dimensional data is mentioned in the second part of the paper, the methods used in the study are mentioned in the third part, the novel local feature selection method to Artificial Immune Recognition System (AIRS) is mentioned in the fourth part, the data set is mentioned in the fifth part, stability performance measurements is mentioned in the sixth part and the performance measurements of the optimal feature sub-groups obtained are mentioned in the seventh part.

Creating Correlation Based Feature Groups from High-Dimensional Data

Feature groups are an effective method to reduce the complexity of multidimensionality. At the same time, factors such as the use of feature groups in learning with high-dimensional data, reducing the complexity of the model, increasing the constancy of selected features, and the decrease of the variability of the estimator is also very effective. Studies carried out in recent years have focused on obtaining feature groups with which the group to which each feature belongs is associated with a class label rather than standard feature selection methods in which a single feature set is obtained. The fact that relational features have a very high correlation in high-dimensional data sets makes it possible to use feature groups by being taken as a basis. Thus, obtaining stable feature groups resistant to the sample number variation is ensured (Loscalzo et al., 2009). The fact that feature groups are obtained from data sets with characteristics such as small sample size and high dimensionality leads to obtaining unstable results or results that are not completely optimal. Therefore, the first step is to produce a set of feature groups by targeting the convergence to the original feature groups with the frames formed to obtain feature groups. The second step is to perform the feature selection process based on the set of feature groups produced. The idea of converging to original feature groups by creating a set of feature groups is based on the principles of group-based learning method.

In this study, relational feature groups were obtained by the CFG (Correlation Based Feature Group) algorithm. The CFG is a filter-based feature selection method that sorts the feature subset by the correlation-based intuitive function. The CFG algorithm examines the usefulness of subset of attributes based on a heuristic evaluation function. In choosing a correlation-based feature, each attribute is taken into account in the correlation between the attributes, as well as the predictive predicting of the class label. The value of the heuristic evaluation function used in the evaluation of the attributes is determined by equation 1. The intuitive usability of a subset of S attributes with k attributes is represented by $meritS$, the mean attribute-class correlation is presented by rcf for ($f \in S$), and the correlation between the mean attributes is presented by rff parameters.

$$meritS = \frac{k \cdot rcf}{\sqrt{k + (k-1) \cdot rff}} \quad (1)$$

Each of the feature groups represents a solution candidate, and the presence of the related feature in a feature group was encoded with 1 while the absence of it was encoded with 0.

Methods

A. Artificial Immune Recognition Systems

Artificial Immune Recognition system is a novel immune inspired supervised learning algorithm and consist of biological immune systems metaphors. Artificial Immune Recognition Systems consist of the stages of initialization, memory cell recognition, resource competition and the selection of memory cells.

At the initialization stage, the data set is normalized to the range of [0,1]. After normalization, the affinity threshold is calculated by equation (2). At the next stage, antigens are presented to the storage pool with antigen training. At the memory cell recognition stage, a stimulation value is assigned to these cells by stimulating the recognition cells in the memory pool. Affinity is calculated by equation (3), the stimulation values are calculated by equation (4) and (5). The recognition cell with the highest stimulation value is calculated by equation (6) then Mcmatch cell is cloned and mutated. The number of clones is calculated by equation (7),

$$affinity\ threshold = \sum_{i=1}^n \sum_{j=j+1}^n \left(\frac{affinity(agi, agj)}{n(n+1)/2} \right) \quad (2)$$

$$affinity(agi, agj) = 1 - Euclidean\ distance(agi, agj) \quad (3)$$

$$stimulation = 1 - affinity \quad (4)$$

$$stimulation(mc, ag) = \begin{cases} affinity(mc, ag) & \text{if } mc.\text{class} = ag.\text{class} \\ 1 - affinity & \text{otherwise} \end{cases} \quad (5)$$

$$Mcmatch = \operatorname{argmax}(stimulation(mc, ag)) \quad (6)$$

$$numClones = stimulation * clonalRate \quad (7)$$

At the resource competition stage, when mutated clones are added to the ARB (artificial recognition spheres, antibody) pool, competition begins for the time source. According to the stimulation value, limited resource assignment to the ARB pool is made according to the stimulation value. ARBs without enough resources are removed from the system. When the stop criterion is achieved, the process ends, and the ARB with the highest stimulation value is selected as the candidate memory cell. At the selection of memory cells stage dynamically and evolving developed Memory cell pool in the algorithm is used for the classification process.

The basic steps of the AIRS1 algorithm, the first version of artificial immune recognition systems, and the AIRS2 algorithm, the second version, are same. The main difference between them is that the ARB pool is used as a permanent resource in the AIRS1 algorithm, it is used as a temporary resource in the AIRS2 algorithm. In the case of being used as a permanent resource, ARBs remaining from previous steps cause the algorithm to spend more time by being involved in the competition for limited resources. Therefore, the complexity of the AIRS2 algorithm is less. While AIRS1 uses the mutation parameter that can be defined by the user, AIRS2 uses the concept of somatic hyper mutation where the mutation ratio of a clone is proportional to the affinity (Torres et al, 2016). While the classes of clones may change after the mutation process in the AIRS1 algorithm, classes are not allowed to change in the AIRS2 algorithm.

Parallel-AIRS1 and Parallel-AIRS2 versions demonstrate the distributed nature of the immune systems and their parallel processing qualities. At first, each part of the training data set is assigned to np number of processes. Thus, it is ensured that np number of the memory pool is created by running the AIRS algorithm on each process. As a result, the memory pools obtained are merged (Vijendra & Laxman, 2013).

In this study, the affinity threshold value, clonal ratio, mutation ratio, np, total source, stimulating value, hypermutation ratio, run number and iteration number parameters of the Artificial Immune Recognition Algorithms took the values of 0.1, 10, 0.15, 2, 150, 0.9, 2.0, 30 and 50, respectively. The fitness function of each solution candidate was calculated according to accuracy of the KNN classifier.

B. Standard Genetic Algorithms

Standard Genetic Algorithms (SGAs) are adaptive heuristic search algorithms based on natural selection and evolutionary ideas. It is based on Darwin's principle of "survival of the fittest" and firstly proposed by John Holland, his colleagues and their students at the University of Michigan.

In genetic algorithm the initial population is generated first. Every individual in the population represents a solution candidate. Each representing a possible solution to a given problem. The evaluation of each candidate solution is

performed according to the fitness function determined for the problem. Each individual goodness is represented by its fitness. Individuals in the population should be selected to form a new population. Individuals in a population compete for resources and mates. To ensure the formation of a new generation following the crossover and mutation operators of the two selected individuals. Genes from “survival” individuals propagate throughout the population.

In this study, the regular crossing of the crossing methods and tournament selection of the selection methods were used. While the population size of the genetic algorithm parameter takes the value of 100, chromosome length varies according to the dynamic size of the feature group. The mutation ratio, number of tournaments, number of runs and number of iterations of the algorithm took the values of 0.8, 2, 30 and 50, respectively. The fitness function of each solution candidate was calculated according to accuracy of the KNN classifier.

C. Sequential Forward Selection and Backward Elimination

Sequential forward and backward selection techniques are simple and effective methods for selecting an attribute. While these methods create a set of attributes, they perform an extraction or addition of an attribute from the attribute subset according to the method selected at each step. The selection criterion here is the performance ratio of the classifier algorithm. According to the performance status of the specified classifier algorithm, the discriminative attributes are determined at each step. For both approaches, KNN classifier was used. In this study, run number and iteration number parameters of the Sequential forward and backward selection techniques took the values of 30 and 50, respectively.

Local Feature Selection Method to Artificial Immune Recognition System

A. LFSAIRS steps:

1. The initial set of feature group sets are created based on CFG algorithm.
2. Do for each Antigen (Ag) until training process is completed:
 - 2.1. Calculating fitness value of the each feature set is calculated by taking into account only best matching cell
 - 2.2. Until termination do :
 - 2.3. The highest fitness value of the feature set is selected as a best feature set
 - 2.4. Generation of 1 clones of the best feature set
 - 2.5. Mutation of the each clone
 - 2.6. Calculating fitness of the each clone by taking into account only best candidate cell
 - 2.7. Set the highest fitness value of the feature set as a candidate optimum feature subset
 - 2.8. If best candidate cell is sufficient calculate the optimum subset then go step 3. else go 2.3
 3. After memory cell replacement stage, set the optimum subset of attributes as the subset of the new attribute. If training process is completed go to Step 4, else go to step 2.
 4. Selection of the best optimized feature set
 5. Classification of the best optimized feature sets based on test set

B. LFSAIRS Flowchart:

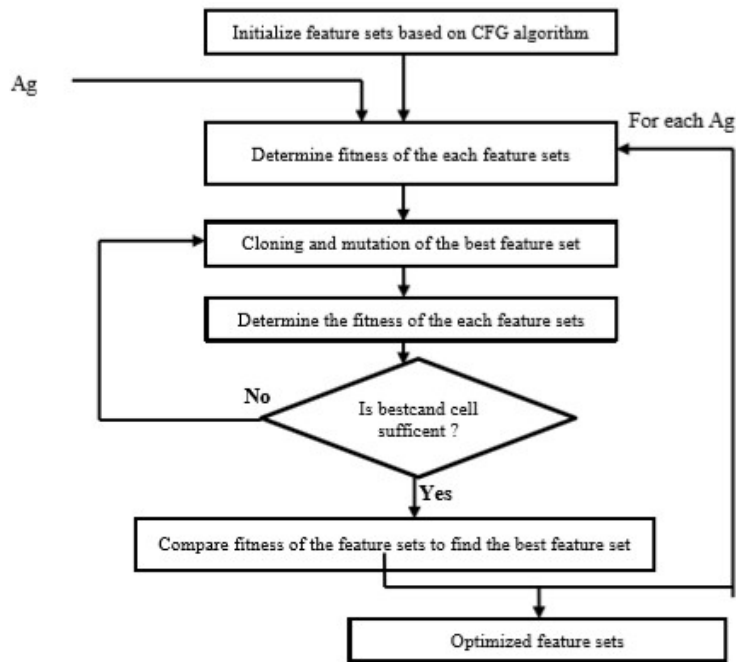


Figure 1. LFSAIRS local feature selection

Data Sets

The most common six microarray data sets were used in this study. Table 1 includes information on the genes, samples and class numbers contained in the data sets used in this study (Loscalzo et al, 2008).

Table 1: Microarray Data set

Dataset	Gene	Sample	Class
Colon	2000	62	2
Lungstd	5000	181	2
Prostate	6034	102	2
SRBCT	2308	63	4
Lymphoma	4026	62	3
Leukemia	7129	72	2

Experimentally obtained performance values were obtained by dividing the data sets as 70% training and 30% test set. A number of bootstrap data sets were obtained from the training data set in order to ensure the resistance of training samples against variations. Then, n number of feature groups was selected by separately running the CFG algorithm on t number of bootstrap data sets. We set the t and n parameters respectively to 10 and 10 for all algorithms within the scope of this paper. The number of features contained in the feature groups obtained as a result of the CFG algorithm varies dynamically specific to each data set. Learning was performed at the group level by improving the feature groups presented to the LFSAIRS1, LFSAIRS2, Parallel-LFSAIRS1, Parallel-LFSAIRS2 and Standard Genetic Algorithm like a single cell. While stability results were evaluated by the Jaccard test, their classifying accuracy was evaluated using k-NN, SVM, Naïve Bayes and Random Forest classifiers. WEKA was used to obtain classifying accuracies. For all algorithms the classifying accuracy of the most optimal solution candidate obtained at the end of each run was obtained using the test data set with 10 cross validations. The performance values added to the results were calculated by taking the average of the number of runs.

Stability Performance Measurements

The stability of feature selection approaches is obtained by measuring the similarity between feature sets. In this study, the Jaccard index was calculated using the formula given in equation (8). Parameter m was used to specify the number of feature sets while expressing two feature sets used for S_i and S_j similarity measurement.

$$\text{Jaccard}_{\text{Index}} = \frac{|S_i \cap S_j|}{|S_i \cup S_j|} \quad \square \square \square \square \square$$

The stability estimation was calculated using the Jaccard test formula specified in equation (9). The fact that the obtained result was high means that the stability of the relevant feature set was also high.

$$\sum(S) = \frac{2}{m(m-1)} \sum_{i=1}^{m-1} \sum_{j=i+1}^m IJ(S_i, S_j) \quad \square \square \square \square \square$$

\square

\square

Performance Results and Discussion

Within the scope of this study, it was focused on the problem of stability encountered in feature selection algorithms. As a solution to this problem, stable feature groups were obtained by combining group-level learning with the meta-dynamics of heuristic approaches.

