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Ahmet Sami Konca¹, Erdogan Ozel², Hikmet Zelyurt³

¹Ahi Evran University, Turkey, sami.konca@ahievran.edu.tr

²Inonu University, Turkey, erdogan.ozel@inonu.edu.tr

³Inonu University, Turkey, hikmet.zelyurt@inonu.edu.tr

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Attitudes of Preschool Teachers towards Using Information and Communication Technologies (ICT)

Ahmet Sami Konca^{*1}, Erdogan Ozel², Hikmet Zelyurt³

¹Ahi Evran University, Turkey, ²Inonu University, Turkey, ³Inonu University, Turkey

Abstract

The aim of the study is to determine the attitudes of preschool teachers towards using technological tools and to analyze it in terms of different variables. The research was conducted based on descriptive study model. Working group was consisted of 103 teachers working at kindergartens in city center of Kırşehir and Malatya in the fall semester of 2014-2015 academic years. A personal information form created by researchers and "The Scale of Attitudes towards Using Technological Tools in Preschool Education" developed by Kol (2012) were used to collect data. Frequency, percentage, mean and standard deviation were used in order to analyze the data. T-test for independent samples and one-way variance analysis were used in order to determine the relationships between variables. As a result of the study, the teachers showed a very positive attitude towards using technological tools. It was found out that preschool education graduate teachers showed a more positive attitudes towards using technological tools as comparing with the distance education graduate preschool teachers.

Key words: Information and communication technologies; Preschool teachers; Early childhood education

Introduction

Nowadays, people face with various knowledge and skills in a rapidly increasing way. Teaching profession also requires the development of a pedagogical role by not only being limited to teaching a new course. Teachers are required to change their pedagogical role if they want to use new methods and technologies (Kalogiannakis, 2010). Information and communication technologies (ICT) are the leading technologies that will cause to this change. By 2000s, teacher training programs had an aim that teachers should do the tasks which are in parallel with functions and traditional roles of schools. In the last fifteen years, ICT has become a part of everyday life in schools. Today, the question of "Should computers be used in education?" gives place to the question of "How should we use computers in most effective and efficient way in education?" (Yaşar, 2004). However, because it holds bureaucratic and institutional matters in its texture, changing the structure of teacher education doesn't seem to be an easy process. Preschool environments have many unresolved debates on the use of technology. While some educators advocated that the use of technology in preschool education was harmful and inefficient, others stated that ICT was a unique tool that could support the development of children (McPake, Plowman & Stephen, 2013).

Technology in Preschool Education by Preschool Teachers

It is highly important to understand the attitudes of preschool teachers towards ICT since they are among the major people that have an impact on children's learning (McCarrick & Li, 2007). However, in Turkey, there are very few studies examining attitudes of preschool teachers towards ICT. In the literature, when the present studies are examined, it is seen that preschool teachers have a positive attitude towards the use of technology (Konca, 2014). Preschool teachers specify that while the use of technology supports the success and learning of children, at the same time it is difficult to use this technology (Lindahl & Folkesson (2012). In addition, it was determined that teachers are facing difficulties in terms of hardware and technical support by the institution they work (Kabadayı, 2006). When the preschool teachers' use of ICT in their educational process was examined, it was seen that teachers used ICT mostly in preparing plans and in music activities. It was also ascertained that the attitudes of teachers towards ICT affected those of children and increased their motivation (Yurt & Cevher-Kalburan, 2011).

* Corresponding Author: *Ahmet Sami Konca, samikonca@yahoo.com*

When the attitudes of preschool teacher candidates towards ICT were examined, it was determined that teacher candidates had also positive attitudes towards the use of ICT (Oğuz, Ellez, Akamca, Kesercioğlu & Girgin, 2011). However, studies show that there is a gap between the courses that preschool teacher candidates took about ICT in university education and the expected level of ICT use in preschool education environments (Kalogiannakis, 2010). Basic computer skills underlie the ICT literacy, but this isn't enough for the preschool teachers to insert them in ICT educational processes (Wetzel, Wilhelm & Williams, 2004). It is extremely important in preschool teachers' technology use that how preschool teachers and teacher candidates take education for using new technologies should be determined and this education should be improved (Yıldırım, 2000; Chen & Chang, 2006). That the preschool teacher candidates are educated in this field will be decisive for the ICT's role in preschool education (Kalogiannakis, 2010).

