ANALYZING PRE-SCHOOL STUDENT TEACHERS' AND THEIR COOPERATING TEACHERS' ATTITUDES TOWARDS THE USE OF EDUCATIONAL TECHNOLOGY

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ABSTRACT
Educators have been optimistic that technology would enhance teaching and learning by effective use of educational technology in classroom atmosphere. But, little attention has focused on the attitudes of both preschool pre-service and their cooperating teachers towards using educational technology in the classroom. This study employed an "*attitude scale*" to provide insights into the prospective pre-school pre-service and their cooperating teachers' attitudes towards the use of technology in the classroom. A 36 item, 5-point Likert-type scale was administered to all entry level preschool pre-service student teachers (n=160) enrolled in the Faculty of Education of Selçuk University during the 2005–2006 academic year and their preschool cooperating teachers (n=100) working in Konya. Results indicated that significant differences exist between pre-service and their cooperating preschool teachers from their "*views on the use of educational technology*", "*use of activities in preschool classes*" and "*use of educational technology in preschool classes*". Implications for pre-service and cooperating teacher education and further research are discussed.

Key words: Preschool teachers, educational technology, pre-service teachers' attitudes, cooperating teachers, attitude scale.

OKUL ÖNCESİ ÖĞRETMEN ADAYLARI VE ONLARIN UYGULAMA ÖĞRETMENLERİNİN EĞİTİM TEKNOLOJİSİ KULLANIMINA YÖNELİK TUTUMLARININ İNCELENMESİ

ÖZET
Eğitimciler, sınıf içinde eğitim teknolojisinin etkili kullanımının öğrenme ve öğretmeyi geliştirdiği konusunda iyimserdirler. Fakat, şu ana kadar, okul öncesi öğretmen adayı ve onların uygulama öğretmenlerinin sınıfta eğitim teknolojisi kullanımına karşı tutumları üzerine çok az araştırma yapılmıştır.Bu çalışma, bir "tutum ölçeği" aracılığıyla, okul öncesi öğretmen adayı ve onların uygulama öğretmenlerinin sınıfta eğitim teknolojisi kullanımına karşı tutumlarını ortaya koymayı amaçlamaktadır. Bu çalışma, 2005-2006 öğretim yılında Selçuk Üniversitesi Eğitim fakültesi ne kayıt olmuş (160) okul öncesi öğretmen adayı ve halen Konya'da görev yapmakta olan (100) uygulama öğretmenine 36 maddelik 5'li Likert tipi bir ölçeğin uygulanmasını kapsamaktadır. Veri analizi, okul öncesi öğretmen adayı ve onların uygulama öğretmenleri arasında "Eğitim teknolojisini kullanma davranışları", "Okul öncesi sınıflarda öğretim etkinliklerini kullanma", "okul öncesinde eğitim teknolojisini kullanma" tutumları hakkında önemli farklılıklar bulmuştur. Çalışma, okul öncesi öğretmen adayı ve onların uygulama öğretmenlerinin eğitimi hakkında neler yapılması gerektiği konusunda önerilerde bulunmuştur.

Anahtar sözcükler: Okul öncesi öğretmenleri, eğitim teknolojisi, öğretmen adaylarının tutumları, uygulama öğretmenlerinin tutumları

I. INTRODUCTION
Technology has been the catalyst for change at our school and continues to be along with our increasing understandings about teaching and learning contexts. However, preparing pre-service and their cooperating teachers to use technology appropriately is a complex task for teacher educators (Mergendoller, 1994). In this process, Kersaint and Thompson (2002) noted that it is important to explore the role that beliefs play in technology integration. Waits and Demana (2000) argue that adoption of technology by teachers requires professional development that focuses on both conceptual and pedagogical issues. By ongoing support in terms of "intensive start-up assistance and regular follow-up activities" the teachers should have a desire to change within the profession (p. 53). It is extremely important for teacher education programmers in higher education to ensure that instructional applications of hi-techs are infused within a variety of curricular experiences for pre-service teachers. It is suggested here that teachers must feel comfortable and secure while learning how to use computers and related technologies (Todman & Dick, 1992). Dawes (1999) stated, in one of her studies, that teachers must be educated about computers if they are going to teach technology to children. They also have to follow technological innovations. Teachers must play an important role in using new technology to enhance the learning of their students. In this way, teachers become an important element in the education of children in the use of technology.

