RedFame

Journal of Education and Training Studies
Vol. 4, No. 12; December 2016
ISSN 2324-805X E-ISSN 2324-8068
Published by Redfame Publishing
URL: http://jets.redfame.com

Parents' Views on the Use of Technology in the Early Childhood Period

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Received: October 17, 2016 Accepted: October 31, 2016 Online Published: November 3, 2016

doi:10.11114/jets.v4i12.1925 URL: http://dx.doi.org/10.11114/jets.v4i12.1925

Abstract

The main aim of this research is to examine parents' views on technology use in the early childhood period. Survey method was used in this research. The research population consists of the parents, whose children go to the pre-school education institutions in Istanbul province. The research sample consists of 477 parents chosen by the random sampling method, who have children who go to 9 different pre-school education institutions in the 2015-2016 spring semester, 3 of these schools being state schools and 6 private schools. The "Personal Information Form" developed by the researcher and the "Parents' Views on the Use of Technology by Children in the Pre-School Period Scale" developed by Kılınç were used in the data collection. Data collected for the study were analysed using SPSS 20 program. At the end of the research, it was found out that parents' views on the use of technology in the early childhood period differ significantly by the gender of the children, the gender of parents, the type of the school children attend and the level of income, while parents' views on the use of technology in the early childhood period do not differ significantly by the working status of the mothers, the age of the children and the number of children parents have.

Keywords: early childhood period, technology use, parents' views

1. Introduction

While the early childhood period covers the age of 0-8, the early childhood development involves physical, cognitive, and social developments in the early periods of children's life. This period is the ages when growth and development occur most rapidly (Özmert, 2005). Children become acquainted with technology in the early childhood years, and particularly with information and communication technology (ICT) which can be defined as any kind of visual, audial, printed and written means which ensure access to information and creating information and can use them since the young ages. ICT according to Bolgan (2006) is a concept which involves digital means such as computer, printer, scanner, digital camera, various computer software, telephone, electronic toys, audio hardware and the Internet. While Plowman and Stephen (2005) give the same definition, they also include toys such as telephone, computer, microwave oven which imitate ICTs in this definition. Many studies carried out on ICT in pre-school education focus solely on the children's computer use. However, some studies conducted research by addressing a wider definition of ICT (Plowman and Stephen, 2005; Bolgan, 2006; O'Hara, 2008). Contemporary studies show that the rates of the children's use of ICT increase day by day, that the age at which they become acquainted with ICT decreases and that the applications they use diversify. (Holloway, Green and Livingstone, 2013; The Organisation for Economic Co-operation and Development [OECD], 2011; Radyo Televizyon Üst Kurulu [RTÜK], 2013). Television, camera, computers, smartphones have become a part of the children's lives in our modern society (Akkoyunlu and Tuğrul, 2002).

As well as readily accessing many applications that imitate the games in smartphones, children can also easily access entertainment-purpose TVs, DVD players, music players, computers and the Internet. Furthermore, they can also easily use digital and phone cameras in order to talk to the other members of the family and their relatives (Plowman, McPake and Stephen, 2010). As a result of the study they performed on the Internet usage frequency of pre-school students, Kenanoğlu and Kahyaoğlu (2011) found out that 36,1% of pre-school students use the Internet every day, 27,8% use it once a week, 6% once a month, while 30,1% do not use the Internet at all. In addition to this, ICT has also started to be used frequently in pre-school education, as well. Many studies have been carried out in Europe and America on the effect of information and communication technologies on pre-school education and their integration into pre-school education. As a result of these studies, technology has been increasingly included in pre-school education as of the 2000s, and various practices have been carried out (Marsh, Brooks, Hughes, Ritchie, Roberts and Wright, 2005; Rideout,

Vandewater and Wartella, 2003; Kucirkova, Messer, Seehy and Panadero, 2014; Veenstra, van Geert and van der Meulen, 2010; Hansen, 2009; Rasanen, Salminen, Wilson, Aunio and Dehaene, 2009). It is expressed by educators that an ideal time for meeting ICT and giving training on the use of ICT is the pre-school period (Tekcan, 2009). The sense of curiosity of the children in this age group is promoted thanks to ICT, and the possibility to learn by living, trying and error is provided to the children in this age group. For this reason, ICT is used in various fields in pre-school education. For example, ICT is used in such fields as developing exercise skills, cognitive development, counting and mathematics and reading and writing skills, and thus, it becomes easier to give children feedback on their actions (Demir and Kabadayı, 2008).