Table 2: Average Classification accuracy of Algorithms with CFG based on k-NN and SVM

Data set	<i>k-NN</i>					<i>SVM</i>				
	<i>LFSAIRS2</i> %	<i>LFSPAIRS2</i> %	<i>LFSAIRS1</i> %	<i>LFSPAIRS1</i> %	<i>SGA</i> %	<i>LFSAIRS2</i> %	<i>LFSPAIRS2</i> %	<i>LFSAIRS1</i> %	<i>LFSPAIRS1</i> %	<i>SGA</i> %
Colon	80	81.1	75.8	78.8	80	82.1	85.6	83.7	83.4	81.4
Lungstd	91.6	86.8	87.2	86.9	89.1	91.6	93	94.1	92.3	93.3
Prostate	53	58.5	59	59.7	54.2	48.2	45.4	48	47.8	50
SRBCT	86.5	85.3	86.1	83	84	88.4	89.7	87.6	87.7	88.1
Lymphoma	76.9	76.5	76.1	77.6	73	88.4	86	83.4	82.8	80
Leukemia	84.6	84.6	82.2	83	82	83.3	86.1	85.3	86	82.6

Table 3: Average Classification accuracy of Algorithms with CFG based on NB and RF

Data set	<i>Naïve Bayes</i>					<i>Random Forest</i>				
	<i>LFSAIRS2</i> %	<i>LFSPAIRS2</i> %	<i>LFSAIRS1</i> %	<i>LFSPAIRS1</i> %	<i>SGA</i> %	<i>LFSAIRS2</i> %	<i>LFSPAIRS2</i> %	<i>LFSAIRS1</i> %	<i>LFSPAIRS1</i> %	<i>SGA</i> %
Colon	74.6	75	74.7	70.3	70.7	69.2	71.1	72	68.4	68.4
Lungstd	97.2	95.9	95.8	95.8	95	88.8	89.7	90.2	89.4	90
Prostate	52.3	51.1	51.4	54.7	55.2	65.3	65	63.3	62.8	61.9
SRBCT	37.6	36.1	38.4	38.8	36.1	38.4	41.9	41.5	42.3	38.4
Lymphoma	76.9	76.9	76.9	78	76.9	78.4	77.6	78.4	78	76.1
Leukemia	86.6	86.6	86.6	86.6	86.6	84.6	86	84	84.6	84.6

Table 4: Average Classification accuracy of Sequential Forward Feature Selection (SFS), Backward Elimination Feature Selection (BES) based on SVM, NB, RF and k-NN

	<i>S FS</i>				<i>BES</i>			
Dataset	<i>k-NN</i>	<i>SVM</i>	<i>NB</i>	<i>RF</i>	<i>k-NN</i>	<i>SVM</i>	<i>NB</i>	<i>RF</i>
Colon	71.5	70.7	59.2	76.9	76.9	78.8	76.9	71.1
Lungstd	98	93.3	95.8	95	98.1	94	94.5	95
Prostate	72.3	75.2	75.7	64.7	74.5	78.2	76.1	74.5
SRBCT	86.9	60	61.5	57.6	84.6	82	41	46.1
Lymphoma	92.3	76.9	76.9	81.5	84.6	80.7	76.9	76.9
Leukemia	86.6	86.6	80.6	80.6	83.7	82.8	80.6	83.1

Table 5: Stability Results of Algorithms Based CFG and SFS, BES

Dataset	<i>LFSAIRS2</i>	<i>LFSPAIRS2</i>	<i>LFSAIRS1</i>	<i>LFSPAIRS1</i>	<i>SGA</i>	<i>SFS</i>	<i>BES</i>
Colon	0.8	0.9	0.85	0.9	0.8	0.51	0.5
Lungstd	0.8	0.9	0.81	0.9	0.8	0.54	0.55
Prostate	0.71	0.9	0.83	0.92	0.8	0.6	0.51
SRBCT	0.8	0.9	0.8	0.9	0.8	0.67	0.63
Lymphoma	0.89	0.9	0.8	0.91	0.83	0.72	0.69
Leukemia	0.81	0.89	0.79	0.9	0.85	0.71	0.7

Table 6: Average Selected Feature size Results of Algorithms Based CFG and SFS, BES

Dataset	μ <i>LFSAIRS2</i>	μ <i>LFSPAIRS2</i>	μ <i>LFSAIRS1</i>	μ <i>LFSPAIRS1</i>	μ <i>SGA</i>	μ <i>SFS</i>	μ <i>BES</i>
Colon	48.5	49.9	47.4	48.9	40.4	4.8	43.75
Lungstd	54.7	61.8	57.5	60	45	6.0	48
Prostate	52	62	62.3	61.1	41.8	8.4	44.2
SRBCT	69.3	68	68.6	66.7	44.9	9.2	47
Lymphoma	99.6	99.1	95.9	95.3	62	4.4	63
Leukemia	123.6	124.8	123.1	125.1	61.6	4.0	64.1

According to the average classification accuracy results shown in Table 2 and Table 3, it was observed that the algorithms achieved highest classifying accuracy result respectively in the Lungstd, SRBCT and Leukemia data sets for KNN and SVM classifiers and It was observed that the algorithms achieved highest classifying accuracy result respectively in the Lungstd, Leukemia, Lymphoma data sets for Naïve Bayes and Random Forest classifiers. It was observed that the highest classifier performance achieved by the LFSAIRS2 algorithm on Lungstd data set by 97.2% based on Naïve Bayes classifier and the lowest classifier performance showed by LFSPAIRS2 and SGA algorithms on SRBCT data set by 36.1 % based on Naïve Bayes classifier.

In Table 4 including the average classification accuracy results of Sequential Forward Selection and Sequential Backward Elimination approaches applied on six microarray data sets. It was observed that the algorithms achieved highest classifier performance by the Sequential Backward Elimination approach on Lungstd data set by 98.1% based on K-NN classifier and the lowest classifier performance showed by the Sequential Backward Elimination approach on SRBCT data set by 41 % based on Naïve Bayes classifier.

Table 5 shows the stability results of the algorithms. The results showed respectively LFSPAIRS1 and LFSPAIRS2 algorithms gave the highest stability results and BES and SFS algorithms gave the lowest stability results. While it was observed that the LFSPAIRS2 algorithm generally gave close results by 90% stability on data sets except Leukemia. LFSPAIRS1 algorithm generally gave close stability results by 90% on data sets. LFSPAIRS1 algorithm respectively gave highest stability results on Prostate and Lymphoma. It was observed that the SFS algorithm achieved the highest stability performance by 0.72 on Lymphoma data set and the lowest stability performance by 0.51 on Colon data set. It was observed that the BES algorithm achieved the highest stability

performance by 0.7 on Leukemia data set and the lowest stability performance by 0.5 on Colon data set. In Table 6, we present the average selected of feature size of the algorithms. The comparison results showed that the feature reduction capacity of the SFS algorithm was better compared to the other algorithms. It was observed that the feature reduction capacity of the SGA algorithm was better compared to the artificial immune recognition algorithm versions and BES approach. It was observed that the highest average feature size showed by the LFSPAIRS1 algorithm on Leukemia by 125.1 and the lowest average feature size achieved by the SFS algorithm on Leukemia by 4.0.

Conclusion

In high-dimensional data space, the feature subsets obtained by the feature selection algorithms cannot be stable despite having good classifier performances. The lack of stability means that the feature subsets that field experts will use in their studies will decrease the reliability of the experiment. In this study we proposed a robust feature selection framework with a novel local feature selection technique. Within the scope of this study, each feature group obtained by group-based learning was presented as a solution candidate to heuristic methods except sequential forward selection and backward elimination algorithms. When the performance results obtained were examined, it was concluded that feature groups obtained at the correlation base increased their robustness by being improved with the meta-dynamics of heuristic approaches like a single cell. The classifier and stability results obtained were compared with six commonly used microarray data sets.

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Personality Traits, Attitudes, Motivation and Use of Social Media Tools in a Blended Course

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ABSTRACT

In this paper, we present the results of a study of students' attitudes and motivation towards the field of statistics, and their level of anxiety when writing exams of different formats, focusing on an intermediate level statistics course taught in a blended environment in a Canadian University. Specifically, the study examined whether students' personality traits and gender impacted these attitudes and motivation. The study also investigated students' use of social media tools in the course, and whether these differed according to gender. Results indicate that different levels of agreement for the statements presented concerning attitudes and motivation were based on gender and personality traits. They also indicate that most students use social media tools, mainly Email messaging, but also Facebook, Text messaging, Phone calls and also rely on Face-to-Face, which also varied according to gender. The average number of social media tools used is almost the same for both males and females but the distribution is different. The research also shows that the level of anxiety of female students before exams of different formats is always higher than that of male students.

Keywords: Social Media, Personality Traits, Students' Attitude, Students' Motivation, Blended Learning, Quantitative Course

INTRODUCTION

Many years have passed since teaching any subject was limited to a blackboard and a chalk, no less so than in the teaching of statistics. The field of education has seen a major expansion in terms of pedagogical tools and approaches (Thomas, Morin & Ly, 2015). Whether the course is offered in a traditional setting (in-class), completely online with no access to professors, or in a blended fashion, studies have shown that in terms of student attitudes and motivation, personality traits and gender may have an impact on the learning. To this is now added the potential impact of social media usage which students are increasingly expecting to be part of their learning experience (Yuwakosol 2017; Oktavia, Prabowo, Meyliana & Supangkat 2016; Neier & Zayer, 2015; Blair & Serafini, 2014). A study by Everson, Gundlach & Miller, 2013, however, found that students had concerns regarding privacy issues and engaging with teachers online, preferring more professional platforms such as Google Apps, emails or Google drive for academic purposes rather than other social media tools like Facebook (Smith, 2016).

In addition to students' expectations, instructors are likewise seeing the benefits of integrating social media tools. In fact, Chromey, Duchsherer, Pruett & Vareberg 2106 and Cooke 2017 found that they also have the potential to impact students' motivation and attitudes. Other research has shown that personality traits and the choice of social media use are related (Correaa, Hinsley & De Zuniga, 2010) and that gender may play a certain role (Sponcil & Gitimu, 2013; Morahan-Martin & Schumacher, 1997; 1999: Schumacher & Morahan-Martin 2001).

Learning Statistics can be a challenge for many students. The fear of this quantitative field has often generated feelings of anxiety and apprehension (Slootmaeckers, 2012; Chiou, Wang, & Lee, 2014). This is a very important issue for instructors to address, since statistics courses are part of many disciplines, such as business, economic, computer science and engineering, as well as used in various aspects of industry. Although students like their area of study in general, they can feel very nervous with such mandatory courses. The aim of this study is to shed additional light on the potential impacts of this issue, as well as the aforementioned variables, in

an intermediary statistics course which used a blended approach to course delivery. Anything that contributes to understanding and ameliorating the course experience for students in this area of study is worthy of study and discovery, which is the aim of the current study.

THE STUDY

In this paper, we studied students' attitudes and motivation towards the field of statistics focusing on an intermediate level statistics course taught in a blended environment in a Canadian University. The impact of gender and personality traits on attitudes, motivation and anxiety level towards examinations were investigated. Students' selection of social media tools to use in their learning was also examined.

The following five research questions were studied:

1. Are the personality traits and gender of students in the course independent?
2. Do students with different personality traits exhibit a different level of agreement with statements related to attitude and motivation towards statistics, mathematics and exams?
3. Do gender and personality traits have an impact on the anxiety level for different exam formats?
4. Did students enlist social media tools to assist in the course? What were they?
5. Is the choice and number of social media tools different according to gender?

THE COURSE

The course, Statistical Models for Data Analysis, was an intermediate Statistics course that is mandatory for the major in Supply Chain Management and the minor in Data Intelligence. It was a one-semester course assuming a previous course in Introductory Statistics. The topics covered included modern statistical thinking, linear regression analysis, logistic regression, and experimental methods in product and process designs. The course involved mostly analyses of real-life data using statistical program SAS Enterprise Guide.

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THE RESEARCH INSTRUMENT

An online survey instrument was used to collect the required information. There were four parts to the research instrument used for the study. Students' demographics were collected in the first part, the second part consisted in tapped students' agreement / or disagreement with a set of thirty-four (34) phrases found in Korzaan & Boswell 2008 to identify their personality traits among five possibilities: Extraversion, Agreeable, Conscientious, Neuroticism and Intellect. The third part of the survey was about attitudes, motivation and anxiety towards learning statistics and exam formats. The fourth part is about the use of social media tools.

RESULTS

Demographics

A sample of 101 students participated in the study, where 45.5% were female and 54.5% were male. Also 68.4% of students were between 20 and 24 years of age, 26.7% between 24 and 30 years of age, while 3.9% were older than 30 and only 1% were younger than 20.

Personality Traits

Students were classified according to the results of their answers on the Big Five survey. Students were asked to indicate as honestly as possible the level of their agreement / or disagreement with a set of thirty-four (34) phrases found in Korzaan & Boswell 2008. Students must rate their support for the statement on a scale from 1 to 5, where 1 corresponds to 'Strongly Disagree', 2 'Disagree', 3 'Neither Agree nor Disagree', 4 'Agree' and 5 'Strongly Agree', except for reversed statements where the score is inverted. An average score for each personality trait is calculated and the respondent is assigned to the trait corresponding to the highest average score.

This section was completed by 89 students. Table 1 presents the distribution of students according to their personality traits and gender. It was found that the proportion of students with Agreeable personality is 47.6% for Female students and 31.9% for male students. The proportion of Intellectual among male students is 38.3% which is four times that of the Female group at 9.5%. The proportion of Neurotic students is more than double for Female students (14.3%) when compared to male students (6.4%).

Research Question 1 Are the personality traits and gender of students in the course independent?

TABLE 1 - DISTRIBUTION OF PERSONALITY TRAITS ACCORDING TO GENDER (n=89)

Personality Trait	Female	Male	Overall
Agreeable	47.6%	31.9%	39.3%
Intellect	9.5%	38.3%	24.7%
Conscientious	19.1%	14.9%	16.9%
Neurotic	14.3%	6.4%	10.1%
Extraverted	9.5%	8.5%	9.0%
Total	100% (42)	100% (47)	(100%) 89

A Chi-square test of independence was performed to

determine whether gender and personality traits were independent. At the 5% level of significance, the test was rejected with a p-value of 0.034, which means that personality traits and gender are not independent.

TABLE 2 - ATTITUDE / MOTIVATION TOWARD STATISTICS

	Mean Agreement Level (Standard Deviation)					
Statements	Agreeable	Intellect	Conscientious	Neurotic	Extraverted	Overall
1) Statistics is a complicated subject	3.50 (0.93)	3.41 (0.91)	3.53 (0.92)	3.89 (0.78)	3.38 (0.92)	3.51 (0.88)
2) Good mathematical skills are necessary to succeed in a statistics course	3.69 (0.99)	3.50 (1.22)	4.13 (1.13)	3.89 (0.78)	4.25 (0.71)	3.75 (1.02)
3) Statistics is a pleasant subject for me	3.89 (0.90)	3.50 (0.91)	4.40 (0.51)	3.11 (0.93)	3.38 (0.92)	3.79 (0.92)
4) Knowing statistics would improve my job opportunities	4.26 (0.70)	3.91 (0.92)	4.57 (0.65)	4.33 (0.71)	3.38 (1.19)	4.11 (0.86)
5) It is easier for me to learn Statistics in-class instead of online	4.11 (0.80)	3.55 (1.18)	4.33 (0.82)	4.11 (0.78)	3.63 (1.19)	3.91 (1.00)

ATTITUDES AND MOTIVATION

The SAT-36, Attitude/Motivation Instrument (Slootmaeckers, 2012) was also adapted and administered, consisting of 5 statements designed to capture students' satisfaction, attitudes and motivation towards statistics, their preference for online versus in-class delivery, as well as exam format. Respondents were asked to indicate the level of their agreement on a scale of 1 to 5, where 1 corresponds to strongly disagree to 5 as strongly agree. The mean level of agreement and the corresponding standard deviation are found in Table 2. The results are tabulated according to each Personality trait and also overall.

Research Question 2 Do students with different personality traits exhibit a different level of agreement with statements related to attitude and motivation towards statistics and exams?

Table 2 indicates that students with different personality traits show different levels of agreement for the statements presented. The following observations can be made:

- ✓ The Neurotic group gave the strongest level of agreement for the first statement, where they feel that Statistics is a complicated subject.
- ✓ Students in the Extraverted group gave the strongest support to statement 2. They responded that they believe that good mathematical skills are necessary to succeed in Statistics.
- ✓ Students in the Conscientious group gave the strongest level of agreement to last three statements. They responded that Statistics is a pleasant subject and would improve job opportunities. They find it easier to learn statistics in class rather than online.

ANXIETY

Students were also asked to indicate their level of anxiety before writing a statistics exam, when it is a closed book exam, an open book exam, and before statistics exams in general.