Since 1990, there have been several major comprehensive reviews of the literature on pre-service and their cooperating teachers' use of technology (e.g. Mecklenburger , 1990; Dwyer, Ringstaff, & Sandholtz, 1991; Wright et al., 1994; Means & Olson, 1994; Dyrli & Kinnaman, 1994; Branch, 1994; Driscoll, Klein, & Sherman, 1994; Earle, 1994, 1998, 2002; Reiser, 1994; Office of Technology Assessment, 1995; Fisher et al, 1996; Davis & Dickard, 1996; Birman et al, 1997; Kerry & Farrow, 1996; Powell, 1999; Kabadayi, 2001, 2005; Hawthorne, 2002; Bayhan et al, 2002; Han, 2002; Blatchford, & Blatchford, 2002.; Baylor & Ritchie, 2002; Heppell, 2003; Wheatley, 2003). Incorporated into each of these studies/reviews is a component for rethinking the role of the teacher for learning; attitudes and beliefs of pre-service and their cooperating teachers towards the technology use in classroom; encouraging them to use technology in teaching preschoolers; supporting the use of computerized simulations as an innovative supplement to an early childhood pre-service curriculum course; changing the traditionally accepted developmental limits on children's learning via technology; using the computer effectively to enhance children's learning in technology rich environment.

II. RESEARCH OBJECTIVES
The purpose of this study was to analyze the beliefs and attitudes of preschool teachers towards the use of educational technology in teaching / learning process in Turkish context.

To guide this study, the following research questions were investigated:
1. Was there significant difference between pre-school pre-service and their cooperating teachers towards the use of technology with regard to *difficulty, usefulness, effort, support, interest, effectiveness* and *acceptance* subscales respectively?
2. What were the pre-school teachers' views on the *frequency* of use of educational technology in their classes?
3. What were the pre-school teachers' views on the *frequency* of the *techniques* the pre-school teachers use in their classes?

III. METHODOLOGY
This study aims at analyzing the attitudes and beliefs of prospective pre-school pre-service and their cooperating teachers towards the use of technology in the classroom through "*attitude scale*" from their "*views on the use of educational technology*", "*use of activities in preschool classes*" and "*use of technology in preschool classes*" aspects. The sample of this study comprises 160 preschool pre-service student teachers who were enrolled in the Faculty of Education of Selçuk University and 100 preschool cooperating teachers who are currently working in Konya.

The data was analyzed by the SPSS statistical package, using the frequency distribution and percentage, the mean scores, reliability and factor analysis, and independent group t test procedures. While comparing pre-service and their cooperating teachers' attitudes mean score differences were taken into account.

Instrument
In this study an attitude scale, which was developed by Gömleksiz, (2004) was used to collect and to assess teachers' needs and portray their views towards use of educational technology in preschool settings. The scale was first translated from English into Turkish as it was originally in English. It was rearranged and adapted to the teaching domains of preschool teachers. The study scale consisted of 36 (24 positive and 12 negative) items comprising pre-service and their cooperating preschool teachers' "*views on the use of educational technology*", "*use of activities in preschool classes*" and "*use of technology in preschool classes.*" Having focused on the difficulty, usefulness, effort, support, interest, effectiveness and acceptance toward educational technology the scale included Likert-type items about different aspects of use of educational technology, investigating previous experience and future intentions of the participants.

The attitude scale presented in a 5-point Likert-scale format ranging from (5, strongly agree, 4, through agree, 3, partly agree, and 2, disagree to 1, strongly disagree) asked the teachers to describe their experience and attitudes towards the use of educational technology. As a result of test re-test application of the attitude scale to test the various dimensions of the scale on another teacher group before, correlation was found as r. 0.75. Cronbach alpha reliability value of the scale was found as .77. In addition to this, Cronbach-alpha of each subscale was found as difficulty.75, usefulness .68, effort.66, support .74, interest .76, effectiveness .70, and acceptance .65. It is supported that the reliability coefficient between 0.60 and 0.70 is satisfactory for Likert Styles related to the studies of reliability analysis (Cronbach, 1990).

Assumptions
It is, in this study, assumed that:
1. All subjects answered the surveys honestly.
2. The sample represents pre-service pre-school teachers attending to Selçuk University and their
   cooperating pre-school teachers working at pre-schools in Konya city, Turkey.
3. The subjects are able to understand the items in the attitude scale.