When used in a suitable manner to the development level of the children in the pre-school period, it positively affects the development of children (Bütün-Ayhan and Aral, 2005). Various positive effects of the use of ICT on pre-school children were also emphasised in the studies regarding the use of ICT in learning-teaching processes. For example, it is expressed that the use of ICT in the pre-school period renders learning more meaningful and enjoyable (Akpınar, 2005; Arı ve Bayhan, 2003), and it develops creative thinking skills (Sivin-Kachala and Bialo, 2000). ICT also enables active learning by individualizing learning when used in pre-school teaching (Küçükoğlu, 2013). One of the purposes of preschool education is to preparing children to elementary school (Milli Eğitim Bakanlığı [MEB], 2013). For this reason, the preparation activities for writing in the pre-school period are carried out. In a study on the use of ICT in the preparation activities in the pre-school period, it was expressed that the use of ICT increases the motivation of students regarding the writing process (Arrowood and Overall, 2004). In other studies on this subject, similar results were achieved and it was expressed that children are more motivated in computer-supported activities (Chung and Walsh, 2006; Talley, Lance and Lee, 1997). The use of technology in the development of social, cognitive and lingual skills of children in pre-school education is regarded as an important tool in learning-teaching processes (Gimbert and Cristol, 2004). It was also shown in the studies carried out that children who use ICT in this period are more successful in mental development, the formation of information, problem-solving skills and lingual skills than those who do not (Clements and Sarama, 2003). Painting and drawing tasks have a significant part in pre-school teaching. These studies are widely used in order to prepare children for writing. It was shown in the studies carried out that children use the same processes with the ones in crayons or pastels when computers and tablets are used in painting and drawing tasks (Matthews and Jessel, 1993), and they increase their interest in painting and drawing (Couse and Chen, 2010; Trepanier-Street, Hong and Bauer, 2001). In his study, İlhan Agan (2004) examined the effect of teaching technology and material-supported foreign language teaching on the learning and memorizing levels of pre-school students. In this study, it was concluded that learning environments in which learning technologies and material-supported teaching are used have positive effects on the success of students. Kumtepe (2006) investigated the effect of the use of a computer on the social skills of pre-school children and found that children with higher computer using skills exhibit less problematic behaviours and have better social skills. In a study, Erdoğan (2009) compared traditional and computer-supported teaching methods in teaching chess in the pre-school period and found that children who are given computer-supported chess education are more successful than children who are given traditional chess education, children participate in the lesson in a more interested way and learn by entertainment during the process of computer-supported teaching. In the study carried out by Çankaya (2012), the effect of using computer games in the process of introducing certain mathematical concepts in the pre-school education period on the level of knowledge of students was examined, and it was concluded that computer games are useful in introducing certain mathematical concepts and the permanence of these concepts in the mind. In a study that aimed to determine the effect of computer-supported teaching on introducing the concepts of time and place to children under six years of age, Kol (2012) concluded that computer-supported teaching is more beneficial in introducing the concepts of time and place. In a study examining the effect of the cartoons, theatre, cinema, Internet games, computer education CDs and TV series on children aged 60-72 months that continue pre-school education, Emir (2011) found that education CDs, theatre, cartoons, and cinema have positive effects on children while Internet games and TV series have negative effects on them. Ayvacı and Devecioğlu (2010) compared computer-supported teaching and the traditional method in the introduction of opposite terms in pre-school children and found that children who are given computer-supported education in the introduction of opposite terms are more successful.

While there are the supporters that the use of ICT by children in the pre-school period is an element of chance in the multi-directional development of children, there are also those who object to it as they regard it as an element of threat. The main reason for this differentiation is directly related to how ICT is used (Şen,2012). While many terms such as digitally local, network generation and millennium generation that express that children can easily use ICT, children face many problems while using ICT (Bartlett and Miller, 2011; Valcke, Bonte, De Wever and Rots, 2010). For example, in addition to many opportunities such as learning, communication, and citizenship, children face problems such as cyberbullying, dependence and violations of privacy (Aslanidou and Menexes, 2008; Chang, 2010; Gasser, Maclay, and Palfrey, 2010). The most important subjects that children may face during the use of ICT are the subjects of health and