Research Question 3 Do gender and personality traits have an impact on the anxiety level for different exam formats?

Based on Table 3, we can conclude that gender and personality traits have an impact. Results indicate that Female students experience a higher level of anxiety in those three situations than the Male group. Male and Female students tend to be the most anxious before a closed book exam. This is also true for all personalities. We also note that Students in the Neurotic group feel the highest level of anxiety before writing a statistics exam, especially when it is a Closed book exam. Students belonging to the Agreeable group expressed the highest level of anxiety before an Open book exam, followed by the Neurotic group.

TABLE 3 - PERSONALITY TRAITS, GENDER, ANXIETY / FEAR OF STATISTICS EXAMS				
PERSONALITY	Mean Anxiety Level (Standard Deviation)			
	Anxiety Level 1= No Anxiety to 10 = High Anxiety level			
	Before a Closed book exam	Before an open book exam	Before writing a statistics exam	Frequency
Agreeable	7.79 (1.53)	6.20 (1.89)	7.01 (1.67)	35
Intellect	6.39 (2.37)	5.50 (2.24)	6.45 (2.22)	22
Conscientious	6.23 (1.78)	5.07 (1.95)	5.67 (2.16)	15
Neurotic	8.11 (1.62)	6.00 (1.58)	7.83 (2.60)	9
Extraverted	7.75 (1.58)	5.50 (2.56)	7.69 (1.71)	8
Female	7.68 (1.43)	5.99 (2.02)	7.10 (1.73)	46
Male	6.82 (2.13)	5.44 (2.09)	6.44 (2.20)	55

SOCIAL MEDIA TOOLS USAGE

A list of social media was provided and respondents were asked to indicate whether they use the media or not to communicate in the course. The frequency of usage was tabulated overall and according to gender.

Research Question 4: Did students enlist social media tools to assist in the course? What were they?

Based on Table 4, we find that 99% of students use Social media tools, mainly Email messaging, Facebook, Text messaging, Phone calls, in addition to Face-to-Face. Results found in Table 4 indicate that Email

Table 5 - Number of Social Interaction Tools used to Communicate in the Course

messaging is widely used by students, 80% of them, while Face-to-Face is still highly used at 77%. Facebook is also a

Type of Social Media	Frequency Female (n=46)	Frequency Male (n=55)	Frequency Overall (n=101)
Email	74%	85%	80%
Face-to-Face	83%	73%	77%
Facebook	76%	55%	64%
Text messaging	50%	67%	59%
Phone calls	37%	40%	39%
Skype	2%	5%	4%
No communication	7%	2%	4%
Other	4%	2%	3%
Blogging	0%	2%	1%

popular tool for communication used by 64%, followed by Text messaging at 59% and Phone calls at 39%. Table 4 also presents the results according to Gender. We find that 74% of female students use Email to communicate while the frequency is 85% of male students. More female students (83%) select Face-to-Face as a communication tool compared to 73% for male students. The same is true for Facebook usage for Female students at 76%, while it is at 55% for Male.

NUMBER OF SOCIAL MEDIA TOOLS

Table 5 presents the number of social media and other interaction tools used overall and according to gender. We find that 83% of students use 2 to 5 social interaction tools, while only 5% use more than 5 tools and 12% use one or none.

Research Question 5: Is the choice and number of social media tools different according to gender?

The average number of tools used is almost the same for both male and Female but the distribution is different. Several tests were performed to determine if the proportion of people using specific communication tools according to gender was significantly different. At 5% level of significance, only the proportion of Facebook users was significantly different according to gender ($p\text{-value} = .024$). The proportion using Texting is significantly different according to gender with a $p\text{-value}$ of 0.078. No other significant differences were identified.

Number of Social Interaction Tools used	Frequency Female (n=46)	Frequency Male (n=55)	Frequency Overall (n=101)
0	2.2%	0.0%	1%
1	6.5%	14.5%	11%
2	19.6%	20.0%	20%
3	28.3%	16.4%	22%
4	21.7%	25.5%	24%
5	19.6%	16.4%	18%
6	0.0%	7.3%	4%
7	2.2%	0.0%	1%
Average	3.30	3.31	3.31

A Chi-square Test of independence was performed to determine whether the number of social media tools utilized and gender were independent. At the 5% level of significance the hypothesis of independence could not be rejected with a p-value of 0.243.

CONCLUSIONS

The study unearthed some interesting findings revolving around teaching statistics in a blended environment. Different levels of agreement, based on gender and personality traits, were found for the statements presented concerning attitudes and motivation, which was also true of social media usage. It was found that most students use social media tools, mainly Email messaging, but also Facebook, Text messaging, Phone calls, and they also rely on Face-to-Face, all of which varied according to gender. The average number of social media tools used is almost the same for both males and females but the distribution is different. Additionally, the level of anxiety of female students before exams of different formats is always higher than that of male students.

It is evident that instructional design needs to take into account gender and personality trait differences as they relate to attitudes, motivation, exam anxiety and social media use in a statistics course and need further study. How these relate to performance would also need to be investigated to advance the discussion, given the importance of this topic to both academia and industry.

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Development of Usage of Smart Phones in Teaching-Learning Environments Scale

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Abstract

Smart phones are among the most prevalently used technological devices due to their various features including internet, sound recording, navigation, shooting as well as communication purpose. Areas of usage of the smartphones and the number of users are increasing more and more and they are getting more space in the daily life. The education on how to use smart phones effectively constitutes great importance in individuals' lives. When the literature is examined, there has not been any evaluation tool for smart phone education, for usage of smart phones in educational environments or for educators' skills of using smart phones with educational purposes. The current research aimed to develop "Usage of Smart Phones in Teaching-Learning Environments Scale" in order to determine whether university students use smart phones in educational environments with educational purposes. Accordingly, "Usage of Smart Phones in Teaching-Learning Environments Scale" was developed. Validity and reliability findings of the scale were demonstrated.

Key Words: Smart phone, teaching-learning environment

Introduction

Individuals composing the modern society in our day possess and use more intense and advanced technology compared to what previous generations have had. People, especially children and teenagers, feel and live through technology more effectively in their daily lives (Yildirim, Yasar and Duru, 2016). A modern individual continuously alters and improves the technology, therefore the behaviours of the individuals are developed after being affected by the changes.

Technology and educational technology requires to provide functional educational service to broader masses, to uplift the human resources to a more productive function, to supply individual differences and social requests, to improve social justice, democracy and equality of opportunity, to decrease the costs and to make the best use of already existonf opportunities. These indispensable facilities that educational technology provides depend on the power of technology, quality of educational philosophy and reliability of the learning science. The success of educational technology improves as long as education is given necessary importance. Besides, educational technology determines the actual educational requirements on a scheduled basis and comes into existence as long as these aspects are provided (Alkan, 1997; Ministry of National Education, 2002).

Information technologies in education are defined as the subsidiary tools which enhances and increases the quality of education during the educational activities (Askar, Seferoglu, 2006). On the other hand, teaching technology is defined as the implementation of the systematic information obtained in scientific research on practical area (Yalin, 2003). Teaching technology applies the systematic strategies and techniques obtained from the contents of behavioral sciences and physics in solving the educational problems. Therefore, teaching technology deals with the ways to solve the problems that are encountered in education depending upon the scientific principles. When teaching is supported by technology and materials, it is concluded that it takes shorter time to determine the requirements of the students and to arrange the teaching accordingly. When the notions of technology and material are handled in educational aspects, it can be seen that they have a great deal of functions. The main functions are as follows: They are teaching and learning materials, they conver information, they provide the demonstration of reality, they can be regarded as objectified educational systems, they can work as symbolization tools (Kaya, 2006).

Research results on the place and importance of the materials in education demonstrate that teaching Technologies and materials should be implemented in order to reach the targeted purposes in each kind and level of educational activities. The more senses a teaching activity addresses to, the more permanent the learning item is. Forgetting levels decrease as the teaching activates more sense organs. Learning occurs via 83% seeing, 11% hearing, 3.5% smelling, 1.5% feeling and 1% tasting experiences. Teaching costs can be decreased to more economic levels with the use of technology and materials (Yalin, 2003). At this point, smart phones provides teachers and students with various opportunities more quickly and they require less effort and resources. Many

objects, occasions, personal information, photographs and situations used in teaching can be instantly obtained and used in educational environments.

Attitudes of teachers towards technology and material usage and their skills to use them affect students' learning levels. Some teachers may possess necessary knowledge about the utilization of the technology and materials while some may not be competent enough. Also some teachers may be reluctant to use new technology and materials. Some may think that it is hard to use technology and materials, therefore they may feel themselves under pressure and may stick to traditional strategies, technologies and materials with the sense that they are more beneficial. Besides these assumptions, it is indispensable that smart phones will be used in educational environments. Therefore, teachers need to be competent on utilizing the smart phones with educational purposes. In order to reduce the negativities in this issue, teachers should be provided with necessary training and information on how to make use of the educational technology products (Kaya, 2006).

Teaching technologies and material usage are consulted in educational applications in order to meet three main requirements: to provide educational services to broader masses, to improve the productivity of teaching-learning processes and to individualise the teaching-learning activities. Previously stated all other facilities that teaching Technologies and materials provide are implicitly or explicitly related to these three main requirements. To narrow it down, it can be said that teaching technology and materials mostly deal with developing systems to create capacity in education and to increase the productivity of education (Hizal, 1983).

Previously, teaching Technologies and materials had secondary importance in educational environments. In recent years, technology and material usage has become prominent with the development of teaching Technologies and materials. Usage of technology and materials in teaching is harder than the use of traditional lesson tools. They require more technical, complicated and combined information and skills. Thus, including technology and materials in managerial applications has not been easy in that advanced technology and materials may cause more obstacles, they are more complicated and they are more expensive. Also technology and materials attracts the attention more than traditional ways do and their use requires guidance and training (Kaya, 2006).

When the results stated above are examined, it can be seen that the importance of using teaching Technologies and materials cannot be ignored and that technology should be more utilized in order to obtain faster and more effective learning. Teaching tools provide various ways and environments through which the information is conveyed to the learner (Yalin, 2003). Therefore, technology in educational environments needs to be handled as a tool, not as a purpose. The existence reason of technology is to develop tools and methods in order to provide solutions to problems of people. These tools and methods can serve their purposes as long as they are used appropriately (Kaya, 2006).

In this current informational age, the information increases incrementally as a result of technology. Problems in today's world such as excessive increase in population, knowledge explosion, information generation, individualization can be solved only by using modern technologies. It is not possible that we can solve today's problems using old solutions. Therefore, we need to solve the problems of our day using today's opportunities. In our day, most of the work is carried out on free and mainstream information networks. According to Masrap (1999), innovations in science and technology, especially in information technologies, triggers modern-day organizations to search for more successful managerial applications (cited from Balay, 2013). One of the productions of this search is the smart phones which are among the mostly prevalently used technological tools.

Smart phones are popular technological devices which provides many features such as internet, camera, video, voice recorder, navigation, music player besides their communicative purposes. These features increase the areas and rates of their usage (Demirci, Orhan, Demirtas, Akpınar and Sert, 2014). Smartphones have a variety of features and these features can be used interactively. Therefore, they are getting more and more integrated in all areas of life that it is impossible to prevent it. Since the young generation is highly interested in mobile phones, teachers and academicians cannot prevent their usage during the lessons. In this case, it is necessary that these tools should be used in line with the educational purposes. In literature, there has not been any assessment instrument which determines the aims of mobile phone usage in educational environments and measures their usability during the lessons. The present research aims to develop "Usage of Smart Phones in Teaching-Learning Environments Scale" in order to determine whether university students use smart phones in educational environments with educational purposes.

Findings and Results

Research Population and Sample

Research population consists of students from Science Teaching, Mathematics Teaching, Kindergarten Teaching, Music Teaching, Psychological Counselling and Guidance Teaching Departments in Aksaray University Faculty of Education. There are 996 students in these departments in total. Random sampling method was conducted in order to form the research sample out of the students in the research population and one section from each department was determined as representatives. Since Psychological Counselling and Guidance Teaching Department is divided into two as daytime and evening education, one section from each division is included in the research. There are 280 students in the research sample. Research forms were distributed to 253 of 280 students, however statistical applications were conducted on 226 of them. Demographical variables determined in the research are gender, branch and age. The distribution of the student teachers according to these variables are demonstrated in the tables below. Distribution of the student teachers according to gender is given in Table 1.

Table 1. Distribution of Participants According to Gender Variable

Gender	N	%
Female	163	72,1
Male	63	27,9
Total	226	100

According to Table 1, %71,1 of the student teachers are female; %27,9 of them are male. It can be seen that the rate of female participants is more than that of males in the research sample.

Distribution of the participants according to branch variable is given in Table 2.

Table 2. Distribution of Participants According to Branch Variable

Branch	N	%
Mathematics	41	18
PCG	102	45
Kindergarten	38	17
Science	23	10
Music	22	9

While most of the student teachers participated in the research are Psychological Counselling and Guidance Teaching students, the smallest number of participants is from music teaching department.

Table 3. Distribution of Participants According to Age Variable

Age	N	%
17-25	219	97
26 and above	7	3
Total	226	100

Most of the student teachers participated in the research is between the ages of 17-25.

Development of Data Collection Tool

Quantitative methods were used in the research. “Smart Phones Usage Scale” was applied to all student teachers in research population in order to collect data. Also a personal information form prepared by the researchers was used in collecting personal data. The personal information form includes variables such as gender, age, branch.

Literature Review

It was aimed to determine the items for the scale after national and international literature about smartphone usage had been reviewed. Although smartphones are widely used at the present time, not many resources are

available related to its usage in education. After findings of the national and international resources were evaluated, the items to be used in the scale were determined.

Formation of Item Pool (Suggested Items) and Expert Opinion

While determining the suggested items, opinions of the academicians who have conducted research on smartphone usage were consulted and their suggestions on how to form the item pool were taken into consideration. After related literature was reviewed and academicians who have research on the issue were consulted, items were suggested by the researchers. Since there is a lack of research on related scale in national and international resources, all items of the scale were created by the researchers. After the items were suggested, a semi-structured interview form which included open-ended questions was prepared and applied to student teachers in order to increase the content validity of the scale and to collect the opinions of the target population. The semi-structured interview form was implemented and data analysis was carried out by using content analysis method which is one of the qualitative research methods. New items that had been formed were added to the item pool. Thus, the number of items in the item pool increased to 24 with the new items from the interview forms. This item pool was decreased to the 19 suggested items according to reviewed literature and opinions of experts.

Validity and Reliability

Content Validity

The 19-item trial form was evaluated in terms of language and expression. Also the items that may be misinterpreted were decided to be omitted. Therefore an implementation was carried out with a group of 20 student teachers who did not attend the research sample. Face to face interviews were conducted with the group and they were asked to express the items which are not quite understandable. The clarity of the items were ensured with the feedback obtained from the student teachers.