The study is limited with the followings:
   1. The pre-service pre-school teachers attending Selçuk University and their cooperating pre-school
   teachers working in the preschools in Konya city center respectively under the title of Ministry of National
   Education.
   2. The Attitude Scale
   3. Responses of the pre-service and their cooperating preschool teachers to the Attitude Scale
   4. 2005- 2006 academic year

IV. RESULTS AND INTERPRETATION
The Table 1 posed that the preschool teachers in both groups think that using educational technology is not easy in teaching children in preschool settings. No statistically significant differences were found between the two groups in all items shown in Table 2. It shows that the teachers are hesitating in using educational technology in preschool as it needs great effort and trial. These results show that teachers are not motivated enough to overcome the difficulties in using technological devices in classroom settings

In the item 21, the study indicated that pre-service preschool teachers scored higher than their cooperating preschool ones in respect of teachers' views on difficulty subscale (p< 0.05). The cooperating preschool teachers did not have the same opinion with their colleagues that schools have inadequate budget in providing necessary technological equipments

Table 1: Views on Difficulty the Preschool Teachers Face in Using and Providing Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	sd	$\overline{X}$	sd		
1	It is difficult to learn how to use a new technology in the classroom.	2.70	1.088	2.50	1.136	1.416	0.158
7	It is not easy to use educational technology.	2.80	1.064	2.69	1.083	0.821	0.412
17	I can easily get necessary equipment whenever I need.	2.91	1.021	2.77	1.156	1.020	0.308
21	School's budget is inadequate for buying necessary materials.	3.11	0.794	1.15	1.159	2.156	0.032*
31	A person has to do a difficult training course to understand how to use technology in class.	3.74	1.154	3.59	1.078	1.034	0.302

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

Table 2: Views on the Usefulness of Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
2	Students participates actively when I use technological aids	3.99	0.996	4.22	0.821	1.928	0.055
6	In my opinion educational technology enriches learning environment	4.49	0.818	4.60	0.749	1.063	0.289
10	There is a relation between success and use of technology.	4.18	0.901	4.42	0.697	2.249	0.025*
18	Using educational technology makes learning more interesting.	4.28	0.740	4.45	0.656	1.841	0.067*
23	Technology makes learning boring for students.	1.90	1.042	1.80	1.101	0.739	0.461
30	Using educational technology is a waste of time.	1.66	0.965	1.81	2.243	0.719	0.473

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The t-test results in Table 2 expose that all participants show positive attitudes towards the use of educational technology in preschool settings. The fact that no statistically significant differences were found between the two groups in all items shown in Table 3 explains that the teachers are in favor of the use of educational technology in preschool classes. Moreover, being aware of the importance of the technology in preschool settings, both pre-service and their cooperating teachers do not perceive using technology in class as waste of time. They believe that using technology facilitates the students' success and enhances their learning.

It is shown that statistically significant differences were found in items 10 and 18 (p< 0.05). The cooperating preschool teachers think more positively than the pre-service ones in terms of degree of effects on students' success and learning.

Table 3: Views on the Efforts of Pre-service and Cooperating Teachers to Use Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
4	I try to bring technological aids into the classroom.	3.76	0.982	4.01	0.836	2.138	0.033*
8	I always try to persuade my colleagues to use new technologies in the classroom.	3.83	0.848	4.01	0.799	1.736	0.084
11	I am very willing to provide technological aids.	4.03	0.863	4.29	0.686	2.549	0.011*
34	A student can learn easily without educational technology.	2.67	1.020	2.54	1.072	1.017	0.310
36	I always try to discover new ways for effective teaching.	3.91	0.987	4.31	0.662	3.578	0.000*

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The results of t-test in Table 3 expose that teachers in both groups have positive attitudes toward effort scale in general. Both pre-service and their cooperating teachers are of the opinion that technology aided teaching in pre-school settings is sine qua non for preschoolers' education. That significant difference has been found in the items 4, 11 and 36 (p < 0.05) means that cooperating teachers have a bit more positive attitudes than pre-service ones towards the items in question above. It is seen that findings in item 34 support the explanation above.

Table 4: Views on the Support the Teachers can Get Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
3	My school does not support me when I demand new equipment.	3.76	0.982	4.01	0.836	0.401	0.689
9	I share my experiences with my colleagues.	4.11	0.829	4.46	0.609	3.615	0.000*
22	Other teachers at my school always support me to provide necessary equipment.	3.20	0.700	3.11	1.202	0.698	0.486
26	In-service activities have helped me and developed my skills in using educational technology.	3.64	0.812	3.91	0.928	2.406	0.017*
28	Educational technology is available easily at my school.	3.04	0.837	2.75	1.080	2.440	0.015*
32	I can get enough support easily in finding necessary equipment	3.15	0.924	2.84	1.111	2.478	0.014*

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The study data given in Table 4 shows how both pre-service and their cooperating teachers evaluate the support they expect from their schools and colleagues. Most of the teachers are of the opinion that neither they are supported by technological equipments by their schools nor the devices can easily be accessed when they are in need of new equipments in the items 28 and 32. In addition to this, cooperating preschool teachers have a bit positive attitudes towards the benefits of in-service education and cooperation with their colleagues in respect of technology support subscale in the items 9 and 26 (p < 0.05).