Method

This research is a quantitative research. With the purpose of determining the characteristics of population and possible causes that may lead to differences, scanning method was used in the data collection process (Frankel & Wallen, 2009). First of all, the attitudes of preschool teachers towards ICT were tried to be described. Then, the attitudes of preschool teachers towards ICT were compared with respect to demographic characteristics.

Sample

103 preschool teachers who work in provinces of Kırşehir and Malatya participated to the research. By using a simple random sampling method, forming a sample which will be able to represent all population was intended (Frankel & Wallen, 2009). Findings related to personal information of the teachers taking place in the sample were given in Table 1.

Table 1. Demographic information about the teachers participated in the study

Variables	N	%	
Age	21-30	47	45.6
	31-40	46	44.7
	41+	10	9.7
Gender	F	98	95.1
	M	5	4.9
Education	Open Edu.	12	11.7
	Edu. Faculty	91	88.3
Seniority	1-5 years	27	27.3
	6-10 years	42	42.4
	11-15 years	19	19.2
	16+	11	11.1
Total	103	100	

Data Collection and Analysis

In the research scope with the aim of data collection, "Attitude Scale for Technological Tools and Materials Use in Preschool Education" developed by Kol (2012) was used. This scale consists of five point Likert type 20 items of which 14 are positive and 6 are negative. The lowest possible score on the scale 1, the highest score is 5. Getting a high score from the scale means that preschool teacher has a positive attitude towards technological tool and material use. As a consequence of reliability study, Cronbach Alpha reliability co-efficient was calculated as 0.92.

Results

When the attitudes of preschool teachers towards technological tool and material use participating to the research were examined on the basis of sample, the mean was 4.21 which refers to high attitude (see Table 2). Additionally, 90.26% of teachers have a high attitude and 8.74% of teachers have a moderate attitude. In the light of these findings, it can be concluded that preschool teachers have quite a positive attitude towards technological tool and material use.

Table 2. Points that the teachers gave to the attitude scale for technological tools and materials use

	Mean	SD	Minimum	Maximum
Point	4.21	0.51	2.3	5.00

Unrelated samples t-test was conducted in order to reveal whether faculty type from which teachers graduated had a significant influence on the attitudes of teachers towards technological tool and material use (see Table 3). In this test, it was seen that there was a significant difference between the test point average ($M=4.25$, $SD= 0.49$) of teachers who graduated from faculty of education and test point average ($M=3.90$, $SD= 0.56$) of teachers who graduated from faculty of open university ($t(101)=-2.32$, $p<0.05$). In this case, it can be said that faculty type from which preschool teachers graduated has a significant influence on their attitudes towards technological tool and material use. In the light of these findings, preschool teachers who graduated from faculty of education have a more positive attitude towards use of technology compared to the teachers who graduated from faculty of Open University.

Table 3. Grouping the points that the teachers gave to the attitude scale for technological tools and materials use

Range	Group	N	%
1-2.33	Low	1	1
2.34-3.67	Moderate	9	8.74
3.68-5.00	High	93	90.26

As seen in Table 4, attitudes of teachers both graduating from faculty of education and faculty of open university are quite high even when all the items of the scale were examined. Nevertheless, answers given to 7,14,15,17 and 20th items of the scale by preschool teachers differ from according to faculty type they graduated from ($p< 0.05$). As stated above, these findings promote the conclusion that preschool teachers who graduated from faculty of education have a more positive attitude towards use of technology compared to the teachers who graduated from faculty of Open University.

Table 4. comparison of the points that the teachers gave to the attitude scale for technological tools and materials use with the type of the faculty that they graduated from

No	Item	Education Faculty		Open Education		t	p
		M	SD	M	SD		
1	Technological tools are indispensable tools for me.	4.16	.992	4.42	.515	.862	.391
2	The use of technological tools contributes to preschool education.	4.48	.673	4.33	.492	-.746	.457
3	Using technological tools and materials in the activities is a waste of time	4.55	.671	4.25	.622	-1.46	.146
4	Technological tools facilitate the work of preschool teachers considerably.	4.22	.940	3.83	.937	-1.34	.184
5	Technological tools make the quality of preschool education improved.	4.30	.876	4.00	.853	-1.11	.271
6	Technological tools reduce the role of the teacher in the classroom.	4.15	.868	3.75	1.22	-1.44	.153
7	Technological tools highly motivate preschool children.	4.08	.833	3.50	1.00	-2.20	.030*
8	Technological tools make preschool activities more enjoyable	4.37	.798	4.08	.669	-1.20	.231
9	Technological tools break preschool child's concentration.	4.12	.786	3.75	.866	-1.52	.132
10	My technical knowledge is adequate. to use technological tools	4.00	.699	3.75	.452	-1.20	.232
11	It is unnecessary to use technological tools in preschool education	4.43	.762	4.08	.669	-1.49	.138
12	Technological tools are suitable for teaching methods used in preschool	3.98	.632	3.75	.754	-1.15	.253
13	In order to provide a quality education. experienced teachers do not need the technological tools.	4.26	.828	3.83	1.03	-1.65	.103