The template sample developed was applied to 250 student teachers who are apart from the implementation area as a trial application. Item analysis was carried out on 226 scales that were collected. Tavsancil (2002) stated that the number of samples in factor analysis should be 5 or 10 times more than the item numbers (Yigit, Butuner and Dertlioglu, 2008). Accordingly, 10 times more than 19 items to apply in the research were targeted and 250 scales were distributed. However, 226 scales were obtained and factor analysis was carried out on them.

Construct Validity

Among the validity operations, factor analysis was carried out first in order to determine the grouping among the items (factor). In the process of factor analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity values were determined; Principal Components Analysis was conducted and varimaxrotated operations were completed.

KMO value in Principal Components Analysis was found as ,875. KMO test evaluates whether the partial correlations are small and whether the distribution is sufficient for the factor analysis. Kaiser states that the value gets perfect as it gets closer to 1 and that it is non-acceptable if it is below 0.50 (0.90 is perfect, 0.80 very good, 0.70 and 0.60 are average, 0.50 is poor) (Tavsancil, 2010). KMO value was found to be very good in this research. Bartlett's test result was found as 1049,404 ($p < .000$). The fact that Bartlett's Test of Sphericity values are meaningful supports the hypothesis that the data have multivariate normal distribution (Buyukozturk, 2005).

Table 4.KMO and Bartlett's Test Values Kaiser-Meyer-Olkin Sample Sufficiency

Kaiser-Meyer-Olkin Sample Sufficiency		,875
	X-square value	1049,404
Bartlett's Test of Sphericity	S.Level (df)	78
	P	,000

On the first factor analysis, distribution of the items to the factors were identified using the Varimax Technique and it was observed that some of the items had high values ($< .45$) in multiple factors. Items which had higher values than 0.45 in multiple factors were observed in terms of the load and items that had less than %10 difference were eliminated (Buyukozturk, 2007). At this stage, 5th, 8th, 9th, 10th, 14th and 15th items were eliminated respectively and the analysis was conducted again. Factor analysis was carried out with 13 items. According to the results of the analysis, eigenvalues of the subdimensions of the scale and their variance percentages were demonstrated in Table 5.

Table 5. Eigenvalues of the Subdimensions of the Scale and Their Variance Percentages

Factor	Initial Eigenvalues			Total Factor Loads		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	5,081	39,087	39,087	2,930	22,541	22,541
2	1,476	11,356	50,444	2,710	20,918	43,459
3	1,018	7,829	58,273	1,926	14,814	58,273

In AFA results, it was determined that there were 3 subdimensions whose eigenvalues were bigger than 1 in the scale. The first subdimension explains the % 39,087 of total variance, the second subdimension explains the %11,356 of the total variance and the third subdimension refers to %7,829 of the total variance. These three subdimensions explains the % 58,273 of the total variance. Factor load values of the scale were demonstrated in Table 6.

Table. 6. Factor Analysis Results of the Scale and Corrected Total Correlations of the Scale

Items of Smartphones Usage Scale	Factors			Corrected Total Correlations of the Items
	1	2	3	
S11	,766			,62
S12	,758			,66
S13	,744			,66
S16	,754			,51
S19	,482			,47
S6		,771		,68
S4		,744		,64
S3		,733		,69
S1		,661		,54
S7		,404		,30
				,52
S18			,792	,74
S17			,742	,73
S2			,547	,49

The fact that factor load value is .45 or more is a good criterion for the decision (Buyukozturk, 2007). On Table 6, it can be seen that factor load values of the scale ranks between ,404 and ,792.

The scale consists of three subdimensions. The first dimension of smartphone usage in education scale is “How smartphones will be used”, the second dimension of the scale is “The purpose of using smartphones” and the third dimension is “The design of using smartphones” as they can be seen in the texts of the items. Both first and second dimensions have 5 items and the third dimension has 3 items.

Baseline chart of the factor analysis is demonstrated in Figure 1.

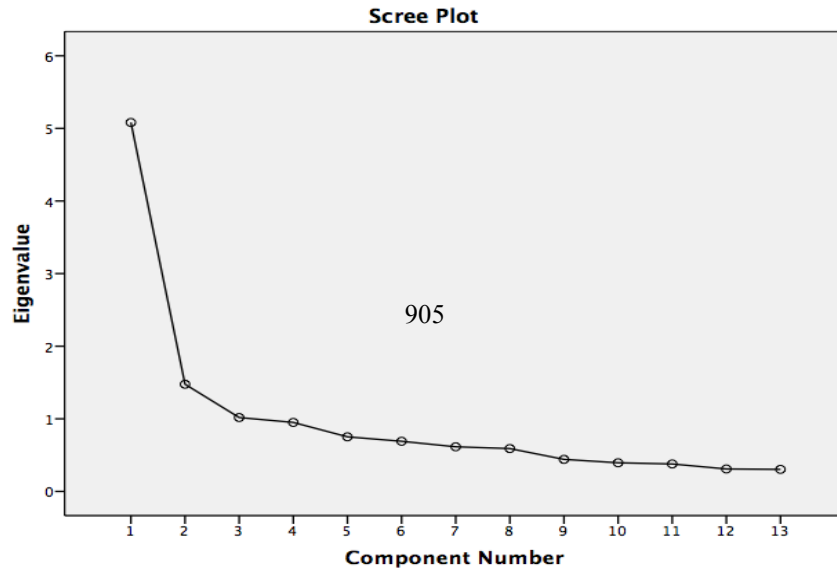


Figure 1. Line Chart of the Smartphone Usage in Education

When the line chart is analyzed, it is seen that the scale has three dimensions. Subdimensions determined in the factor analysis and the items of each subdimension are demonstrated in Table 7 below.

Table 7. Subdimensions Determined in the Factor Analysis and Items Loaded in the Dimensions

Factor	Number of Items	Numbers of the Items
The usage of smartphones	5	11,12,13,16,19
The purpose and necessity to use smartphones	5	1,3,4,6,7
Development of smartphone usage	3	2,17,18

Reliability operations of the smartphone usage in education scale developed were carried out by the researchers. Besides, Cronbach Alfa internal consistency coefficient was considered in order to determine the reliability of the scale. When there are 3 or more answers for the scale items, Cronbach α coefficient is used. The fact that Cronbach α reliability coefficient is .70 or more demonstrates that the reliability of the test points are sufficient (Buyukozturk, 2005). Some researchers indicated the criteria used in the evaluation of the Alpha coefficient as follows (Kalayci, 2008; Ozdamar, 2013);

If Cronbach Alpha value; is $0.00 \leq \alpha < 0.40$, the scale is not reliable.

If it is $0.41 \leq \alpha < 0.60$ the scale has low reliability.

If it is $0.61 \leq \alpha < 0.80$ the scale is considerably reliable.

If it is $0.81 \leq \alpha < 1.00$ the scale is highly reliable.

Cronbach Alfa internal consistency coefficients obtained for the each dimension of the scale and for total points were demonstrated in Table 8.

Table 8. Reliability Coefficients Related to Subdimensions and Total of the Scale

Dimensions of the Scale	Cronbach Alpha(α)
The usage of smartphones	,811
The purpose and necessity to use smartphones	,765
Development of smartphone usage	,665
Total	,864

When the reliability levels of the subdimensions and total of the scale were examined, it can be seen that Smartphone Usage in Education Scale used in the research is reliable.

Table 9. Pearson Product-Moment Correlation Analysis Results

	1	2	3
Akıllı telefonun nasıl kullanılacağı	1,00	,464**	,522**
Akıllı telefonun kullanım amaç ve gerekliliği	,464**	1,00	,383**
Akıllı telefonun kullanımının geliştirilmesi	,522**	,383**	1,00

**p<.001

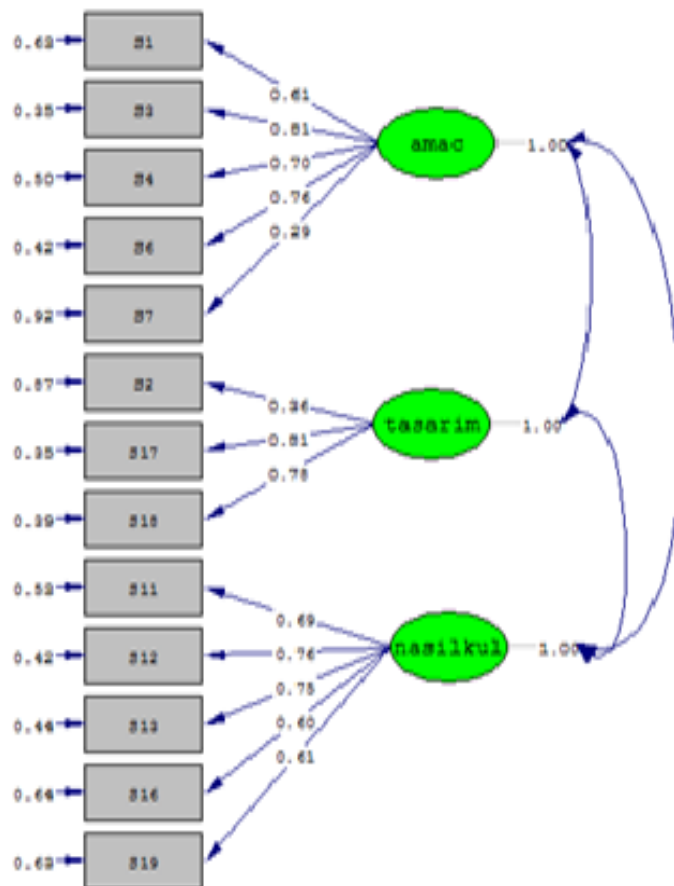
Pearson Product-Moment Correlation Analysis was conducted in order to determine whether there were a meaningful relationship between the factors. If the correlation coefficient is between 0.71 – 1.00 as absolute value, it is defined as high. If the correlation coefficient is between 0.70 – 0.31, it is moderate; if it is between 0.30-0.00, it is defined as low level of relationship (Buyukozturk, 2005). Pearson Product-Moment Correlation analysis results demonstrate that there is a positive meaningful relationship among the factors. These results prove that the three factors are in the same structure.

Confirmatory Factor Analysis Results

Confirmatory Factor Analysis (CFA) of the scale which was applied to 226 student teachers was conducted. Confirmatory Factor Analysis (CFA) is based on the measurement of the prediction that particular variables mainly take part in previously determined factors (Buyukozturk, 2009). Many fit indices have been used in order to reveal whether the model tested in Confirmatory Factor Analysis is sufficient or not (Simsek, 2007). In CFA, fit indices of the smartphone usage scale to the three factorial model was examined in teaching-learning process. Confirmatory factor analysis operations were carried out with the help of Lisrel 8,71 packaged software. The results are demonstrated in Figure 2.

Figure 2. Confirmatory factor analysis of smartphone usage in teaching-learning process scale

When Figure 2 is examined, it can be seen that the fit indices are meaningful in the smartphone usage in



teaching-learning process scale which consists of 13 items and 3 subfactors ($\chi^2=109.02$ ($P = 0.00021$)). Correlations related to fit indices obtained from CFA results are demonstrated in Table 10.

Table 10. Fit indices obtained from CFA results

x-square	Sd	x-square	RMSA	NFI	CFI	AGFI	RFI	IFI
109.02	62	1.76	0.95	0.98	0.93	0.90	0.94	0.98

When Table 10 is examined, x-square/sd value is found as 1.76. The fact that this value is less than 5 proves that the model has high consistency. RMSA value was found slightly higher than 0.05, which is the maximum rate.

NFI, GFI, CFI, RFI and IFI values are above 0.90 and this indicates that the model has quite high consistence (Simsek, 2007). When all of the consistency coefficients are examined, it is seen that CFA analysis results confirm the explanatory factor analysis results.

Results

The present research aimed to develop “Usage of Smart Phones in Teaching-Learning Environments Scale” in order to measure whether university students use smart phones in educational environments with educational purposes. First of all, an item pool which consists of 24 items was formed after interviews were conducted with the students related to the topic. Then expert opinions were consulted and the number of items was reduced to 19. The scale was applied to research sample and factor analysis was implemented. Criterion for the items to involve in the scale was based on 0,30 factor load values or more (Buyukozturk, 2002). Accordingly, the final state of the scale was determined as three factors and 13 items. Analysis results to measure the reliability and validity of the scale demonstrated that “Usage of Smart Phones in Teaching-Learning Environments Scale” was suitable for measurement. The final state of the scale was given in Appendix 1. This scale that has been developed can be utilized in order to determine the purposes with which the smartphones are used in educational environments and whether student teachers, teachers and academicians have necessary skills to use these tools according to educational purposes.

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Ek-1

Eğitim Ortamında Akıllı Telefonların Kullanım Ölçeği

A	Kişisel Bilgiler					
A1. Cinsiyetiniz?	A (1) Kadın		B (2) Erkek			
A3. Yaşınız?	A (1) 17-25		B (2) 26-35		C (3) 36+	
A2. Branş /Alanınız						
Mad.	Açıklama: Aşağıda verilen ifadeler ne ölçüde katıldığınızı ifadelerin karşısındaki kutucuklara (X) işareti koyarak belirtiniz. Tercihinizi yaparken lütfen bu konuda eğitim öğretim ortamlarındaki uygulamalarınızı gözönünde bulundurunuz.	Her zaman	Çoğunlukla	Ara sıra	Nadiren	Hiçbir zaman
1	Akıllı telefonun derslerin hangi konularında nasıl kullanılacağını biliyorum.	5	4	3	2	1
2	Akıllı telefon içerisindeki eğitim amaçlı programların birbirinden farkını açıklayabilirim.	5	4	3	2	1
3	Akıllı telefonun derslerde kullanımının önemini açıklayabilirim.	5	4	3	2	1
4	Öğrenme öğretme süreci içerisinde zamana ve deneyime göre akıllı telefonun rolünü analiz edebilirim.	5	4	3	2	1
5	Öğrenme öğretme sürecinin değerlendirilmesinde akıllı telefonu kullanabilirim.	5	4	3	2	1
6	Akıllı telefonu eğitim öğretim ortamlarında (dersliklerde, amfide vs.) eğitim amaçlı kullanırım.	5	4	3	2	1
7	Akıllı telefonu eğitim öğretim ortamlarında kullanmak eğitim kalitemi olumlu etkiler.	5	4	3	2	1
8	Akıllı telefonun eğitim öğretim ortamlarında bulunmasına eğitimsel acıdan ihtiyaç vardır.	5	4	3	2	1
9	Akıllı telefonun eğitim öğretim ortamlarında kullanılmasının eğitim öğretim açısından faydalı olabileceğini düşünüyorum.	5	4	3	2	1
10	Öğretim üyeleri, akıllı telefonu eğitim öğretim ortamlarında eğitimin amaçlarına uygun kullanabilmek için gerekli bilgi ve teknolojiye sahipler.	5	4	3	2	1
11	Akıllı telefonu eğitim öğretim ortamlarında (dersliklerde, amfide vs.) olumsuzlukları belirlemek için kullanırım.	5	4	3	2	1
12	Öğrenme öğretme sürecindeki sorunlara çözüm getirecek özgün akıllı telefon kullanma modeli geliştirebilirim.	5	4	3	2	1
13	Öğrenen merkezli eğitimi için akıllı telefon kullanımı tasarlayabilirim.	5	4	3	2	1

Not: Faktör Analizi sonucunda belirlenen alt boyutlar ve boyutlardan yük alan maddeler; 1) Akıllı telefonun nasıl kullanılacağı boyutu, 1,2,3,4,5 2) Akıllı telefonun kullanım amaç ve gerekliliği boyutu 6,7,8,9,10 ve 3) Akıllı telefonun kullanımını geliştirme boyutu maddeleri 11,12,13. Olarak sıralanmıştır.