security. For the safety of children, it is necessary to show special care for preventing their exposure to unsuitable content (various games, sexual content, undesirable words) and protecting the privacy of students (Mishra and Joseph, 2012). Siraj-Blatchford and Siraj-Blatchford (2003) emphasised that children's use of computers should be relatively lower when compared to adults, and the duration of computer use should not be more than 40 minutes on average up to 8 years of age. In a report prepared under the editorship of Cordes and Miller (2000), it was asserted that the use of computer at early ages may have various harms on pre-school children in physical, emotional, social, cognitive and moral terms. It was expressed that the eye health of small children who spend time by sitting closely to display applications (TV, computer, game consoles, mobile phones, tablets, laptops, etc.) for a long time will be affected negatively. It was further expressed in this report that sitting in front of the computer for a long time will cause obesity and that various problems may occur in regard to the skeletal structure of the children. It was asserted that such situations as the late development of certain developmental features among children such as the coordination of the sensory organs may occur. In order for ICT to fit the development of children, it is necessary that it has an educational aim, it supports cooperation, that the practices overlap other educational needs, the child is kept under control, the practices are simple as it can be used by the child, there are no applications with violent and sexual content, and it must have been designed with due consideration to the subjects of health and security (Mishra and Joseph, 2012). Almost all of the negativities mentioned about the harms of using ICT in the pre-school period result from the use of ICT unconsciously and in an unguided manner. These problems that generally result from the use of ICT unconsciously and outside the family control in their own houses can be minimized with family supervision again. Rather than prohibiting IT, which children will frequently need in their future lives, teaching how to use it effectively will bring about many benefits. At this point, parents have important duties (Kılınç, 2015). Hence, the responsibilities of parents, who are responsible for the training of their children at the first degree in the pre-school period, further increased with these rapid technologic developments and social changes brought about by these developments (Göğebakan, 2011). In this framework, this study was carried out in order to examine parents' views on technology use in the early childhood period. The sub-objectives determined in line with this main objective are as follows:

- Do the views of parents on the use of technology in the early childhood period differ by the gender of the child?
- Do the views of parents on the use of technology in the early childhood period differ by the gender of the parent?
- Do the views of parents on the use of technology in the early childhood period differ by the working status of the mother?
- Do the views of parents on the use of technology in the early childhood period differ by the type of school which their children attend?
- Do the views of parents on the use of technology in the early childhood period differ by the age of the child?
- Do the views of parents on the use of technology in the early childhood period differ by the number of children that parents have?
- Do the views of parents on the use of technology in the early childhood period differ by the level of income?

2. Method

2.1 Research Model

Survey method was used in this study as parents' views on the use of technology in the early childhood period are examined. Survey methods are research approaches that aim to describe the past or existing situation as it is (Karasar, 2012).

2.2 Research Population and Sampling

The research population consists of the parents, whose children go to the pre-school education institutions in Istanbul province. The research sample consists of 477 parents chosen by the random sampling method, who have children who go to 9 different pre-school education institutions in the 2015-2016 spring semester, 3 of these schools being state schools and 6 private schools.

2.3 Data Collection Tool

The "Personal Information Form" and the "Parents' Views on the Use of Technology by Children in the Pre-School Period Scale" were used in the data collection.

Personal Information Form: This form was developed by the researcher in order to obtain information about the demographic properties of the sample. Questions were asked in this form about the age, the type of school the child attend, the gender of the parent, working status of the mother, number of children and the level of income.

The Parents' Views on the Use of Technology by Children in the Pre-School Period Scale: This scale was developed by

Kılınç (2015) in order to determine the parents' views on the use of technology by children in the pre-school period. The scale consists of 25 items of Likert-type in the form of "totally disagree", "disagree", "indecisive", "agree" and "totally agree", and 6 dimensions as "Family Guidance in Technology Use", "Benefits of the Technology", "Technology Application Areas", "Harms of the Technology", "Skill of Using Technologic Devices" and "Suggestions". The reliability and validity studies of the scale were again carried out by Kılınç (2015). As a result of the internal consistency analyses carried out, for each dimension of the scale, the Cronbach's Alpha internal consistency coefficients were found as .64 for the dimension of Family Guidance in Technology Use, .74 for the dimension of the Benefits of the Technology, .78 for Technology Application Areas, .67 for the dimension of the Harms of the Technology, .65 for the Skill of Using Technologic Devices, and .75 for the dimension of Suggestions. It was determined that the Cronbach's Alpha internal consistency coefficient for the whole scale is .73 (Kılınç, 2015). That the reliability coefficient is .70 and higher in social sciences is regarded as generally sufficient for the reliability of the test scores (Büyüköztürk, 2011).

2.4 Data Collection

Data on the research were gathered in the 2015-2016 spring semester with the help of the directors and teachers in 9 pre-school education institutions. The "Personal Information Form" and the "Parents' Views on the Use of Technology by Children in the Pre-School Period Scale" were reached to the parents by means of the teachers, and it was again collected by the teachers after they had been filled in.