Table 4 (Continued)

14	In terms of visibility, it is important to use technological tools in the preschool activities.	4.43	.617	3.83	.835	-3.01	.003*
15	Technological tools make the preschool teachers more effective in education.	4.19	.829	3.58	.900	-2.35	.021*
16	Technological tools reduce the teacher-student interaction.	4.10	.857	3.67	1.23	-1.56	.123
17	Technological tools make the information more permanent.	4.35	.656	3.92	.900	-2.06	.042*
18	The level of development of preschool children are increased by the help of the activities carried out with the technological tools	4.19	.842	3.75	.866	-1.68	.095
19	Technological tools contribute to the development of the child positively.	4.21	.691	3.83	.718	-1.76	.081
20	Technological tools are highly effective on materializing abstract concepts in the activity process.	4.46	.638	4.00	1.128	-2.12	.036*

*p<0.05, df=101

Discussion and Conclusion

With the previous studies conducted about preschool teachers and technology, it has been determined that teachers have positive attitudes towards technological tool and material use (Kabadayı, 2006; Cevher-Kalburan, Yurt & Ömeroğlu, 2011; Gök, Turan & Oyman, 2011; Yurt & Cevher-Kalburan, 2011; Önkol, Zembat & Uyanık Balat, 2011; Kol, 2006; Oğuz et al. 2011). This conclusion is also supported by this research. However, as a result of conducted studies, it has been stated that preschool teachers used many technologies in preparing daily plans, they gave very little space to technology in activities, and they took advantage of technology mostly in music activities and they used technology one or two times a week (Yurt & Cevher-Kalburan, 2011). It is necessary that teachers' positive attitudes should be supported and teachers should be supported about how to use technology in preschool education.

Research results reveal that the use of technology in preschool education is necessary and important in terms of both teachers' and children's development (Plowman, Stevenson, McPake, Stephen & Adey, 2011). In addition, it is seen that preschool teachers have motivation against hardships that may come across in the process of integrating technological tools and materials to the educational environments. However, if the teacher isn't supported about how to teach and what to teach in this process, both the teacher and children may have to experience the process of learning by trial and error. This process is contrary to the efficiency principle that underlies the technology integration (Fraser, 1998). For supporting teachers in the process of integration of technology, supporting the cooperation among teachers will be efficient. Owing to a well-designed mentoring programme, teachers' satisfaction towards the use of technology will increase and teachers will have motivation towards using new technologies (Kerry & Farrow, 1996).

Teachers state that children become motivated and learn better thanks to technology. According to Haugland (1995), four factors consisted of openness, awareness and training of teacher, and availability of technology are the point in question for technology to have an impact in preschool. Teachers should be open to technology and they should approach integration of technology to the education process positively. In this study, it was clear that preschool teachers have positive attitude towards technology. Thus, the first factor already exists to integrate technology to early childhood education. So, preschool teachers already have the potential of implementation of technology. Additionally, by realizing the potential benefits of technology, they should comprehend that technology may play an important role in the education process. In order to provide this awareness, teachers should be educated about integration of technology to the preschool education.

As stated in the findings part, preschool teachers who graduated from faculty of Open University have high attitudes towards technological tool and material use. On the other hand, there is a significant difference between them and graduates of faculty of education. Preschool teachers who graduated from faculty of Open University have lower attitudes towards benefits that technology may provide such as motivation, visualization and permanent learning compared to teachers who graduated from faculty of education. Despite the fact that

faculties of open university don't graduate preschool teachers now, when it is thought that the teachers of faculty of open university represent the %10 of sample of research, the importance of the situation can be understood and preschool teachers both graduating from faculty of open university and faculty of education can be supported about technology integration thanks to qualified in-service trainings.

Notes

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