Communication Skills for Teachers 'Faculty of Communication Sciences

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ABSTRACT

The aim of this research is to determine the self-efficacy perceptions of communication faculty of Lefke European University, faculty of communication science teacher candidates according to various variables. For this purpose, communication self-efficacy perceptions of teacher candidates were examined in terms of gender, age and class level. The survey model was used in the study. As a data collection tool. The demographic characteristics of the subjects participating in the research include gender, age and class information. The sample of the research is composed of 300 teacher candidates who are studying at Lefke European University Faculty of Communication and voluntarily participating in the research. In the analysis of the data, descriptive statistics, t-test for independent groups and oneway analysis of variance were used. As a result of the research, it was determined that the teachers' general communication skills had a high level of competence perceptions, the communication self - efficacy perception showed a statistically significant difference according to sex and age, but the level of education did not cause a significant difference on the communication self - efficacy perception.

Key words: Communication skills, prospective teachers, self-efficacy

Login One can not expect to be understood without communicating with the environment. He can express his feelings and thoughts only by communicating with his environment. Communication is a "self-expression" process applied in all areas of life. This process, ie being in contact, socializes people. Communication is a necessity in human life, like air and water. It should not be forgotten that the cultures of the societies would not be formed without communication and could not be transmitted from generation to generation. The fact that people are communicating with their environment also contributes to the self-development of the person. We can define it as a social process based on communication, communication, basic principle sharing, interaction and partnership, various symbols and tools that make the world a more livable, message-driven exchange. İnsanoglu applied various means to communicate until today (Çevik, Özmaden, 2013). The instruments used in parallel with his own development also developed; constantly evolving communication tools complement each other; but someone did not take the place of the other. (gestures, mimics, behaviors and attitudes such as gestures, mimics, touching, silence, silence, dance, painting, etc.) as well as writing and speaking language based on words, have been used for centuries (Cüceloğlu, 2000).

Rapid change in information and communication technologies opens the way for membership of the Group. Economy, social and cultural Information that reshapes my life The transformation process, plan and interpretation can create new information and think about social and technical problems. Information society The training of the individuals to be formed can only be provided by qualified teachers, who are among the most important elements of the education system.

The social problem solving model developed to solve the problems in real life consists of probing orientation and problem solving styles. Prospective orientation is a process related to motivation, which is the evident cognitive and

emotional plans related to the experienced situation (Yüksel, 2010). These plans, which may be as destructive as they are constructive, express how they express their thoughts and feelings while experiencing problem solving skills as well as problems. Problem solving styles involve conducting realistic research on the solution in the implementation of problem solving skills.

According to some researchers, social problem solving is a cognitive behavioral process involving the perception of individuals' problems in daily life and finding effective solutions to problems (McClure, Nezu, Nezu, O'Hea and McMahon, 2010). Most individuals are inevitably faced with problems and situations that require appropriate responses and decisions in everyday life (Danju, 2015). Problem solving skills in real life are to produce successful solutions to real life situations. Effective problem solving skills are necessary to succeed in life; Absence or lack of effective problem-solving skills is related to interpersonal problems and other mental and behavioral problems (Dreer, Jakson and Elliott, 2005).

A contemporary, effective teacher, valued as much as teaching humanity, communicates effectively with themselves and their surroundings, and has the strength and confidence to solve the problems they face. In this context, teachers have an important role in communicating effectively with their students. (Tunceli, 2013).

In addition, having effective communication between the student and the teacher has a special pre-requisite for both sides in terms of a desired situation and education. Teacher and student, source and target in communication process. If they can use feedback continuously by changing their roles, they can communicate effectively (Gerçel, Yınal, 2015). For this reason, the teacher has to make the communication process two-fold; Participation of students can gain great importance in the formation of formation. Indeed, studies, communication Teachers with good skills have a positive relationship with their students and this positive relationship is reflected in the achievements (Özer, 2008).

If the quality and quality of education is directly proportional to the quality of the teachers; Teachers who will work in the education system, a good way for the quality of educational services is important (Erözkan, 2005). When studies on interpersonal communication skills are examined, it is seen that the concepts of empathy, listening, self-disclosure, honesty and tolerance are mostly emphasized (İşman, 2015). While expressions used to measure the level of interpersonal communication were identified, the concepts of empathy, listening, personal privacy, honesty and tolerance towards interpersonal communication skills were also taken into account. But the relationship between these concepts and trust Identity information is more comprehensive and requires separate investigations (Tunca, Avtürk Koldaş, 2013). The purpose of this research is to determine the level of interpersonal communication in general.

Purpose of the research

The purpose of this research is to determine the level of communication skills of the students involved in the research.

METHOD

In this section, the model of the research, the universe and the sample, the data collection tool and the information about the analysis of the data are given.

Problem of research

The main problem of this research is to determine the level of communication skills of the students. The sub problems for this probing are listed below.

- Communication Skills Levels and sub-dimensions of students;
 - a.) Sex
 - b.) Age
 - c.) Is it different according to the regulations?
- Is there a relationship between Levels of Communication Skills and sub-dimensions of students?

Model of your research

This research is modeled according to the descriptive and relational screening model. Data were gathered without any change in the existing characteristics of the research participants, and opinions of the subjects were tried to be taken about the present situation. It is a research approach that aims to describe the method of description as it exists or as

it exists. It is attempted to describe the event that is the subject of the investigation as if it is within its own conditions. The effort to change and influence the event is not shown. The important thing is to know what you want to know. In this context, the research model is based on the descriptive screening model because it wants to determine the level of communication skills of the students. In relational search models, it is a research model that aims to determine the extent and / or extent of interchange between two or more variables. In this context, the study is also based on the relational screening model as it is required to determine the relationships between the communication levels and sub dimensions of the students in this context. (Karasar, 2006).

The Universe of Research and Sampling

The universe of the research constitutes the whole of Lefke European University students in the name of CYPRUS in 2015.

The sampling of the study was determined by simple random sampling technique; Therefore, in 2015, it is aimed to reach the whole of Lefke European University students in the name of CYPRUS. 300 non-returning surveys, incomplete information, leaving the variables unattended, etc. were included in the survey.

Data Collection Tools and Techniques

Survey form was used as data collection tool in the survey. The scale consists of two parts. In the first part demographic features including the gender, age and class information of the subjects participating in the research are included. In the second part, Communication Skills Inventory is included.

Communication Skills Inventory (IBE)

Communication Skills Inventory was first developed and used by Balcı (1996). The required validity and reliability studies are 70 items in this first version of the inventory. The inventory was then sampled again, consisting of 500 university students, and the number of items was reduced to 45 as a result of factor analysis (Ersanlı & Balcı, 1998). The inventory, finalized by Ersanlı and Balcı (1998), consists of 45 questions with 5 likert types. Inventory measures mental, emotional and behavioral communication skills. There are 15 items measuring each dimension. The items that enter every dimension are as follows:

Mental: 1,3,6,12,15,17,18,20,24,28,30,33,37,43,45

Emotional: 5,9,11,26,27,29,31,34,35,36,38,39,40,42,44

Behavioral: 2,4,7,8,10,13,14,16,19,21,22,23,25,32,41

The items are answered as "always", "usually", "sometimes", "rarely", "never". Higher scores in dimensions and overall (total) communication skills correspond to higher communication skills. Ersanlı and Balcı (1998) re-implemented a group of 170 students after a month of testing to test their reliability after practicing on 500 university students. In the reliability study with two half test methods, the two semi-reliability coefficients $r = 0.64$ and $r = 0.68$ in the reliability test with the test re-test method. The Cronbach Alpha coefficient, calculated to determine the internal consistency of the scale, was 0.72. As a result of the factor analysis, it was observed that the items were collected under three dimensions and these dimensions were named as mental, emotional and behavioral communication skills by considering their contents. The correlations between each of the dimensions and the total communication skills score are 0.83, 0.73 and 0.82, respectively. In the validity study conducted with Korkut (1996) developed "Communication Skills Evaluation Scale", the validity coefficient of the scale was 0.70 (Ersanlı & Balcı, 1998).

Analysis of Data

In this study, the quantitative data obtained from the participant subjects were analyzed through the SPSS 23 package program. Frequency, percentage, mean and standard deviation values from descriptive statistics are interpreted for the demographic characteristics collected from individuals. For the reliability of the scale we used in the study, the Cronbach alpha coefficient was calculated and interpreted. To test whether our quantitative variables differ significantly in scores from two unrelated samples, the Independent T test was applied to one-way analysis of variance (ANOVA) to test whether two or more unrelated sample averages significantly differed from each other. In order to determine the difference between the groups in terms of the ANOVA results, the Tukey test was used if the variances

were homogeneous and the Tamhane's T2 test was used if the variances were homogeneous. Correlation analysis was applied to determine the relationship between scales. Numerical developments were interpreted and interpreted as tabulations, with $\alpha = 0.05$ error margin for any significant difference between independent variables; In the correlation analysis, $\alpha = 0.01$ error margin was also tested.

FINDINGS AND COMMENTS

In this part of the study, the demographic information of the sample group is explained and the results obtained from the analysis of the data obtained for the sub-problems of the research by the appropriate statistical method are included in the findings and interpretations of these findings.

1. Scale of Validity and Reliability Analysis Results

A validity and reliability analysis was conducted for the scale used in the research part of the study. Cronbach's alpha test statistic was used for the validity and reliability of the questionnaires.

Cronbach's Alfa Coefficient evaluation criterion;

If $0.00 \leq \alpha < 0.40$, the scale is not reliable.

If $0.40 \leq \alpha < 0.60$ the scale is low reliability.

If $0.60 \leq \alpha < 0.80$, the scale is highly reliable.

If $0.80 \leq \alpha < 1.00$, the scale is highly reliable (Büyüköztürk, 2010)

Table 1. Results of Reliability Analysis of Communication Skills Scale

	Cronbach's Alpha	Standartlaştırılmış Cronbach's Alpha	Madde Sayısı
Mental Communication Skills	0,842	0,837	15
Emotional Communication Skills	0,857	0,857	15
Behavioral Communication Skills	0,837	0,835	15
Communication skills	0,944	0,943	45

Table 1 shows the results of the reliability analysis of the Communication Skills Scale applied to the sample group and its sub-dimensions. It is seen that the reliability of the mental communication skills subscale is $\alpha = 0,837$, the reliability of the Emotional Communication Skills subscale is $\alpha = 0,857$, the Behavioral Communication Skills $\alpha = 0,835$ and the reliability of the Communication Skills Scale in general is highly reliable at $\alpha = 0,943$.

Table 2. Descriptive Statistics of Communication Skills Scale

	average	Variance	Std. Deflection	Matter Number
Mental Communication Skills	48,29		191,00	13,8215
Emotional Communication Skills	44,44		186,44	13,6515
Behavioral Communication Skills	47,72		178,96	13,3815
Communication skills	143,18		1567,53	39,5945

In Table 2, the mental communication skills subscale of Communication Skills Scale applied to the sample group was 48,29 mean and 13,82 standard deviations, Emotional Communication Skills subscale 44,44 mean and 13,65 standard deviation, Behavioral Communication Skills 47,72 mean and a standard deviation of 13.38 and an average of 143.18 and a standard deviation of 39.59 of the Communication Skills scale in general.

2. Interpretation of Frequency Tables

In this part of the survey, collective frequency distribution tables will be created and interpreted according to the personal information contained in the questionnaire.

Table 3. Gender Variable Frequency Analysis

	<i>f</i>	%
woman	163	54,3
Male	137	45,7
Total	300	100,0

As seen in Table 3; 163 (54,3%) of the students who participated in the research were female and 137 (45,7%) male students.



Figure 1. Gender Distribution

As seen in Figure 1, 54% of the students who participated in the survey are male and 46% female. Thus, it is seen that the majority of the sample is formed by female students.

Table 4. Age Variable Frequency Analysis

	<i>f</i>	%
18-20 years	112	37,3
20-28 years	101	33,7
28-35 years	87	29,0
Total	300	100,0

Tablo 4'te görüldüğü gibi; yaş değişkeni açısından incelendiğinde araştırmaya katılan öğrencilerin 112 tanesi (%37,3) 18-20 yaş, 101 tanesi (%33,7) 20-28 yaş ve 87 tanesi (%29,0) 28-35 yaş grubuna sahiptir.

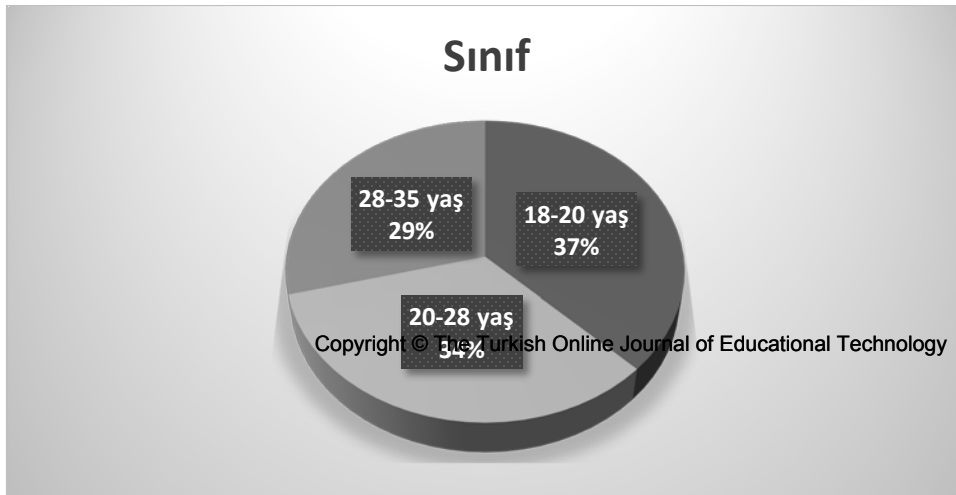


Figure 2. Age Distribution

As seen in Figure 2, 37% of the students who participated in the research are distributed between the ages of 18-20, 34- 28-35, 29- 20-28. Thus, it is seen that the majority of the sample is composed of 18-20 year old students.