2.5 Data Analysis

Data collected for the study were analysed using SPSS 20 program. The One-Way Variance Analysis (ANOVA), Scheffe's Test, Tamhane's T2 Test, Kruskal-Wallis H Test, Independent Group t-Test and Mann-Whitney U Test were used in the analysis of the data.

3. Findings

The findings obtained from the study are tabulated below in the framework of sub-objectives.

3.1 Findings on the First Sub-objective

The first sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the gender of the child. Below, there are findings on the first sub-objective in the form of a table.

Table 1. Independent Group t-Test results carried out in order to determine whether the sub-scale scores of the Parents' Views on the Use of Technology by Pre-School Period Children Scale differ by the gender of the child

Sub-dimension	Gender of the Child	N	$\bar{X}$	Standart Deviation	Standart Error Mean	t-Test		
						t	df	P
Family Guidance in Technology Use	Female	245	19.27	2.873	.184			
	Male	232	19.25	2.776	.182	.091	475	.928
Benefits of the Technology	Female	245	15.69	4.421	.282			
	Male	232	15.39	4.768	.313	.707	475	.480
Technology Application Areas	Female	245	7.89	3.141	.201			
	Male	232	7.59	3.294	.216	1.030	475	.304
Harms of the Technology	Female	245	16.47	3.450	.220			
	Male	232	16.25	4.016	.264	.628	475	.530
Skill of Using Technologic Devices	Female	245	12.31	2.599	.166			
	Male	232	12.31	2.565	.168	-.002	475	.999
Suggestions	Female	245	9.83	1.784	.114			
	Male	232	9.49	1.927	.127	2.034	475	.043*

Upon examining Table 1, it is seen that no statistically significant difference was found between the arithmetic means of the Family Guidance in Technology Use (t=.091; p>.05), Benefits of the Technology (t=.707; p>.05), Technology Application Areas (t=1.030; p>.05). Harms of the Technology (t=.628; p>.05) and the Skill of Using Technologic Devices (t=-.002; p>.05) dimension. As for the dimension of Suggestions, the difference between the arithmetic means of the groups was found to be statistically significant (t=2.034; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the parents who have a daughter ($\bar{\mathbf{X}}$=9.83) is higher than the arithmetic mean of the parents who have a son ($\bar{\mathbf{X}}$=9.49). In other words, the difference in question is in favour of the parents who have a daughter.

3.2 Findings on the Second Sub-objective

The second sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the gender of the parents. Below, there are findings on the second sub-objective in the form of a table.

Table 2. Independent group t-test results carried out in order to determine whether the sub-scale scores of The Parents' Views on the Use of Technology by Pre-School Period Children Scale differ by the gender of the parent

Sub-dimension	Gender of the Parent	N	$\bar{X}$	Standart Deviation	Standart Error Mean	t-Test		
						t	df	P
Family Guidance in Technology Use	Female	365	19.42	2.630	.138			
	Male	70	18.60	3.071	.367	2.337	433	.020*
Benefits of the Technology	Female	365	15.12	4.600	.241			
	Male	70	17.59	4.227	.505	-4.414	433	.000*
Technology Application Areas	Female	365	7.61	3.226	.169			
	Male	70	8.49	3.269	.391	-2.086	433	.041*
Harms of the Technology	Female	365	16.64	3.508	.184			
	Male	70	15.41	3.809	.455	2.631	433	.009*
Skill of Using Technologic Devices	Female	365	12.32	2.686	.141			
	Male	70	12.49	1.991	.238	-.617	433	.538
Suggestions	Female	365	9.58	1.869	.098			
	Male	70	10.34	1.744	.208	-3.322	433	.001*

Upon examining Table 2, it is seen that no statistically significant difference was found between the arithmetic means of the Skill of Using Technologic Devices dimension. (t=-.617; p>.05)

Statistically significant difference was found between the arithmetic means of the Dimension of Family Guidance in Technology Use (t=2.337; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the mothers ($\bar{\mathbf{X}}$=19,42) is higher than the arithmetic mean of the fathers ($\bar{\mathbf{X}}$=18.60). In other words, the difference in question is in favour of the mothers.

Statistically significant difference was found between the arithmetic means of the Dimension of Benefits of Technology (t=-4.414; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the fathers ($\bar{\mathbf{X}}$=17.59) is higher than the arithmetic mean of the mothers ($\bar{\mathbf{X}}$=15.12). In other words, the difference in question is in favour of the fathers.

Statistically significant difference was found between the arithmetic means of the Dimension of Technology Application Areas (t=-2.086; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the fathers ($\bar{\mathbf{X}}$=8.49) is higher than the arithmetic mean of the mothers ($\bar{\mathbf{X}}$=7.61). In other words, the difference in question is in favour of the fathers.