Table 5: Views on the Interest of the Teachers on Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
5	I would like to learn more about new developments in educational technology	4.46	0.744	4.48	0.756	0.207	0.836
13	I am not interested in using educational technology in the classroom.	2.15	1.240	1.75	1.080	2.693	0.008*
15	I don't have enough knowledge for using technological aids.	2.91	1.163	2.62	1.164	1988	0.048*
20	Using educationaltechnology in teaching children would be interesting.	3.65	1.055	4.00	0.921	2.780	0.006*
24	Students pay more attention when I use technology in the classroom.	4.17	1.058	4.40	0.737	1.907	0.058
29	I follow new developments in educational technology properly.	3.22	1.024	3.24	1.099	0.157	0.875

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The findings displayed in Table 5 indicate that there are statistically significant differences in having interest and enough knowledge to use technological aids between both pre-service and their cooperating pre-school teachers in the items 13, 15 and 20 (p < 0.05). Pre-service preschool teachers have more positive attitudes from the point of having interest than their cooperating ones while they believe that they are not equipped with enough technologic knowledge to use the devices effectively. Both the pre-service and their cooperating preschool teachers are of the same opinion to follow new developments in educational technology properly.

Table 6: Views on the Benefits of Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
16	I think using technology in class has little effect on students' learning.	1.83	1.005	1.76	1.040	0.571	0.568
19	My students learn better when I use technology in the classroom.	4.12	0.912	4.27	0.679	1.434	0.153
25	Using educational technology has an important place in learning.	4.25	0.880	4.39	0.664	1.351	0.178
27	Technology has a large influence on students' motivation.	4.06	0.743	4.13	0.872	0.748	0.455

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The findings presented in Table 6 displays that both pre-service and their cooperating preschool teachers agree on the benefits of using technology in their classes since there existed no statistically significant differences between both groups. Both the pre-service and their cooperating preschool teachers admit the important role technology plays and they believe that their students are motivated and learn better via technology in pre-school settings.

Table 7: Views on the Acceptance of Educational Technology

Item No	Item	Pre-service (n: 160)		Cooperating (n: 100)		t	P
		$\overline{X}$	ss	$\overline{X}$	ss		
12	I accept the importance of educational technology in teaching children.	4.29	0.846	4.32	1.011	0.268	0.789
14	My students accept the importance of technology in preschool classes.	3.55	0.831	3.86	0.824	2.919	0.004*
33	My colleagues share my opinions on the use of educational technology.	3.46	0.727	3.54	0.974	0.748	0.455
35*	My students find use of technology boring.	1.86	0.827	2.22	1.199	2.861	0.005*

Negative items were reversed in order to maintain a homogenous score
*p < 0.05   df: 258

The study data in Table 7 exposes that both pre-service and their cooperating preschool teachers accept the importance of the technology use and express that they have nearly the same opinion in using it in the classroom. Cooperating preschool teachers have a bit more positive attitudes than their pre-service ones in their students' acceptance the importance of educational technology in item 14. The fact that there exists a significant difference between two groups in the item 35 supports the data 14, which is about the acceptance of the importance of educational technology.

Table 8: Use of Educational Technology in Preschool Classes (n: 260)

Technology used	Never		Rarely		Sometimes		Often		Always	
	f	%	f	%	f	%	f	%	f	%
Overhead Projector	84	18.1	57	12.3	91	19.6	21	4.5	7	1.5
Tape-Recorder	23	5.0	27	5.08	70	15.1	89	19.2	51	11.0
Tv-Video	29	6.3	12	2.6	74	15.9	84	18.1	61	13.1
Slides	84	18.1	52	11.2	74	15.9	40	8.6	10	2.2
Flashcards	49	10.6	41	8.8	65	14.0	64	13.8	41	8.8
Pictures	21	4.5	20	4.3	49	10.6	70	15.1	100	21.6
Computer	71	15.3	39	8.4	75	16.2	41	8.8	34	7.3
Board	40	8.6	30	6.5	81	17.5	48	10.3	61	13.1

The results of the data in Table 8 pose that both pre-service and their cooperating preschool teachers use *pictures, board, TV-video, tape-recorder, flashcards, computer, slides* and *OHP* in the order of importance respectively. The descriptive data show that the participants tend to use mostly traditional teaching devices such as board, pictures, etc., rather than high-techs such as computer, data show etc.

