

Young Children's Use of Technological Devices: Parents' Views

Sinaria Abdel Jabbar¹, Muhannad Al-Shboul¹, Adel Tannous¹, Sana'a Banat² & Hanadi Aldreabi²

¹ School of Educational Sciences, The University of Jordan, Amman, Jordan

² Graduate Student of Educational Technology Program, The University of Jordan, Amman, Jordan

Correspondence: Muhannad Al-Shboul, Department of Curriculum and Instruction, School of Educational Sciences, The University of Jordan, Amman, Jordan. E-mail: malshboul@ju.edu.jo

Received: Dec. 7, 2018

Accepted: Dec. 17, 2018

Online Published: January 3, 2019

doi:10.5539/mas.v13n2p66

URL: <https://doi.org/10.5539/mas.v13n2p66>

Abstract

This paper presents parents' views of their young children's access and use of technological devices, the duration spent on technological devices and the benefits and risks associated with that. 500 parents completed a questionnaire and findings suggest that parents hold positive beliefs about technology with smartphones being the most used among their children and the most effective device, while e-reading was the least used. Findings indicated that parents believe technology benefits their children in developing intellectually, socially, physically and emotionally respectively, thus it enhances children's educational development through educational activities while they interact with peers at the same time; physical development was number 1 risk on children which was associated to health and mental development. Recommendations were given at the end of the paper to examine in depth how technological devices can be used in educational settings in favour of children.

Keywords: touch screens, parents, children, devices, technology, risks, benefits, childhood, perceptions

1. Introduction

Since the 1980's, Information and Communication Technology (ICT) has changed the world rapidly and the 21st century has been labelled as the 'digital era' and new challenges have surfaced in our societies (Li & Ranieri, 2010). Children's development levels and learning concepts are interrelated; children can learn certain concepts in some developmental periods easily (Recchia, 1997). While children are developing, and learning concepts, they are also interacting with their environments. Today, one fundamental part of children's environment is ICT, which is considered a preparation for the future of preschool children.

2. Related Work

2.1 Our Modern Society

The rapid technical and technological advancements in today's life bring about apparent changes. A study reveals that in 68% of American homes at least one parent works excessive hours outside the house and 40% of American parents spend less time with their children compared to their parents 30 years ago (Fox Cities, 2006). It is known that free time is usually spent with the family engaging in activities or watching TV and movies. Today, however, and as a result of the increase in technology, and economic constraints, children are returning to an empty home or one parent available, and are practically spending hours on their devices. Due to this influx of new technology, children have more options to engage in virtual play versus traditional than any time before. Computers, tablets, video games, and cell phones are among the very least.

In today's modern society and lifestyle, technology may serve in the capacity of a babysitter in the home (Plowman & McPake, 2013). Plowman and McPake state that exhausted parents today see technology as an attractive way to keep their children busy and occupied while they do something else. The debate over children's use of technology over the past ten years has changed dramatically in the early childhood community and the public (Lentz, Seo & Gruner, 2014). Cautions about technology use with young children provide important guidance (American Academy of Pediatrics, 2011) but it is also evident that technology use with young children is expanding rapidly (Kaiser Foundation, 2010). The early childhood period covers the age of 0-8 and involves the physical, cognitive and social domains. This period is the ages when growth and development occur most rapidly (Ozmert, 2005). Children become familiar with technology in the early childhood years allowing them to access games in smartphones, DVD players, music players, entertainment purpose TV's, computers and the internet (Ekici, 2016).

Contemporary studies indicate that children's ICT use is increasing day by day, the age of which they are becoming acquainted with ICT is decreasing and the applications they are using are diversifying (Holloway, Green and Livingstone, 2013; The Organization for Economic Cooperation and Development, 2011; Radyo Televizyon Ust Kurulu, 2013).

2.2 How Much Time is Just Right?

Experts state that infants and toddlers under two years of age should not be allowed screen time under any circumstances and children above two years of age should only be allowed two hours of leisure screen time only. In fact, children aged 2-5 years should have no more than an hour a day. This is because during the first years of life, a child's brain develops rapidly and thus it is advised that children interact with people, not screen (Early Childhood Ireland, 2015).