Table 5. Frequency Analysis of Class Variable

	f	%
1. class	31	10,3
2. class	57	19,0
3. class	55	18,3
4. class	157	52,3
Total	300	100,0

As seen in Table 5; 31 (% 10,3) students, 57 (19,0%) 2, 55 (18,3%) and 157 (52,3%) students who participated in the survey) 4th digit.

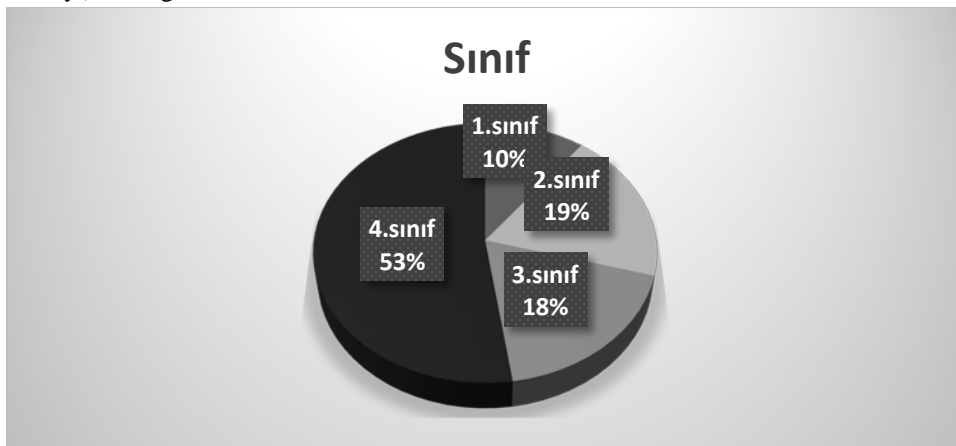


Figure 3. Class distribution

As shown in Figure 3, 10% of the students who participated in the survey are classified as 1st class, 19% as 2nd class, 18% as 3rd class and 53% as 4th class. Thus, it is seen that the majority of the sample consists of the 4th grade students.

Table 6. Descriptive Statistics of the Subscale of Mental Communication Skills of the Communication Skills Inventory

	<i>Tamamen katılmıyorum</i>		<i>Katılmıyorum</i>		<i>Kararsızım</i>		<i>Katılıyorum</i>		<i>Tamamen Katılıyorum</i>		<i>Toplam</i>	
	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>Ort.</i>	<i>SS</i>
I try to understand people.	44	15	52	17	54	18	89	30	61	20	3,24	1,35
I do not have any trouble giving my thoughts to others.	71	24	53	18	23	8	15	5	138	46	3,32	1,71
I can play with the attention of my attention.	63	21	71	24	27	9	9	3	130	43	3,24	1,67
I submit my criticism without disturbing the other person.	73	24	81	27	43	14	22	7	81	27	2,86	1,54
You are the same person in the same confidence.	72	24	53	18	36	12	20	7	119	40	3,20	1,66
I try to know if the other person is willing to talk and listen.	67	22	61	20	20	7	16	5	136	45	3,31	1,70
I can easily accept my wrong attitudes and behaviors.	72	24	59	20	26	9	15	5	128	43	3,23	1,69
When I do not understand, my repetition repeats what I want to convey, expressing new words, summarizing.	77	26	48	16	35	12	15	5	125	42	3,21	1,69
The emotions and thoughts of the person opposite are false to me.	85	28	64	21	33	11	28	9	90	30	2,91	1,63
I do not think I have to listen to others.	73	24	65	22	19	6	33	11	110	37	3,14	1,66
At the end of the discussion, I can accept the misconceptions that we have argued.	68	23	49	16	21	7	19	6	143	48	3,40	1,70
I try to understand more smoothly than the attitude of the person I communicate with.	73	24	62	21	26	9	22	7	117	39	3,16	1,67
I can make output to break my relationships with others.	57	19	56	19	25	8	19	6	143	48	3,45	1,65
I do not know or do not know what we want our attention to be.	80	27	65	22	29	10	13	4	113	38	3,05	1,69
I try to understand emotions and thoughts by substituting myself for the opposite person.	75	25	21	7	26	9	13	4	165	55	3,57	1,73

As seen in Table 6; Communication Skills Scale The answers given to the items related to the Mental Communication Skills dimension were evaluated on arithmetic mean. The expression "try to understand people" is expressed at the level of unsteadiness by an average of 3.24.

"I do not have any difficulty communicating my thoughts fully to others." = 3.32 with the average participating at the level of indecision.

"I can summarize my attention on the subject of my face." They are participating at the level of indecision with a mean of 3.24.

They are participating at the level of "I do not agree with the average person".

"I respect my ideas even if I do not share the same opinion with the other person." They are participating at the level of indecision with an average of 3.20.

"I try to know if the other person is willing to talk or not to listen." They participate at the level of indecision with an average of 3,31.

"I readily accept my wrong attitudes and behaviors." They are participating at the level of indecision with an average of 3.23.

"My listening comprehension does not seem understandable, I repeat what I want to convey, I say new words, I summarize."

"I do not judge even if the feelings and thoughts of the opposite person contradict me".

I think "I do not have to listen to others." Expression = 3,14 participates at the level of the unstable with the mean.

"At the end of the discussion, I can accept that my arguments are wrong." Expression = 3.40 with the average participating at the level of instability.

"I try to understand the problem more than the attitude of the person I have contacted." They participate in the ambiguity = 3.16 with the average.

"I can make outings that break my relationships with others." = 3.45 with the average participating at the level of the unstable.

"I pay attention to whether the person I am proposing is open to the proposal".

"I try to understand feelings and thoughts by putting myself in the place of my own self".

Table 7. Descriptive Statistics of Communication Skills Inventory's Lower Dimensions of Emotional Communication Skills.

	<i>totally disagree</i>		<i>I do not agree</i>		<i>undecided</i>		<i>I agree</i>		<i>Completely I agree</i>		<i>Total</i>	
	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>Ort.</i>	<i>SS</i>
I generally do not like being criticized.	68	23	68	23	30	10	13	4	121	40	3,17	1,66
I am dreaming while listening to the other person.	74	25	58	19	44	15	38	13	86	29	3,01	1,57
I feel like I'm tired of listening to people.	63	21	68	23	33	11	20	7	116	39	3,19	1,63
I usually trust people.	103	34	61	20	32	11	22	7	82	27	2,73	1,64
I do not feel uncomfortable with someone who I have contacted against.	70	23	58	19	26	9	9	3	137	46	3,28	1,71
It's hard for me to apologize.	90	30	53	18	29	10	27	9	101	34	2,99	1,68
I feel uncomfortable when I speak while talking.	63	21	72	24	37	12	25	8	103	34	3,11	1,59
People in the periphery feel I'm uninterested in people.	63	21	53	18	25	8	27	9	132	44	3,37	1,65
Mostly I can not be sure of my feelings.	69	23	65	22	39	13	22	7	105	35	3,10	1,62
I am happy to be understood by anyone I communicate with.	65	22	74	25	26	9	20	7	115	38	3,15	1,64
It makes me happy to trust the other person.	64	21	61	20	36	12	29	10	110	37	3,20	1,61
I welcome every human being with positive expectations.	63	21	59	20	20	7	17	6	141	47	3,38	1,68
I feel I have given something to the person I contacted.	75	25	47	16	38	13	38	13	102	34	3,15	1,62
I do not have any trouble communicating my feelings that bothers me.	83	28	57	19	25	8	14	5	121	40	3,11	1,72
I feel I'm understood by the people I communicate with.	78	26	47	16	32	11	16	5	127	42	3,22	1,70

As seen in Table 7; Communication Skills Scale of the students who participated in the research The answers given to the items related to the Emotional Communication Skills dimension were evaluated in terms of arithmetic mean. In the analysis made, the students participated in the Emotional Communication Skills dimension related to the dimension "I do not like to be criticized in general" with an average of 3,17 mean.

They are participating at the level of indecision with an average of 3,01 = "imagination while listening to the other person."

"I feel like I'm tired of listening to people." They are participating at the level of indecision with an average of 3.19. They participate at the level of "I usually trust people".

"I do not feel uncomfortable with someone who I have contacted with Cinstains" = 3,28 with an average of unstable. They are participating at the level of "I do not agree" with an average of 2.99.

They are participating at the level of "unsteadiness" with an average of 3,11 means "discomfort when speaking while talking".

They are participating at the level of indecision with a mean of 3,37 means "the environmentist thinks I am uninterested in people."

"Mostly unsure of my emotions" expression = 3,10 with averages participating at the level of instability.

They say "I am happy to be understood by anyone I communicate with." = 3.15 participates at the level of the unstable with the average.

"I am happy to trust the other person" expression = 3.20 with averages.

They are participating at the level of "undecided" with an average of "3.38" expressing "welcoming every human being with positive expectations".

"I feel I give something to the person I communicate with" expression = 3,15 with the average participating at the level of instability.

"I do not have any trouble communicating my feelings that bothers me" expression = 3,11 participates at the level of indecision with the mean.

"I feel like I'm understood by the people I communicate with." = 3.22 with averages.

Table 8. Descriptive Statistics of Communication Skills Inventory's Behavioral Communication Skills Lower Dimension.

	<i>totally disagree</i>		<i>I do not agree</i>		<i>undecided</i>		<i>I agree</i>		<i>Completely I agree</i>		<i>Total</i>	
	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>Ort.</i>	<i>SS</i>
I listen sincerely to the advice and suggestions from people I find in communication.	30	10	28	9	26	9	78	26	138	46	3,89	1,35
When I'm talking, I can make an effective eye contact.	61	20	64	21	42	14	21	7	112	37	3,20	1,60
I have enough time to listen to what the people want to say.	84	28	73	24	37	12	15	5	91	30	2,85	1,62
I usually do not want to give the right to speak.	77	26	57	19	38	13	19	6	109	36	3,09	1,65
When others talk, I will be patient, I will not interrupt them.	87	29	64	21	36	12	21	7	92	31	2,89	1,63
I'm afraid to take the first step in talking.	74	25	72	24	36	12	20	7	98	33	2,99	1,62
Open, plain and smooth calligraphy while talking.	84	28	45	15	34	11	28	9	109	36	3,11	1,68
When I look at the face of the person I am in communication, I do not listen to his words.	77	26	63	21	43	14	38	13	79	26	2,93	1,56
I ask questions to better understand the person I listen to.	73	24	57	19	46	15	42	14	82	27	3,01	1,55
When I talk to people, I do things that will comfort them.	68	23	57	19	43	14	28	9	104	35	3,14	1,60
While we are listening, we take care not to interfere with the person who is against us.	60	20	63	21	31	10	20	7	126	42	3,30	1,64
I'm afraid to take the first step when I want to reconcile with someone I am.	54	18	65	22	25	8	23	8	133	44	3,39	1,63
I can adjust the volume to the feature of the subject.	66	22	42	14	22	7	22	7	148	49	3,48	1,69
I try to control people and get the mold I want.	70	23	65	22	28	9	12	4	125	42	3,19	1,68
I do not ask sudden questions that people will have difficulty in answering.	75	25	47	16	28	9	20	7	130	43	3,28	1,70

As seen in Table 8; Communication Skills Scale of the students participating in the research The responses given to the items related to the Behavioral Communication Skills dimension were evaluated in terms of arithmetic mean. In the analysis made, students participated in the items related to the dimension of Behavioral Communication Skills dimension at the level of "unreasonableness" with a mean of 3,89 means "advice and suggestions from people I have in communication".

"I am able to communicate effectively when I am talking" expression = 3.20 with the average participating at the level of instability.

They participate at the level of "I do not agree" with a mean of 2.85 on the phrase "I have enough time to listen to what people want to say."

They are participating at the level of "unsteady" with a mean of 3,09.

They are participating at the level of "I do not agree with others."

They participate in the expression "I do not mind taking the first step when talking" at the level of I do not agree with the average of 2.99.

They are participating at the level of "unsteady" with an average of 3,11 means "constructing clear, plain and smooth sentences while speaking".

"If I look at the face of the person I am in communication with, I do not listen to my words".

"I will ask questions to better understand the person I listen to" expression = 3,01 with averages participating at the level of indecision.

They are participating at the level of "unsteadiness" with an average of "3.14", "doing things that will knowingly relieve them when talking to people".

They are participating at the level of "unsteadiness" with a mean of "3.30, in order to make sure that we do not interrupt the talk of the other person while we are listening".

"I do not mind taking the first step when I want to reconcile with someone I am the sweetest" expression = 3.39 with the average participates at the level of the unstable.

"I can adjust the tone according to the feature of the subject".

They participate at the level of "undecided" with an average of 3,19 means "I try to control people and inject the mold I want."

They participate at the level of "unsteady" with a mean of 3,28 means "I do not direct sudden questions that people will have difficulty in answering."

3. Differential Analysis between Communication Skills and Demographic Variables

In this section, T test was conducted for two unrelated variables (sex) in order to investigate whether students' scores from the scale differed according to demographic variables, and one way ANOVA was applied to two unrelated variables (age and class) and findings were given in the following tables.

Table 9. Difference Analysis of Communication Skills Attitudes and Sub-Dimensions by Sex

		N	Ortalama	Std. Sapma	t	p
Mental Communication Skills	Kadın	163	3,25	0,92	0,736	0,462
	Erkek	137	3,18	0,92		
Emotional Communication Skills	Kadın	163	3,16	0,96	0,768	0,443
	Erkek	137	3,13	0,98		
Behavioral Communication Skills	Kadın	163	3,19	0,89	1,701	0,090
	Erkek	137	3,17	0,89		
Communication skills	Kadın	163	3,20	0,88	1,113	0,267
	Erkek	137	3,16	0,88		

As shown in Table 9, there was no significant difference between male and female according to the results of T-test conducted to determine whether there is any difference in the level of Mental Communication Skills which is the

subscale of the Communication Skills Questionnaire according to sex. In other words, the average levels of mental communication skills of male and female students are similar ($p = 0,462$, $p > 0.05$).

There was no significant difference between male and female according to the results of the T test conducted to determine whether there was a difference in the level of Emotional Communication Skills, the subscale of the Communication Skills Scale according to sex. In other words, Emotional Communication Skills averages of female and male students are similar ($p = 0.443$, $p > 0.05$).

There was no significant difference between male and female according to the results of the T test conducted to determine whether there was a difference in the levels of Behavioral Communication Skills, which is the subscale of the Communication Skills Scale according to sex. In other words, the averages of Behavioral Communication Skills of male and female students are similar ($p = 0,090$, $p > 0.05$).