Table 9: Use of Activities in Preschool Classes (n: 260)

Techniques used	Never		Rarely		Sometimes		Often		Always	
	f	%	f	%	f	%	f	%	f	%
Pair work	15	3.2	36	7.8	113	24.4	72	15.5	24	5.2
Games	4	0.9	24	5.2	31	6.7	77	16.5	124	26.7
Problem Solving	10	2.2	29	6.3	83	17.9	82	17.7	56	12.1
Role-playing	15	3.2	27	5.8	90	18.4	86	18.5	42	9.1
Group work	3	0.6	19	4.1	33	7.1	126	27.2	79	17.0
Authentic Texts	17	3.2	40	8.6	71	15.3	85	18.3	47	10.1
Information gap	12	2.6	32	6.9	64	3.8	81	17.5	71	15.3
Simulation	21	4.5	20	4.3	49	10.6	70	15.1	100	21.6
Drama	4	0.9	24	5.2	31	6.7	77	16.5	124	26.7

The findings displayed in Table 9 show that both pre-service and their cooperating preschool teachers have a tendency to use games, group work, drama, simulation, information gap, problem solving, authentic text and pair work activities in the order of importance respectively.

V. DISCUSSION
The results of the study data expose that both pre-service and their cooperating teachers believe that using technology in preschool settings is necessary and important for both themselves and for the children. It is suggested that we, as teachers should promote the effective use of computers in pre-schools (Bayhan et al. 2002). The study also indicates that the teachers are not motivated enough to overcome the difficulties and their phobia in manipulating technologic devices in classroom settings. It is supported that if the teacher does not know how or what to teach, the children will resort to the trial and error approach to learning, which will be much less efficient than if the teacher provided systematic instruction on the use of the computer (Fraser, 1998). Moreover, it is also considered necessary that pre-service teachers feel competent in the use of technology (Davis & Dickard, 1996).

Majority of the teachers believe that they are not supported by technological equipments by their schools when they are in need of new equipments. To overcome these barriers, staff development for technology use tends to be more effective in the presence of a consistent model for supporting collaboration among teachers. Those programs that integrate technology with a clearly identified mentoring program tend to sustain technology use in the classroom, increase teacher satisfaction with technology, and provide motivation to seek out new technologies (Kerry & Farrow, 1996).

The study data poses that both the pre-service and their cooperating preschool teachers agree on the same point that they should follow new developments in educational technology properly. Graddol (1997) supports this by stating that technology now lies at the heart of the globalization process; affecting education, work and culture.

Great majority of the teachers believe that their students are motivated and learn better via technology in pre-school settings. To attain this, Haugland (1995) suggests that four factors are essential for computers to have a significant impact in the early childhood education environment. Three of Haugland's four factors involve the early childhood educator. Specifically, teachers must be open to technology and receptive to the placement of the computers in the classroom. They also must be aware of the potential benefits of computers and that computers can play a positive role in the classroom. To achieve this awareness, they must be trained in early childhood computer integration. Finally, computers must be available in the early childhood setting.

Practically all of the teachers accept the role and importance of technology use in pre-school settings as it is stated that educators are familiar enough with the technology to be able to guide young children's learning because computers can be used to facilitate learning (Powell, 1999; Clements et al., 1993; Haugland, 1992).

VI. CONCLUSION AND IMPLICATIONS

The study data showed that teachers are not motivated enough to overcome the difficulties in manipulating technological devices in classroom settings. Both pre-service and their cooperating teachers do not perceive using technology in class as waste of time since they believe that using technology facilitates the students' success and their learning. In addition to this, cooperating preschool teachers have a bit positive attitudes towards the use of technology in respect of technology *support, effort, usefulness, acceptance* and *benefits* subscales.

The results of the study data also show that the participants tend to use mostly traditional teaching devices rather than high-techs. Moreover, the findings indicate that both pre-service and their cooperating preschool teachers prefer using games, group work, drama, simulation activities in preschool settings most. As a consequence it was implied from the study data that both pre-service and their cooperating teachers be educated and equipped with necessary technological know-how during in-service training.

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