2.3 Technology Benefits and Risks

ICT in the preschool period can have both positive and negative affects to the development of children. For example, it has been stated that the use of ICT in the preschool period renders learning that is more meaningful and enjoyable (Akpınar, 2005); Ari Ve Bayhan, 2003) as well as develops creative thinking skills (Sivin-Kachala & Bialo, 1994). Moreover, it enables active learning by individualising learning when used in preschool teaching (Kucukoglu, 2013). In a study by Arrowood and Overall (2004) the use of ICT was seen to have increased the level of motivation of students in the writing process, in addition to being more motivated in computer supported activities (Chung & Walsh, 2006; Talley, Lance & Lee, 1997). Others argue that computers increase a child's independence and sense of control over their learning, which increases motivation and self-esteem (Ainsa, 1989; Burg, 1984; Clements & Swaminathan, 1995; Lee & Houston, 1987); for gifted children, ICT removes the information barrier that once hindered their learning and allows them to interact with distant mentors and peers who share the same interests (Siegle, 2005); for talented children, ICT provides a variety of authentic learning methodologies.

The use of ICT in the early childhood period is very crucial in the development of social, cognitive and lingual skills of children which is in turn considered a tool in the learning-teaching process (Gimbert and Cristol, 2004). For example, Clements and Samara (2003) state that children who use ICT versus those who do not are more successful in mental development, the formation of information, problem solving skills and lingual skills. In a study conducted by Kumtepe (2006) pre-school children who use ICT show less problematic behaviors and have better social skills than those who do not. For example, the innovative work of Downes (2002) investigated the use of home computers by children in Australia with a focus on children's views. It was found that using a computer at home was "a key factor in children's cognitive and social development, as well parents' views whom asserted the necessity of using computers for the future for education and for personal productive tools versus merely for entertainment" (Downes, 2002, p.24).

While there are benefits to children's use of technologies there are risks associated to that in all developmental domains that are necessary for children's growth in this period. 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. In regards to the social domain, there is an evident lack of social interaction with the surrounding environment since children spend that quality time on their technological devices. Stout (1983) was concerned that computers would turn children into miniature machines that completely lack in human emotions. Indeed, teachers and peers provide for a child's social and emotional well-being in ways that a computer cannot (Fein, Campbell & Schwartz, 1987; Lepper & Gurtner, 1989). It is thus feared that computers will isolate children and deprive them of the socialization and interaction with others which is significant at this age.

Pre-school children also face risks pertaining to the physical domain associated with the use of ICT including eye health issues due to children sitting closely to display applications for a long time, obesity due to lack of movement and exercise, problems with the skeletal structure, late development of features such as coordination of the sensory organs (Ekici, 2016), headaches, insomnia, tiredness, blurry vision, aggressiveness, muscle-skeletal dysfunction (Theodoto, 2010). Other health-related issues caused by technological devices include distress on joints, injuries, bad posture, (Anđelic, Cekerevac & Dragovic, 2012); compulsive disorder called 'Computerphilia' (Joksimovic, 2004). For example, in a study of children ages 4-7 conducted by Epstein and colleagues (2008) it was found that reducing TV and computer use had a positive effect on lowering body mass index. Another study of more than 2000 children, ages 6-20 who spent two hours watching TV or using the computer were associated with cardiovascular risks even when adjusted for physical activity (Choi & Kong, 2011).

An emotional risk involving children's use of technological devices is addiction. It was found in a study conducted

on 179 five years old children in Korea, that the younger the child started using the computer, the longer they used the computer playing games and the less supervised computer time, the higher the score on the Internet Addiction Scale for Young Children IASYC (Seo, Chun, Jwa, & Choi, 2011). It was also found by Seo et al. (2011) that children who scored high on the IASYC had the lowest score on the Socio-Emotional Development Evaluation Scale that is used to measure traits as such: independence from teachers, self-control, peer interaction, adaptation to kindergarten and incentives for accomplishment and curiosity.