Statistically significant difference was found between the arithmetic means of the Dimension of Harms of Technology (t=2.631; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the mothers ($\bar{\mathbf{X}}$=16.64) is higher than the arithmetic mean of the fathers ($\bar{\mathbf{X}}$=15.41). In other words, the difference in question is in favour of the mothers.

Statistically significant difference was found between the arithmetic means of the Dimension of Suggestion (t=-3.322; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the fathers ($\bar{\mathbf{X}}$=10.34) is higher than the arithmetic mean of the mothers ($\bar{\mathbf{X}}$=9.58). In other words, the difference in question is in favour of the fathers.

3.3 Findings on the Third Sub-objective

The third sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the gender of the child. Below, there are findings on the third sub-objective in the form of a table.

Upon examining Table 3, it is seen that no statistically significant difference was found between the arithmetic means of the Family Guidance in Technology Use (t=-.547; p>.05), Benefits of the Technology (t=.751; p>.05), Technology Application Areas (t=.432; p>.05), Harms of the Technology (t=-.641; p>.05), Skill of Using Technologic Devices (t=-1.230; p>.05) ve Suggestion (t=.813; p>.05) dimensions.

Table 3. Independent group t-test results carried out in order to determine whether the sub-scale scores of The Parents' Views on the Use of Technology by Pre-School Period Children Scale differ by the working status of mother

Sub-dimension	Working status of mother	N	$\bar{X}$	Standart Deviation	Standart Error Mean	t-Test		
						t	df	P
Family Guidance in Technology Use	working	242	19.19	2.782	.179			
	not working	221	19.33	2.896	.195	-.547	453.216	.584
Benefits of the Technology	working	242	15.72	4.540	.292			
	not working	221	15.40	4.507	.303	.751	461	.453
Technology Application Areas	working	242	7.79	3.341	.215			
	not working	221	7.66	3.063	.206	.432	461	.666
Harms of the Technology	working	242	16.21	3.936	.253			
	not working	221	16.43	3.555	.239	-.641	460.946	.522
Skill of Using Technologic Devices	working	242	12.45	2.564	.165			
	not working	221	12.16	2.538	.171	1.230	461	.219
Suggestions	working	242	9.70	1.691	.109			
	not working	221	9.56	1.943	.131	.813	461	.417

3.4 Findings on the Fourth Sub-objective

The fourth sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the type of the school child attend. Below, there are findings on the fourth sub-objective in the form of a table.

Table 4. Independent group t-test results carried out in order to determine whether the sub-scale scores of The Parents' Views on the Use of Technology by Pre-School Period Children Scale differ by the type of school child attend

Sub-dimension	Type of school	N	$\bar{X}$	Standart Deviation	Standart Error Mean	t-Test		
						t	df	P
Family Guidance in Technology Use	state	199	18.98	2.786	.198			
	private	271	19.44	2.909	.177	-1.728	436.680	.085
Benefits of the Technology	state	199	14.68	4.642	.329			
	private	271	16.18	4.471	.272	-3.530	417.511	.000*
Technology Application Areas	state	199	7.15	3.220	.228			
	private	271	8.17	3.182	.193	-3.394	423.880	.001*
Harms of the Technology	state	199	16.43	3.872	.274			
	private	271	16.32	3.633	.221	.329	468	.742
Skill of Using Technologic Devices	state	199	12.19	2.563	.182			
	private	271	12.41	2.588	.157	-.925	429.038	.355
Suggestions	state	199	9.34	1.860	.132			
	private	271	9.86	1.818	.110	-3.012	421.310	.003*

Upon examining Table 4, it is seen that no statistically significant difference was found between the arithmetic means of the Family Guidance in Technology Use (t=-1.728; p>.05), Harms of the Technology (t=-.742; p>.05), Skill of Using Technologic Devices (t=-.925; p>.05) dimensions.

Statistically significant difference was found between the arithmetic means of the dimension of Benefits of Technology (t=-3.530; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the parents whose children attend private pre-school education institution ($\bar{\mathbf{X}}$=16.18) is higher than the arithmetic mean of the parents whose children attend state pre-school education institution ($\bar{\mathbf{X}}$=7.15). In other words, the difference in question is in favour of the parents whose children attend private pre-school education institution.

Statistically significant difference was found between the arithmetic means of the dimension of Technology Application Areas (t=-3.394; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the parents whose children attend private pre-school education institution ($\bar{\mathbf{X}}$=8.17) is higher than the arithmetic mean of the parents whose children attend state pre-school education institution ($\bar{\mathbf{X}}$=14.68). In other words, the difference in question is in favour of the parents whose children attend private pre-school education institution.