There was no significant difference between men and women according to T test results to determine whether there was any difference in communication skills according to sex. In other words, the average communication skills of male and female students are similar ($p = 0.267$, $p > 0.05$).

Table 10. N, Mean, and Standard Deviation Values of Attitude Scores on Communication Skills Attitudes and Sub-Dimensions by Age.

		N	Ortalama	Std. Sapma
Mental Communication Skills	18-20 yaş	112	3,17	0,89
	20-28 yaş	101	3,18	0,92
	28-35 yaş	87	3,39	0,92
	Toplam	300	3,22	0,92
Emotional Communication Skills	18-20 yaş	112	3,14	0,93
	20-28 yaş	101	3,11	0,97
	28-35 yaş	87	3,30	0,97
	Toplam	300	3,14	0,97
Behavioral Communication Skills	18-20 yaş	112	3,13	0,76
	20-28 yaş	101	3,17	0,90
	28-35 yaş	87	3,25	0,91
	Toplam	300	3,18	0,89
Communication skills	18-20 yaş	112	3,15	0,78
	20-28 yaş	101	3,15	0,89
	28-35 yaş	87	3,31	0,88
	Toplam	300	3,18	0,88

As shown in Table 10, when the average age of the mental communication skills, the subscale of the Communication Skills Scale, was found to be 3.39 to 28-35 years old, the highest average score was 3.18 to 20-28 years. It is observed that the students in the group of 3.17 to 18-20 years are watching.

When the average level of emotional communication skills is examined, it is seen that the average of the highest score belongs to the students who are between 3.30 and 28-35 years, followed by the students between 3.14 and 18-20 years and 3.11 and 20-28 years respectively.

When the average age of behavioral communication skills is examined, it is seen that the highest average score belongs to the students who are between 3.25 and 28-35 years of age, followed by the students in the group of 3.17 to 20-28 years and 3.13 to 18-20 years respectively.

When the average age of communication skills is examined, it is seen that the average of the highest score belongs to the students who are between the ages of 3.31 and 28-35, followed by the students between the ages of 3.15 and 18-20 and 20-28 years respectively.

Table 11. Results of Variance Analysis on Attitude Scores of Communication Skills Attitudes and Lower Dimensions by Age.

		Kareler Toplamı	S.D.	Kareler Ortalaması	F	P
Mental Communication Skills	Between Groups	13,583	2	6,792	8,396	0,000
	Inside Groups	240,236	297	0,809		
	Total	253,819	299			
Emotional Communication Skills	Between Groups	15,388	2	7,694	8,618	0,000
	Inside Groups	265,150	297	0,893		
	Total	280,538	299			
Behavioral Communication Skills	Between Groups	13,243	2	6,622	8,757	0,000
	Inside Groups	224,579	297	0,756		
	Total	237,822	299			
Communication skills	Between Groups	14,025	2	7,013	9,579	0,000
	Inside Groups	217,427	297	0,732		
	Total	231,452	299			

As shown in Table 11, the F test was conducted to determine whether Communication Skills Scale scores differed significantly with age.

As a result of the one-way analysis of variance performed to determine whether mental communication skills scores showed a meaningful difference according to age, the difference between the mean age groups was statistically significant ($F = 8,396$; $p = 0,000 < 0.05$).

As a result of the one-way analysis of variance, the difference between the mean age groups was found statistically significant ($F = 8,618$; $p = 0,000 < 0.05$) in order to determine whether the Emotional Communication Skills scores showed a meaningful difference according to age.

As a result of the one-way analysis of variance, the difference between the mean age groups was found statistically significant ($F = 8,757$; $p = 0,000 < 0.05$) in order to determine whether the Behavioral Communication Skills scores showed a meaningful difference according to age.

As a result of the one-way analysis of variance performed to determine whether Communication Skills scores differed significantly with age, the difference between the mean age groups was statistically significant ($F = 9,579$; $p = 0,000 < 0.05$). In order to determine the source of differentiation, firstly Levene's Test was performed to determine whether the variances were homogeneous and statistical values related to the Levene test were given in the table.

Tablo 12. Yaşa Göre Levene Testi Sonuçları

	Levene Statistic	S.D.1	S.D.2	P
Mental Communication Skills	0,284	2	297	0,753
Emotional Communication Skills	0,055	2	297	0,946
Behavioral Communication Skills	3,061	2	297	0,058
Communication skills	0,498	2	297	0,608

As shown in Table 12, the Tukey Test was applied to homogeneous and homogeneous tests, and the results are given in the table below because the variance ($p = 0,753, 0,946, 0,058$ and $0,608 > 0,05$) of the Mental, Emotional, Behavioral and Communication Skills scores as a result of the Levene Test.

Table 13. Tukey Test Results by Age

	(I)	(J)	(I-J)	Std. Hata	p
Mental Communication Skills	28-35 yaş	18-20 yaş	0,522	0,129	0,000
Emotional Communication Skills	28-35 yaş	18-20 yaş	0,558	0,135	0,000
Behavioral Communication Skills	28-35 yaş	18-20 yaş	0,520	0,124	0,000
Communication skills	28-35 yaş	18-20 yaş	0,533	0,122	0,000

As shown in Table 13, the Tukey Test for Mental Communication Skills scores of the post hoc tests after the Levene test showed that the mental communication ability scores of the 28-35 year old students were significantly higher than the 18-20 year old students.

As a result of the Tukey Test for Emotional Communication Skills scores, it was found that the average scores of Emotional Communication Skills for 28-35 year-old students were significantly higher than those between 18-20 years of age.

As a result of the Tukey Test for Behavioral Communication Skills scores, the behavioral communication ability scores of 28-35 year-old students were found to be significantly higher than the 18-20 year-old students.

As a result of the Tukey Test for Communication Skills scores, the average age of students aged 28-35 was found to be significantly higher than that of students aged 18-20.

Table 14. N, Mean, and Standard Deviation Values for Attitude Scores on Communication Skills Attitudes and Sub-Dimensions by Classification.

		N	Ortalama	Std. Sapma
Mental Communication Skills	1. class	31	3,16	0,93
	2. class	57	3,57	0,85
	3. class	55	2,82	0,79
	4. class	157	3,21	0,97
	Total	300	3,22	0,92
Emotional Communication Skills	1. class	31	3,04	1,00
	2. class	57	3,58	0,88
	3. class	55	2,72	0,81
	4. class	157	3,09	0,98
	Total	300	3,14	0,97
Behavioral Communication Skills	1. class	31	3,13	0,82
	2. class	57	3,56	0,85
	3. class	55	2,71	0,78
	4. class	157	3,21	0,89
	Total	300	3,18	0,89
Communication skills	1. class	31	3,11	0,88
	2. class	57	3,57	0,81
	3. class	55	2,75	0,74
	4. class	157	3,17	0,89
	Total	300	3,18	0,88

As shown in Table 14, when the average of the classroom variables of the Mental Communication Skills level, which is the subscale of the Communication Skills Questionnaire, was found to be 3.57 with the highest average of the

students in the second class, It is seen that the students who are 1st and 16th graders and 2.82 and 3rd grade students are watching.

When the average of classroom variables of emotional communication skills is examined, it is seen that the highest average score belongs to students with 3,58 and 2. grade, and they are divided into 3 rd and 4 th grade, 3 rd and 1 th grade, students are watching.

When the average of classroom variables of Behavioral Communication Skills level is examined, it is seen that the highest average score belongs to students who are 2nd and 3rd graders with 3,21, 3rd and 13th grades respectively, 3,13 and 2,71 and third grade students are watching.

When the average level of communication skills is examined, it is seen that the highest average score belongs to the students who are 2nd and 3rd grades with 3.57, 3rd and 17th grades respectively with 3,17, 3,11 and 3,11 and 2,75 students are watching. As shown in Table 14, when the average of the classroom variables of the Mental Communication Skills level, which is the subscale of the Communication Skills Questionnaire, was found to be 3.57 with the highest average of the students in the second class, It is seen that the students who are 1st and 16th graders and 2.82 and 3rd grade students are watching.

When the average of classroom variables of emotional communication skills is examined, it is seen that the highest average score belongs to students with 3,58 and 2. grade, and they are divided into 3 rd and 4 th grade, 3 rd and 1 th grade, students are watching.

When the average of classroom variables of Behavioral Communication Skills level is examined, it is seen that the highest average score belongs to students who are 2nd and 3rd graders with 3,21, 3rd and 13th grades respectively, 3,13 and 2,71 and third grade students are watching.

When the average level of communication skills is examined, it is seen that the highest average score belongs to the students who are 2nd and 3rd grades with 3.57, 3rd and 17th grades respectively with 3,17, 3,11 and 3,11 and 2,75 students are watching.

Table 15. Results of Variance Analysis on Attitude Scores on Communication Skills Attitudes and Sub-Dimensions by School

		Kareler Toplamı	S.D.	Kareler Ortalaması	F	P
Mental Communication Skills	Between Groups	23,229	3	7,743	0,505	0,679
	Inside Groups	230,591	296	0,779		
	Total	253,819	299			
Emotional Communication Skills	Between Groups	31,689	3	10,563	0,143	0,934
	Inside Groups	248,849	296	0,841		
	Total	280,538	299			
Behavioral Communication Skills	Between Groups	29,194	3	9,731	0,369	0,775
	Inside Groups	208,629	296	0,705		
	Total	237,822	299			
Communication skills	Between Groups	27,737	3	9,246	0,339	0,797
	Inside Groups	203,716	296	0,688		
	Total	231,452	299			

As shown in Table 15, the F test was conducted to determine whether the Communication Skills Scale scores showed a significant difference from the class variable.

As a result of the one-way analysis of variance performed to determine whether the mental communication skills scores showed a meaningful difference according to the class variable, the difference between the group mean values was not statistically significant ($F = 0,505$; $p = 0,679 > 0,05$).

As a result of the one-way ANOVA test to determine whether the emotional communication skills scores showed a meaningful difference according to the class variable, the difference between the group mean values was not statistically significant ($F = 0,143$; $p = 0,934 > 0,05$).

As a result of the one-way analysis of variance, the difference between the group mean values was not statistically significant ($F = 0,369$; $p = 0,775 > 0,05$) in order to determine whether the Behavioral Communication Skills scores showed a meaningful difference according to the class variable.

As a result of the one-way ANOVA test to determine whether the communication skills scores showed a significant difference according to the class variable, the difference between the group mean scores was not statistically significant ($F = 0,339$; $p = 0,797 > 0,05$).

Table 16. Relationship Analysis

		Zihinsel İletişim Becerileri	Duyusal İletişim Becerileri	Davranışsal İletişim Becerileri	İletişim Becerileri
Mental Communication Skills	r	1			
	p				
	N	300			
Emotional Communication Skills	r	0,784**	1		
	p	0,000			
	N	300	300		
Behavioral Communication Skills	r	0,733**	0,732**	1	
	p	0,000	0,000		
	N	300	300	300	
Communication skills	r	0,855**	0,857**	0,834**	1
	p	0,000	0,000	0,000	
	N	300	300	300	300

** $p < 0,01$

As seen in Table 16, Correlation analysis was conducted to determine the relationship between Communication Skills Inventory and its sub-dimensions, with Mental Communication Skills $r = 0,855$; $p = 0,000 < 0,01$; Emotional Communication Skills $r = 0,857$; $p = 0,000 < 0,01$, Behavioral Communication Skills $r = 0,834$; In the positive direction at $p = 0,000 < 0,01$, a statistically significant relationship was found at a high level.

Also between mental communication skills and emotional communication skills $r = 0,784$; $p = 0,000 < 0,01$, a statistically significant relationship was found in the positive direction.

Behavioral Communication Skills with Mental Communication Skills $r = 0,733$; $p = 0,000 < 0,01$ and between Emotional Communication Skills and Behavioral Communication Skills $r = 0,732$; $p = 0,000 < 0,01$, positive, moderate, statistically significant relationship was found.

Conclusions and Recommendations

People who are communicating with others in their social lives may inevitably encounter some problems. Effective problem solving skills can positively affect interpersonal relationships, while inadequate effective problem solving skills can lead to problems in interpersonal relationships. On the other hand, the development or improvement of communication skills may lead to differences in the possibility of dealing with interpersonal problems.

Those who have a negative attitude to the problem and who are not responsible and unreliable can exhibit similar behavior styles in terms of the problems they are facing, they can not empathize on the other side, they are forced to establish trust and are unlikely to exhibit positive communication skills. However, the development of effective problem-solving skills and communication skills will have a significant impact on coping with the problems encountered in interpersonal relationships and in communicating positively with other people on the social circle; Control self-esteem, control anger, solve problems using positive problem-solving skills instead of aggression.

In this research, multidimensional interpersonal problem solving and communication skills are carried out exclusively on the university sample, and examination of relations with only certain variables creates a limitation in the generalization of the results. For this reason, the research can be done in different cases, taking into account the various psychosocial factors that may affect interpersonal problem solving and communication skills. On the other hand, it is thought that research findings, problem solving skills and communication skills will contribute to writing a very limited field of study. Another contribution of the research is to examine problem-solving skills and communication skills in terms of age and gender. At the same time, research findings also indicate the need for the development of problem-solving skills and the development of training programs for communication.

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A Preview on The Student Grant Competition English Neological Loanwords in Female Discourse in French

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ABSTRACT

English neological loanwords in female discourse in French are the subject of study of the student grant competition held as a part of the internal grant system at the Faculty of Philosophy and Arts, University of West Bohemia in Pilsen. The goal of this text is to present the methodology, overall results and perspectives of the research, as well as to inspect other challenges related to the subject.

The areas of the research cover Anglicisms in contemporary French, focusing on discourse intended for and created by women. There is a certain increase in amount of Anglicisms in recent years in all areas of human activity and all languages which are in contact with the Anglophone environment. The aim of the project is therefore to analyse the presence of English loanwords in selected French press media intended for women and, at the same time, to analyse the spoken form of the discourse (on the example of reality show *Les Reines du shopping*). Based on this formed corpus, the follow-up goal is classification of the Anglicisms according to the character of the Anglicism itself (calque, lexical Anglicism), grammatical categories, their presence in the metalinguistic corpus, the year of their inclusion in the dictionary, etc. Based on the frequency of use of the words, a questionnaire was prepared to allow to determine whether the selected Anglicisms (without any apparent discriminatory use) really are exclusively a matter of female discourse.

INTRODUCTION

The matter of Anglicisms is nowadays addressed by a high number of linguists all over Europe. Within their research on neologisms, linguists encounter predominance of English loanwords (see project EmpNéo: on contemporary neologisms, comparing several languages, led by French linguist professor Jean-François Sablayrolles – the author of this work is a member of the team).