ICT was also considered a risk to preschool children's cognitive development. For example, in a study conducted on 6 parents (5 female, 1 male) whose children were between the ages of 3 and 5, it was found that parents feared the use of technological devices could be time consuming, lacks exposure to other things and hinders imagination and creativity (Deshelter & Slutsky, 2017). One parent also thought that her child is better focused when he gets out and exercises, while another one believed that her child could get into things "There is stuff they could get into"; this is because children are curious and thus they will be tempted to explore inappropriate content on the internet (Siegle, 2017); one parent was also concerned about his child not reading with electronic books but merely listening "trying to learn" how to read the words opposed to simply following along.

2.4 Parents and Technology

A crucial point to be considered is the possible relationship between children's media and parental education, and values which can act as a catalyst to children use of technological devices. Anand and Krosnick (2005) examined whether the mother or father's education had an impact on the technology in which children engaged. It was found that children of both parents with less education watched more television; children of fathers who had some college education or graduated from college spent more time on computers than those who fathers had the lowest level of education. It was also found that the values that educated parents bring to child rearing motivate them to discourage television viewing and invest in other activities.

3. Importance of the Study, Questions of the Study, and Research Assumptions

3.1 The Importance of the Study

The rapid expansion of computer use, in educational settings and at home (Australian Bureau of Statistics, 2011) signifies the need for a thorough examination of parents' perceptions of their children's use of technology. There is a constant debate, however, about whether computer is harmful or beneficial to young children's development. Research around young children's technological use has been minimal and the focus has been on how teachers are using computers at school.

3.2 The Research Study Questions

Specifically, this paper aimed to investigate the following research questions:

1. What technological devices are used by children under age 8?
2. What is the time duration spent on using different technological devices by children under the age of eight years?
3. What are parents'/caregivers' views of risks of their children accessing the emerging touch screen devices?
4. What are parents'/caregivers' views of benefits of their children accessing the emerging touch screen devices?
5. Is there a relationship between the role of parents in their children's use of technological devices (tech use, daily time duration) and the variables of the study (age, gender, educational level of the parent, nationality, political view, marital status, employment and number of children in the family)?
6. Is there a relationship between the role of parents in their children's behavior (risks and benefits associated with the four developmental domains: physical, intellectual, emotional and social) and the variables of the study (age, gender, educational level of the parent, nationality, political view, marital status, employment and number of children in the family)?
7. Are there statistically significant differences between the role of parents in their children's use of technological devices (tech use and daily time duration) and the variables of the study (age, gender, educational level of the parent, nationality, political view, marital status, employment and number of children in the family)?
8. Are there statistically significant differences between the role of parents in their children's behavior (risks and benefits associated with the four developmental domains) and the variables of the study: age, gender, educational level of the parent, nationality, political view, marital status, employment and number of

children in the family)?

3.3 Research Assumptions

- There is a correlation between the role of parents in their children's use of technological devices and the variables of the study (age, gender, educational level of the parent, nationality, political view, marital status, employment and number of children in the family).
- There is a correlation between the role of parents in their children's behavior (risks and benefits associated with the four developmental domains) and the study variables (age, gender, educational level of the parent, nationality, political view, marital status, employment and number of children in the family).

4. Methodology

The design of the paper was based on the descriptive analytical method; the field survey method utilized a questionnaire that consisted of both open and close ended questions. The questionnaire focused on gathering information about parents'/caregivers' views on their children's access and time spent on technological devices, and their perceived risks and benefits (associated with the four developmental domains: physical, intellectual, emotional and social) of the emerging touch screen devices. To ensure validity and reliability of the tool, the researchers depended on Cronbach's Alpha and the result of Cronbach's alpha is (0.833); this result indicates that the research tool is valid and reliable, according, to Reynaldo and Santos (1999) "Cronbach's Alpha Coefficient is acceptable if it is equal to or higher than (0.70)".