Statistically significant difference was found between the arithmetic means of the dimension of Suggestion (t=-3.012; p<.05). Upon examining the means in order to determine in favour of which group the difference is, it is seen that the arithmetic mean of the parents whose children attend private pre-school education institution ($\bar{\mathbf{X}}$=9.86) is higher than the arithmetic mean of the parents whose children attend state pre-school education institution ($\bar{\mathbf{X}}$=9.34). In other words, the difference in question is in favour of the parents whose children attend private pre-school education institution.

3.5 Findings on the Fifth Sub-objective

The fifth sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the age of the children. Below, there are findings on the fifth sub-objective in the form of tables.

Table 5. Results of the One-Way Variance Analysis (ANOVA) performed in order to determine whether the sub-scale scores of the Parents' Views on the Use of Technology by Pre-school Children Scale differ by the age of the children

f			$\overline{X}$	and		*sd*			Values
ANOVA									
Sub-Dimension	Group	N	$\overline{X}$	sd	Source of the Variance	*Sum of Squares*	*df*	*Mean Square*	*F*	*P*
Family Guidance in Technology Use	4 years	57	18.26	3.677	Intergroups	68.302	2	34.151	4.293	.014*
	5 years	182	19.52	2.755	Intragroup	3722.577	468	7.954		
	6 years	232	19.31	2.625	Total	3790.879	470			
	Total	471	19.26	2.840						
Benefits of the Technology	4 years	57	14.56	14.560	Intergroups	117.958	2	58.979	2.814	.061
	5 years	182	15.30	15.300	Intragroup	9809.944	468	20.961		
	6 years	232	16.02	16.020	Total	9927.902	470			
	Total	471	15.56	15.560						
Technology Application Areas	4 years	57	8.35	3.508	Intergroups	79.061	2	39.531	3.838	.022*
	5 years	182	7.26	3.277	Intragroup	4820.306	468	10.300		
	6 years	232	8.01	3.078	Total	4899.367	470			
	Total	471	7.76	3.229						
Harms of the Technology	4 years	57	15.95	4.274	Intergroups	11.992	2	5.996	.432	.649
	5 years	182	16.46	3.843	Intragroup	6495.987	468	13.880		
	6 years	232	16.41	3.481	Total	6507.979	470			
	Total	471	16.37	3.721						
Skills of Using Technologic Devices	4 years	57	11.72	2.744	Intergroups	27.098	2	13.549	2.070	.127
	5 years	182	12.30	2.580	Intragroup	3063.849	468	6.547		
	6 years	232	12.49	2.495	Total	3090.947	470			
	Total	471	12.32	2.564						
Suggestions	4 years	57	9.39	1.497	Intergroups	17.884	2	8.942	2.614	.074
	5 years	182	9.49	1.780	Intragroup	1600.707	468	3.420		
	6 years	232	9.85	1.976	Total	1618.590	470			
	Total	471	9.65	1.856						

As is seen in Table 5, the difference between the arithmetic averages of the groups was found to be insignificant in the sub-dimensions of the Benefits of the Technology (F=2.814; p>.05), Harms of the Technology (F=.432; p>.05), Skills of Using Technologic Devices (F=2.070; p>.05) and Suggestions (F=2.614; p>.05).

The significance between the arithmetic means of the groups was found significant in the sub-dimensions of Family Guidance in Technology Use (F=4.293; p<.05) and Technology Application Areas (F=3.838; p<.05). Complementary analyses were initialized following this result. The homogeneity of the variances was checked first when determining which comparison analysis to use. It was found out that the variance is not homogenous in the sub-dimension of the Family Guidance in Technology Use (p<.05), and thus the Tamhane's analysis was applied. As for the sub-dimension of the Technology Application Areas (p>.05), the variance was found to be homogeneous and hence the Scheffe's analysis was applied. The comparative results of the Tamhane's and Scheffe's analyses are tabulated below.

As is seen in Table 6. the difference between the arithmetic averages of the groups could not be found significant as a result of the Tamhane's T2 and Scheffe's test carried out in order to determine between which groups the scores taken from the sub-dimensions of family guidance in technology use and technology application areas vary by the children's age (*p>.05*).