However, the project presented in this work is in contrast with the above-mentioned project, focusing exclusively on Anglicisms, while most of the neologisms examined within EmpNéo come from English. Moreover, this project addresses Anglicisms present in information channels intended for and created by women. Thus, this research also covers another modern topic, i.e. gender (in)equality.

The research is carried out within project Student Grant Competition (abbreviated as SGS in Czech). SGS is financed from the appropriations of the state budget directed to specific higher education research and provided by the Ministry of Education, Youth and Sport of the Czech Republic according to research results and development and number of students in accredited study programs. As suggested by the title, the research involves students, in this case students of the master's program at the Department of Romance Languages, Faculty of Philosophy and Arts, University of West Bohemia in Pilsen, where, up to now, mainly projects related to FOS (Français sur objectifs spécifiques) have been carried out (see especially project FRODJA, <http://www.frodja.zcu.cz/index.php> [online], Horová, 2015; Fenclová, Horová, Kolářiková, 2016).

The project presented here within SGS with title "Neological loanwords in female discourse" stretches over the period of two years, is carried out on multiple levels and uses a precisely defined methodology, which will be briefly introduced in the following section, along with several partial outcomes from the research. Selected students of the master's program are present during the entire timespan of the project. Their advance and role

within the project is progressive. In the early phase, they are only observers, learning about the methods applied in the project. They are guided, both methodologically and epistemologically, to be able to join the researchers in stand-alone exploration and searches, as well as in co-operation on the technical contribution. This way they will be able to, step by step, explore all the elements and methods of the project and get knowledge in the main areas of the basic research, which they can later apply on their diploma work, during doctoral studies, or in the context of their future jobs.

METHODOLOGY AND RESEARCH PHASES

First, the project examined recent development in the matter of English loanwords in francophone environment. Available sources were analysed and individual results and approaches were compared.

For instance, French linguist Henriette Walter (2003) claims that French arrived in England in 1066 and there has been “*an incredible love story*” of the two languages since. As to French, number of English loanwords increased in the 18th century. In that period, the term “Anglomaniya” (admiration for British lifestyle) was coined (Loubier, 2011), as well as many more common lexemes, such as *cake*, *hall*, *week-end*, etc. (Gohin, 1970). It should be understood that in that time English and the inflow of its vocabulary were not considered as negative. Examination of Anglicisms in French started in the late 19th century (Lamontagne, 1996) and the increase of negative discourses in mid-twentieth century (Rey, 2008). Several contemporary authors even claim that French is being colonized, stressing the negative side of English loanwords (Maillet, 2015, 2016). Other authors, on the other hand, find taking-over from foreign languages natural (Bouchard, 1989), and there are also authors who defend both views, trying to find the balance between them, such as A. Steuckardt (Humbley, 2010) or Rollason (2005). As seen on this short sample of some ideas, the presence and integration of Anglicisms into the language ecosystem of French is going to stay a disputable matter with multiple hypotheses with no satisfactory or definite answers within the near future.

However, there is no doubt English infiltrates into French in a very progressive way. On one hand, it brings new terminology not yet existing in French. On the other hand, English tends to be overused by speakers who try to attract attention, stand out, be “in”, keep up with modern trends, or even irritate in some cases, or they are just too indolent to search for a relevant counterpart in their mother tongue. In the latter case, we speak about so called luxury loanwords, which are unnecessary in the intruded language as it already offers a relevant counterpart, not rarely even in a form of an absolute synonym. Here, linguistics meets sociology, so we may consider this problem a socio-linguistic issue regarding use of Anglicisms, representing a stand-alone widely discussed topic.

The next stage of our research was the examination of individual Anglicisms on the background of female discourse. First, we carried out an analysis of written language, i.e. excerption (“manual”) of selected French women-targeting press (*Elle*, *Cosmopolitan*, *Marie France*, etc.). In the following stage, we focused on spoken language. To meet the goals and needs of the project, channel M6’s TV programme “*Les Reines du shopping*” was chosen, which focuses fashion. This topic increased the chance of higher presence of English loanwords.

The analytic stage of the research was followed by systematization and classification of detected Anglicisms by linguistic criteria: grammar categories, orthographic/phonetic adaptation of an Anglicism, gender, number, lexicographic indicators, and representation of Anglicisms in general dictionaries of the French language. The latter were used to determine which lexemes are neological. The Anglicisms which had not been included in the metalinguistic corpus were examined in the respect of their frequency, using the EmpNéo methodology (see e.g. Mudrochová, 2016). Finally, part of the new corpus was selected and used in a survey distributed not only among women, but also among men.

In the following chapter, we are providing an overview and presentation of some partial results of the analysis.

RESULTS

In the first stage of the research, as mentioned above, analysis of French press was carried out. The research covered 21 periodicals and several online articles. Release dates varied within the timespan ranging from 1997 to 2016. Each periodical chosen targeted *a priori* female readership. The highest number of Anglicisms were found in online articles, especially short comments to photographs of clothing.

In total, 389 lexemes with English origin were collected. In order to comply with the original idea of analysing neologisms taken over from English, it was necessary to carry out selection which would eliminate words already included in the metalinguistic corpus. First, we used acknowledged common dictionaries of the French language *Le Petit Robert 2016* and *TLFi (Trésor de la Langue Française informatisé)*, then also online dictionaries and encyclopaedias *Wikipedia* and *Wiktionary*. The output of this selection were 54 entries which we further weeded out to get 11 words related to fashion and cosmetics, i.e. topics covered by our project, for detailed analysis and presentation. In this final corpus, the following entries can be found: *beachwear*, *headband*,

longwear, loose, messy, old-fashioned, oversize, thigh gap, thinspiration, top-coat, wavy. Within their detailed description, we focused on their meaning, as well as their distribution within French, using search engine *Google* and the press archive (*Libération.fr/20.minutes.fr*). An important issue of the research was the topic of equivalents, which was debated on the background of the dictionary of Anglicisms by Henri Goursau (*Dictionnaire des anglicismes*), terminology databases of the French Academy (*Académie française*): *France terme*, and Quebec Board of the French Language (OQLF, *Office québécois de la langue française*): *Le grand dictionnaire de l'OQLF*.

Table 1: Distribution and frequency of fashion related Anglicisms – press analysis results

Word	Google	Libération	Equivalents, rivals
<i>beach(-)wear</i>	663 000	1	<i>vêtements/ tenue de plage, mode balnéaire</i>
<i>head()band</i>	620 000	1	<i>bandeau cheveux, bijou de tête, accessoire cheveux, serre-tête</i>
<i>long(-)wear</i>	55 500	0	<i>longue durée/tenue</i>
<i>loose</i>	780 000	560!	<i>ample, large, relâché, détendu, desserré, débrayé, vague</i>
<i>messy</i>	646 000	0	<i>ébouriffé, coiffé-décoiffé, désordonné, décoiffé et défrisé</i>
<i>old-fashioned</i>	470 000	2	<i>démodé, passé de mode, vieux jeu, désuet, vieillot, passéiste</i>
<i>over(-)size(d)</i>	2 690 000	75	<i>extra large, taille maximale, très grand/long, surdimensionné, à coupe large ou loose (ample)</i>
<i>thigh gap</i>	107 000	2	<i>écart entre les cuisses</i>
<i>thinspiration</i>	34 100	1	<i>aspiration à la minceur, intérêt pour la minceur</i>
<i>top(-)coat</i>	600 000	0	<i>verniss de finition, fixateur, vernis/couche de fixation/finition</i>
<i>wavy</i>	1 790 000	4	<i>ondulé (artificiellement) ou bouclé (naturellement)</i>

The data summarizing press analysis results can be seen above (see Table 1). The table shows that the frequency of the words which are already widely used on the internet is already noticeably high, e.g. *wavy* or *over(-)size(d)*, along with their orthographic variants. In press, the results are significantly lower, which might have been caused by the choice of a common periodical for reverse research. The result at word *loose* is marked with an exclamation mark to show the result has been deformed by the homonymy of the word, especially with respect to family name *Loos*. The question of equivalents or synonyms which could have been used within the given context, is shown in the last column of the table. Even though all the columns are filled in, the entire expression (*thigh gap*) or a periphrasis (*thinspiration*) are used in two of the words. For that reason, we assume these might in fact be so called necessary loanwords. In the equivalents of term *messy* we miss the will and the intentions for the hairstyle, as well as in word *old-fashioned* we miss the positive aspect of wearing larger-sized clothes, i.e. the Anglicisms in these words may be considered as necessary, as the French counterparts do not provide the equal meaning.

For a full list of results, refer to article *À propos de la diffusion des anglicismes néologiques de la mode issus d'un corpus écrit destiné à un public féminin* (Mudrochová, in print).

In the second stage of the research, we addressed the issue of Anglicisms in spoken corpus. For analysis, as mentioned above, we chose TV programme *Les Reines du shopping*, which is related to the field of our research. Out of fifteen episodes, we acquired 96 Anglicisms in total, which we first cross-checked using the metalinguistic corpus, as well as in the case of written language. With respect to the fact that the corpus acquired from the analysis of spoken discourse was much less numerous, we agreed on leaving to further comments words we 1) did not find in any dictionary, 2) found in a single dictionary only. Table 2 presents an overview of these entries. PR abbreviates dictionary *Le Petit Robert*, WR stands for Wiktionary. 0 means that the word is absent from the given dictionary, 1 means that the entry is present.

Table 2: Overview of words and expressions of the spoken corpus and their presence in the dictionaries

ENTRY	PR	WR	ENTRY	PR	WR
<i>à la one again</i>	0	1	<i>relookeuse</i>	0	0
<i>chroning</i>	0	0	<i>se looker</i>	0	1
<i>crazy</i>	0	0	<i>side(-)hair</i>	0	0
<i>crop(-)top</i>	0	0	<i>show(-)room</i>	1	0
<i>fashion/fashion</i>	0/0	1/0	<i>smile</i>	0	0
<i>fashionista</i>	0	0	<i>smoky eyes</i>	0	0
<i>girly/girlie</i>	0/0	0/0	<i>smoky</i>	0	0

<i>glam</i>	0	1	<i>swag</i>	0	1
<i>hair</i>	0	0	<i>sweat</i>	0	1
<i>hi(gh)(-)light</i>	0	0	<i>thank you</i>	0	0
<i>next</i>	0	0	<i>too much</i>	0	1
<i>nexter</i>	0	0	<i>why not</i>	0	0
<i>old(-)fashioned</i>	0	1	<i>winner/winneur</i>	0/0	1/1
<i>on y go</i>	0	0	<i>winneuse</i>	0	0
<i>over(-)size(d)</i>	0	0	<i>after(-)work</i>	0	1
<i>please</i>	0	0	<i>working girl</i>	0	1

Table 2 shows that use of some English expressions is not always a matter of linguistics, i.e. French may provide its own counterpart used besides the English loanword. The English counterparts are oftentimes used in order to attract attention, stand out, change the tone of the discourse, etc. The list of such expressions includes, for instance: *hair*, *why not*, *please*. We can also notice that some lexemes are incorporated in French with orthographic, morphological, or phonetic adaptations, such as in verb *nexter* where the suffix for the first verb conjugation group is added. In some cases, the pronunciation of French words is changed so that it sounds as an English word, e.g. *magnifique* [majnifaik], and we can find usage of the -ing suffix in words where such use is *a priori* not correct in the given context (*chroning*). It is also possible to find expressions created by mixing both languages: *à la one again*, *on y go*.

In the final stage of the research, chosen lexical entries were examined through a questionnaire-based survey. The questionnaire was divided into two sections, with a short introduction accentuating the goals of the project and insisting on an unassisted completion of the questionnaire.

The first section of the questionnaire examined the personal background of the respondents. We examined the following aspects: gender, age, residence, education, mother tongue. We were also interested in finding out relevant information regarding knowledge of English language, length of its study, and possible stay in an anglophone country in the past. The final question examined whether and to what extent the respondent is interested in fashion, as we assume that language users interested in fashion trends has adequate knowledge of relevant terminology. We believe this aspect is closely related to the degree of knowledge of the words examined in the second section of the questionnaire.

There were seventeen lexemes in the second section of the questionnaire: *(re)booster*, *blush*, *brushing*, *contouring*, *dressing*, *fashionista*, *geek*, *glam*, *headband*, *hipster*, *must(-)have*, *nexter*, *over(-)size*, *show(-)room*, *smoky(-)eyes*, *streetwear*, *vintage*. Selection of entries (out of the total number of 485) was based on subjective opinion. However, we attempted to include a characteristic sample of words with respect to the area of fashion we had selected. For each entry, the respondents were required to select the relevant option for their knowledge/usage level: “I don’t know the word”, “I know the word but don’t use it”, “I know the word but I have stopped using it”, “I know the word and I use it”. Besides, we required the respondents to explain the meaning of the word and possibly also include a counterpart the respondent uses instead of the given Anglicism.

The questionnaire was concluded by two complementary questions: 1/ “Write a word you are not able to say in French and use an English word instead”, and 2/ “In what everyday context do you use Anglicisms?”.

While this text is being prepared, the questionnaire is being distributed among native speakers of the French language. The results are going to be processed and commented on in the next contribution by the author of this text.

CONCLUSION

The student grant competition encourages students to acquire deeper knowledge and awareness of the science and research related activities of the workplace where their training programme is carried out. The goal of the project can, therefore, be divided in two parts, including the basic research, and pedagogical and educational values.

The basic research which has been defined within the project addressed frequency of usage of neological Anglicisms in female discourse. For analysis, both written and oral discourse have been used. The written corpus included a higher number of Anglicisms than the spoken one. The disproportion may have been caused by the option of swifter procession of written material.

According to the research, it is possible to state that infiltration of English into the French language does not cease. While carrying out the analysis, we discovered several loanwords which have not been included in the metalinguistic corpus and therefore can be considered as neological. In many case, however, these were luxury loanwords, used by the language users for several reasons: to personalise their language style, make it fashionable, keep up with the current global language, accentuate a certain word by using its English counterpart. In this case, especially the following examples of loanwords were included: *please*, *hair*, *fashion*, *why not*, etc. However, in the corpus we can also find Anglicisms which lack their counterparts in French, or French only

provides their periphrases: *thinspiration*, *thigh gap*, *crop(-)top*, etc. On the other hand, other English loanwords contain number of rival words in French, which can be selected to comply with the given context, such as *loose* = *ample*, *large*, *relâché*, *détendu*, *desserré*, *débrayé*, *vague*. Finally, in French we can find certain hybrid expressions mixing French and English elements, such as *nexter*, *booster*, *chroning*, or à *la one again*, *on y go*. We assume that, along with the incessant infiltration of English into other languages, the amount of these “hybrids” is going to increase, and it is only a matter of time, whether these expressions get their place in dictionaries or they do not take roots.

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