4.1 Participants

This study included a total of 498 adult participants (227 males and 221 females). They were parents/guardians of children below 8 years of age; more than half adult-participants were above 37 years old (72.3 %), and had attained university qualifications (52.2 %). Table 1 below shows the distribution of the sample based on demographic data which includes: age, gender, education, nationality, political view, marital status, employment and number of children.

Table 1. The Sample's Demographic Data

Demographics Data	Variable(s)	Frequencies	Percentages
Parent/Guardian Age	less than 25	3	0.6
	26-36	135	27.1
	more than 37	360	72.3
Parent/Guardian Gender	male	277	55.6
	female	221	44.4
Parent/Guardian Education	high school or less	91	18.3
	some school	82	16.5
	bachelor's degree	265	53.2
	graduate degree	18	3.6
	post-graduate	42	8.4
Parent/Guardian Nationality	Middle East	433	86.9
	Western Countries	56	11.2
	Asia Countries	9	1.8
Parent/Guardian Political View	Very Conservative	17	3.4
	Conservative	58	11.6
	Moderate	362	72.7
	Liberal	61	12.2
Parent/Guardian Marital Status	Married	458	92.0
	Divorced	40	8.0
Parent/Guardian Employment	Employed	325	65.3
	Employed(part-time)	34	6.8
	Stay at home	103	20.7
	looking for work	12	2.4
	Retired	18	3.6
	Student	6	1.2
Number of children	1 child	171	34.3
	2 children	269	54.0
	3 children	58	11.6

4.2 Procedure and Data Collection

The researchers adopted different ways to distribute the questionnaire to achieve a higher response rate. Some questionnaires were sent to parents/guardians via social media such as Facebook and WhatsApp, others by email, a small number by artificial intelligence platforms while the rest were distributed to teachers in public and private schools in Amman to give to the parents. Parents/guardians participated voluntarily in data collection, and they were also informed that they could refuse their participation in data collection without any explanation, penalty, or disadvantage to them. A total of 500 questionnaires were distributed to parents/caregivers, and were asked to return them to the researchers within a period of 2 weeks (response rate 100 %).

4.3 Data Analysis

The paper tries to identify parents'/guardians' views of their children's (aged below 8 years) access and time spent on technological devices and their views on the risks and benefits associated with the use of the emerging touch screen devices. Therefore, the researchers developed hypotheses to explore this role and analysed data by the statistical package for the social science (SPSS) version 23.0 software. The statistical methods used to analyse data are: Cronbach's alpha, frequencies and percentages, and Chi-square.

5. Findings of the Study

5.1 Main Hypotheses Emerging from the Results

There is a statistically significant difference between the role of parents represented by independent variables (age, gender, education, nationality, political views, marital status and number of children) and the study variables: children's technology use (technology use and daily time duration); and children's behaviour (risks and benefits) associated with the four developmental domains: physical, intellectual, emotional, and social. Table 2 below summarizes the results found by the researchers.

Table 2. Summary of Findings

Independent Variable(s)	Dependent Variable	Parameter	χ^2 Value	DF	Sig (P value)	Details
Parent/Guardian Age	Children Technology Use	Tech. use	15.531	18	.209	Not significant
		Daily time	13.739	14	.469	Not significant
	Children Behaviour	Risks	11.806	10	.298	Not significant
Benefits		15.694	8	.047*	Significant	
Parent/Guardian Gender	Children Technology Use	Tech. use	3.966	9	.914	Not significant
		Daily time	17.181	6	.009*	Significant
	Children Behaviour	Risks	5.753	4	.218	Not significant
Benefits		3.898	4	.420	Not significant	
Parent/Guardian Education	Children Technology Use	Tech. use	51.507	36	.045*	Significant
		Daily time	20.404	24	.674	Not significant
	Children Behaviour	Risks	4.676	16	.997	Not significant
Benefits		15.310	16	.502	Not significant	
Parent/Guardian Nationality	Children Technology Use	Tech. use	14.486	18	.697	Not significant
		Daily time	8.316	12	.760	Not significant
	Children Behaviour	Risks	9.257	10	.508	Not significant
Benefits		11.127	8	.195	Not significant	
Parent/Guardian Political View	Children Technology Use	Tech. use	38.871	27	.044*	Significant
		Daily time	13.378	18	.769	Not significant
	Children Behaviour	Risks	11.824	15	.692	Not significant
Benefits		11.075	12	.523	Not significant	
Parent/ Guardian	Children Technology	Tech. use	18.377	9	.031*	Significant