Table 6. The results of the Tamhane's T2 and Scheffe's tests carried out in order to determine between which groups the scores taken from the sub-dimensions of family guidance in technology use and technology application areas vary by the age of the children

Sub-dimensions	Type of the Comparative Analysis	Children's age	Children's age	Mean Difference (I-J)	Standart Error	p
Family guidance in technology use	Tamhane's T2	4 years	5 years	-1.242	.528	.062
			6 years	-1.051	.517	.131
		5 years	4 years	1.242	.528	.062
			6 years	.191	.267	.856
		6 years	4 years	1.051	.517	.131
			5 years	-.191	.267	.856
Technology application areas	Scheffe's test	4 years	5 years	1.087	.487	.084
			6 years	.342	.474	.771
		5 years	4 years	-1.087	.487	.084
			6 years	-.745	.318	.065
		6 years	4 years	-.342	.474	.771
			5 years	.745	.318	.065

3.6 Findings on the Sixth Sub-objective

The sixth sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the number of the children parents have been shown below. There are findings on the sixth sub-objective in the form of a table.

Table 7. Results of the Kruskal Wallis-H Test carried out in order to determine whether the sub-scale scores of the parents' views on the use of technology by pre-school children scale differ by the number of children parents have

Sub-dimension	Number of children parents have	N	Mean rank	SD	X^2	P
Family Guidance in Technology Use	1	177	233.82			
	2	236	241.51			
	3	50	217.23	3	2.748	.432
	4	10	285.85			
	Total	473				
Benefits of the Technology	1	177	238.33			
	2	236	234.07			
	3	50	246.54	3	.373	.946
	4	10	234.95			
	Total	473				
Technology Application Areas	1	177	232.67			
	2	236	232.68			
	3	50	256.74	3	4.995	.172
	4	10	317.00			
	Total	473				
Harms of the Technology	1	177	238.27			
	2	236	240.05			
	3	50	205.88	3	4.847	.183
	4	10	298.05			
	Total	473				
Skills of Using Technologic Devices	1	177	230.40			
	2	236	233.83			
	3	50	275.62	3	4.606	.203
	4	10	235.45			
	Total	473				
Suggestions	1	177	231.30			
	2	236	243.80			
	3	50	232.55	3	1.758	.624
	4	10	199.70			
	Total	473				

Upon examining Table 7, it is seen that no statistically significant difference was found between the scores of the Family Guidance in Technology Use (X^2=2.748; p>.05), Benefits of the Technology (X^2=.373; p>.05), Technology Application Areas (X^2=4.995; p>.05), Harms of the Technology (X^2=4.847; p>.05), Skill of Using Technologic Devices (X^2=4.606; p>.05) and Suggestions (X^2=1.758; p>.05) dimensions.

3.7 Findings on the Seventh Sub-objective

The seventh sub-objective of the study aims to determine whether the views of the parents on the use of technology in the early childhood period differ by the level of income. Below, there are findings on the seventh sub-objective in the form of tables.

Table 8. Results of the Kruskal Wallis-H Test carried out in order to determine whether the sub-scale scores of the parents' views on the use of technology by pre-school children scale differ by the number of children parents have

Sub-dimension	Income level	N	Mean rank	SD	X^2	P
Family Guidance in Technology Use	low	27	185.37			
	medium	384	217.08			
	high	22	254.39	3	3.789	.150
	Total	433				
Benefits of the Technology	low	27	242.11			
	medium	384	214.96			
	high	22	221.86	3	1.229	.541
	Total	433				
Technology Application Areas	low	27	220.17			
	medium	384	216.69			
	high	22	218.52	3	.023	.988
	Total	433				
Harms of the Technology	low	27	181.65			
	medium	384	216.20			
	high	22	274.32	3	6.959	.031*
	Total	433				
Skills of Using Technologic Devices	low	27	285.20			
	medium	384	210.48			
	high	22	247.02	3	10.499	.005*
	Total	433				
Suggestions	low	27	220.28			
	medium	384	214.57			
	high	22	255.48	3	2.335	.311
	Total	433				

Upon examining Table 8, it is seen that no statistically significant difference was found between the scores of the Family Guidance in Technology Use (X^2=3.789; p>.05), Benefits of the Technology (X^2=1.229; p>.05), Technology Application Areas (X^2=.023; p>.05) and Suggestions (X^2=2.335; p>.05) dimension.

It is seen that statistically significant difference was found between the scores of the Harms of the Technology (X^2=6.959; p<.05) and Skill of Using Technologic Devices (X^2=10.499; p<.05).

After that, Mann Whitney U Test was carried out in order to determine between which groups the scores taken by the parents from the sub-dimensions of the harms of the technology and skill of using technologic devices differ by the level of income. Below, there are findings in the form of a table.