Independent Variable(s)	Dependent Variable	Parameter	χ^2 Value	DF	Sig (P value)	Details
Marital Status	Use	Daily Duration	time .351	6	.999	Not significant
	Children Behaviour	Risks	13.775	4	.008*	Significant
Parent/Guardian Employment	Children Technology Use	Tech. use	81.678	45	.001*	Significant
		Daily Duration	time 42.124	35	.019*	Significant
	Children Behaviour	Risks	19.680	20	.478	Not significant
		Benefits	52.726	20	.000	Significant
Number of Children	Children Technology Use	Tech. use	26.515	27	.490	Not significant
		Daily Duration	time 16.155	21	.761	Not significant
	Children Behaviour	Risks	19.273	15	.202	Not significant
		Benefits	21.770	12	.040*	Significant

From Table 2 above the main results are as follows:

- A. There is a statistically significant difference between demographic characteristics “parent/guardian age” and children’s behaviour “benefits” chi-square (15.694,8); P value (.047) significant value at (0.05) level of significant; to recognize which (parent/guardian age) group represents the source of difference. See Figure 1 below.

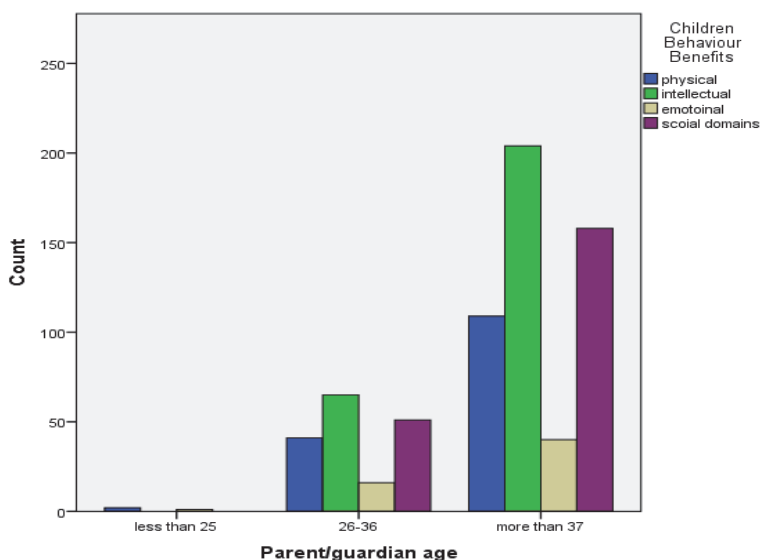


Figure 1. Shows the distribution of the sample according to the variable parent/guardian age and its relationship with children’s behaviour (Benefits)

Figure 1 shows that the source of difference comes from parents whose age category is “more than 37” in which the highest class frequency in children’s behaviour “benefits” is the intellectual domain (the most effective) followed by social, physical and emotional; this means that the parent age category and the intellectual domain is the main source of difference in relationship between parent age and children’s behaviour “Benefits.”

- B. There is a statistically significant difference between demographic details parent/guardian “gender” and children’s technology use “daily time duration”; chi-square (17.181, 6) P value (.009) is significant value at (0.05) level of significant. See Figure 2 below.

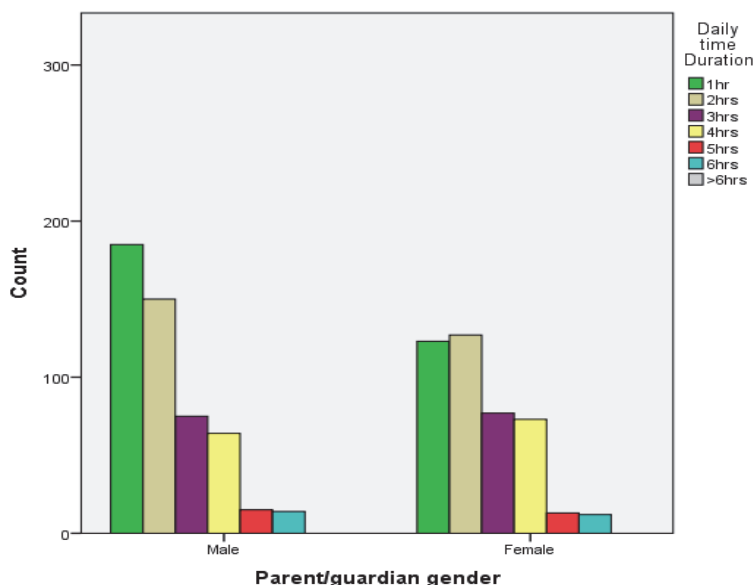


Figure 2. Shows the distribution of the sample according to the variable parent/guardian gender and its relationship with technology use (daily time duration)

Figure 2 shows that the source of difference comes from parents’ gender category “Male” parents and the highest class frequency in children’s technology use “Daily time Duration” is 1 hour; while “female” parents children spend 2 hours on technological devices. This means that almost half of the sample (children) use different technologies 1 hour daily.

- C. There is a statistically significant difference between demographic characteristics parent/guardian “education” and children’s technology use “tech. use” chi-square (51.507, 36); P value (.045) is significant value at (0.05) level of significant. See Figure 3 below.

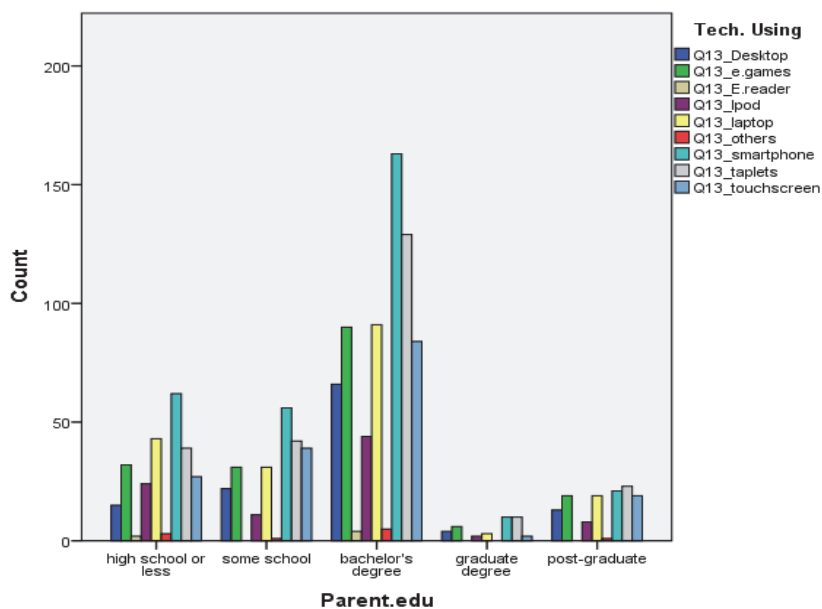


Figure 3. Shows the distribution of the sample according to the variable parent/guardian education and its relationship with technology use

Figure 3 shows that the source of difference comes from parent education category “Bachelor’s Degree”, and the highest class frequency in children’s technology use “Tech. Use” is smartphones which indicates that smartphones are the most used technological devices used by children for various activities (games, chatting, etc.). Thus, smartphones are the most used technological devices and the most effective regardless parent education.

D. There is a statistically significant difference between demographic characteristics parent/guardian “political view” and children’s technology use “tech. using” chi-square (38.871, 27); P value (.044) is significant value at (0.05) level of significant. See Figure 4 below.