Table 9. Results of the Mann-Whitney U Test carried out in order to determine between which groups the scores taken by the parents from the sub-dimensions of the harms of the technology and skills of using technologic devices differ by the level of income

Sub-dimension	Level of income	N	Mean rank	Sum of ranks	Z	U	P
Harms of the technology	low	27	20.39	1248.50	-2.559	172.500	.011*
	high	22	30.66	77.50			
	total	49					
Harms of the technology	medium	384	200.54	77007.50	-2.151	3087.500	.031*
	high	22	255.16	5613.50			
	Total	406					
Skills of using technologic devices	Low	27	272.11	7347.00	-3.018	3399.000	.003*
	medium	384	201.35	77319.00			
	Total	411					

Upon examining Table 9, the difference between the groups in terms of the scores taken by parents in the sub-dimension of the Harms of the Technology was found to be significant (p<.05). Accordingly, when the averages of order are investigated, it is seen that parents with a high level of income (mean rank = 30.66) obtained higher scores from the sub-dimension of the Harms of the Technology when compared to the parents with a low level of income (mean rank = 20.39). It is seen that parents with a high level of income have higher scores in the sub-dimension of the Harms of the Technology (mean rank = 255.16) when compared to the parents with a middle level of income (mean rank = 200.54).

The difference between the groups was found to be significant in the scores taken by the parents from the sub-dimension of the Skills of Using Technologic Devices ($p<.05$). Accordingly, upon looking at the averages of order, it is seen that parents with a low level of income (mean rank = 272.11) have higher scores from the sub-dimension of the Skills of Using Technologic Devices when compared to the parents with a middle level of income (mean rank = 201.35).

4. Results and Discussion

In this study, it was determined that the views of parents on the use of technology in the early childhood period differ significantly by the children's gender in the sub-dimension of suggestions.

Accordingly, the scores taken by the parents with daughters in the sub-dimension of suggestions are higher than of those with sons. This may be explained by the fact that parents in Turkey are more protective of their daughters.

According to another result obtained from this study, the parents' views on the use of technology in the early childhood period differ significantly by the gender of parents in terms of the family guidance in technology use, benefits of the technology, technology application areas, harms of the technology and suggestions dimension. Accordingly, the scores taken by mothers in the sub-dimension of the family guidance in technology use and the harms of the technology are higher than the scores of fathers. In the study carried out by Kılınç (2015), parents' views on the use of technology by students in the pre-school period were examined by the gender variable, and it was found that male parents have more positive views on the use of technology in the education of pre-school children when compared to female parents in the dimension of technology application areas. In the study carried out by Liau, Khoo and Ang (2008) in Singapore, it was found out that the views of female parents on the use of technology in the education of pre-school children are more positive than those of male parents. This can be explained by the fact that the children of mothers are more sensitive about the use of technology in certain aspects.

According to another result obtained from the study, parents' views on the use of technology in the early childhood period differ significantly by the working status of the mother, the age of the child and the number of children the parents have. This may be explained by the fact that the workload in working conditions is similar to the workload regarding the roles of parenthood at home, the children are all in the pre-school period despite their age differences and having similar features and the educational and developmental sensitivity shown by parents towards each child is equal no matter what the number of children is.

According to another result of this study, the parents' views on the use of technology in the early childhood period differ by the benefits of the technology, technology application areas and suggestions dimension by the type of the school the child attends. Accordingly, the scores taken by the parents whose children attend private pre-school education institutions are higher than the scores taken by the parents whose children attend state pre-school education institutions in the dimension of the benefits of the technology, technology application areas, and suggestions. This can be explained by the fact that private pre-school education institutions have more opportunities than state pre-schools in terms of using technology in education. Indeed, in a study carried out by Judge, Puckett, and Çabuk (2004), it was expressed that private schools are richer than state schools in terms of ICT and the technologic programs used in education. In another study carried out by Waxman (1994), it was expressed that the use of technology at state schools, especially at those schools to which poor families send their children, is quite limited. As distinct from this result, in the study carried out by Kılınç (2015), it was found out that the views of the parents who send their children to state pre-schools on the benefits of using technology in pre-school education are more positive than of those parents who send their children to private pre-schools.

According to another result obtained from this study, the parents' views on the use of technology in the early childhood period differ significantly by the level of income of the family in the dimensions of the skills of using technologic devices and the harms of the technology. Accordingly, the scores taken by the parents with a low level of income in the dimension of the skills of using technologic devices are higher than the scores taken by the parents who have a middle level of income. In the dimension of the harms of the technology, the scores taken by the parents with a high and low level of income are higher than the scores taken by the parents with a low level of income. This can be explained by the fact that the technological facilities that parents provide to their children increase as the level of income increases, and they experience the harm that the use of these technologic devices can give to the child.

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