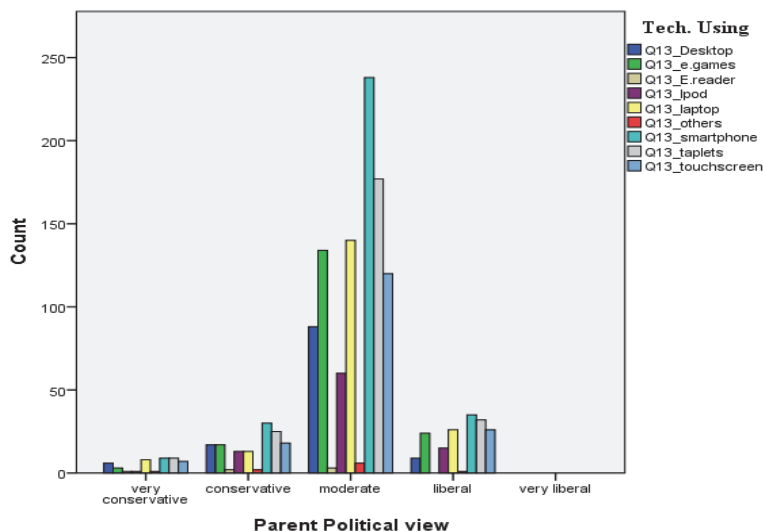


Figure 4. Shows the distribution of the sample according to the variable parent/guardian political view and its relationship with technology use

Figure 4 shows that the source of difference comes from parents’ political view “moderate” followed by liberal then others political view category. The highest class frequency in children’s technology use” Tech. Use” is smartphone which indicates that smartphones are the most used technological devices by children for various activities (games, chatting, etc.). Thus, the more the conservative the parents, the less technological use among children.

E. There is a statistically significant difference between demographic characteristics parent/guardian “marital status” and children’s technology use “tech. using” chi-square (18.377, 9); P value (.031) is significant value at (0.05) level of significant. See Figure 5.a below.

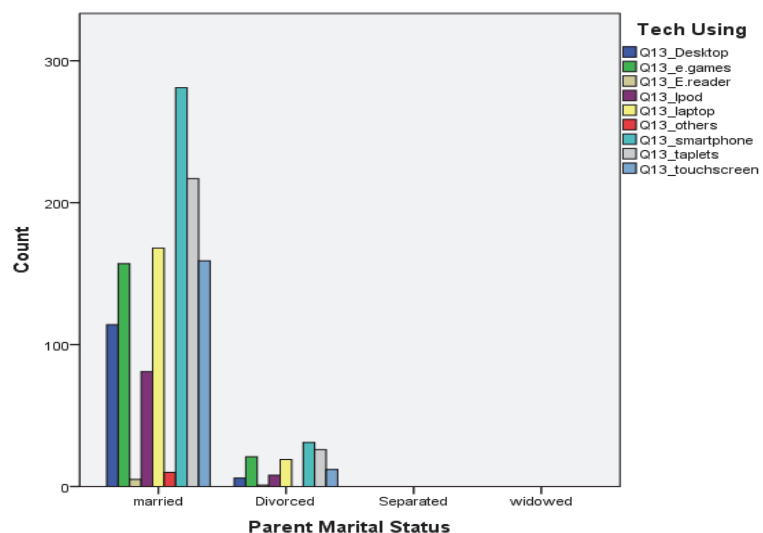


Figure 5.a. Shows the distribution of the sample according to the variable parent/guardian marital status and its relationship with technology use

Figure 5.a shows the source of difference come from parents’ marital status “married” followed by divorce. The highest class frequency in children’s technology use” Tech. Use” is smartphones which indicates that smartphones are the most used technological devices by children for various activities (games, chatting, etc.). Thus, children

for all parents regardless their marital status use smartphones the most and e-reading the least.

E1. There is a statistically significant difference between demographic characteristics parent/caregiver “marital status” and children’s behaviour “Risks” chi-square (13.775, 4); P value (.008) is significant value at (0.05) level of significant. See Figure 5.b below.

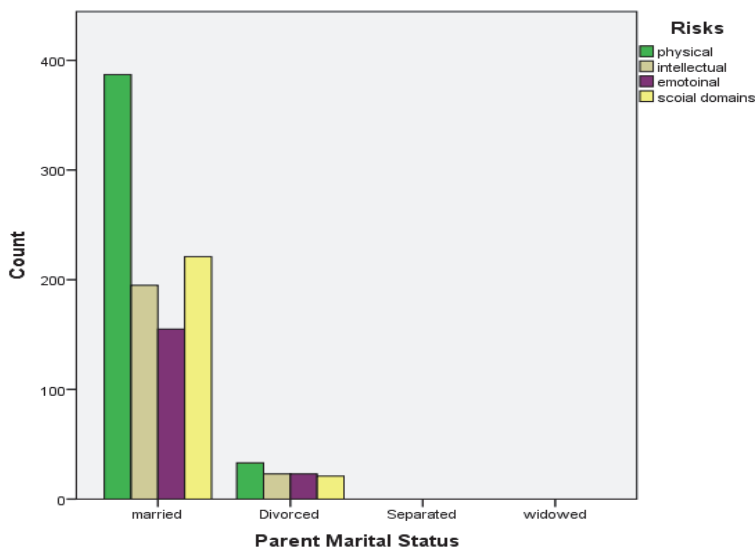


Figure 5.b. Shows the distribution of the sample according to the variable parent/guardian marital status and its relationship with children’s behaviour (risks)

Figure 5.b shows the source of difference comes from parent’s marital status category “married” followed by “divorce”. Figure 5.b indicates that the highest class frequency in children’s behaviour: “Risks” is physical which indicates that the physical developmental domain is considered number one risk that faces children when they use technological devices from parent’s point of view.

F. There is a statistically significant difference between demographic characteristics parent/guardian “Employment” and children’s technology use “Tech. use” chi-square (81.678, 45); P value (.001) is significant value at (0.05) level of significant. See Figure 6.a below.

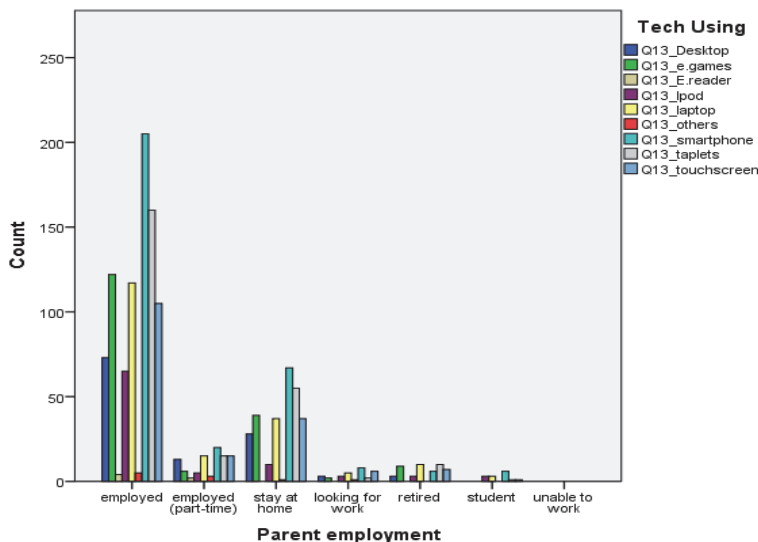


Figure 6.a. Shows the distribution of the sample according to the variable parent/guardian employment and its relationship with technology use

Figure 6.a shows the source of difference comes from “parent employment” category “employed” followed by

“stay at home” then “employed part time” then “other”. The highest class frequency in children’s technology use” Tech. Use” is smartphones which indicates that smartphones are the most used technological devices by children for daily activities (games, chatting, etc.).

F1. There is a statistically significant difference between demographic characteristics parent/guardian “Employment” and children’s technology use “Daily time Duration” chi-square (42.124, 35); P value (.019) is significant value at (0.05) level of significant. See Figure 6.b below.

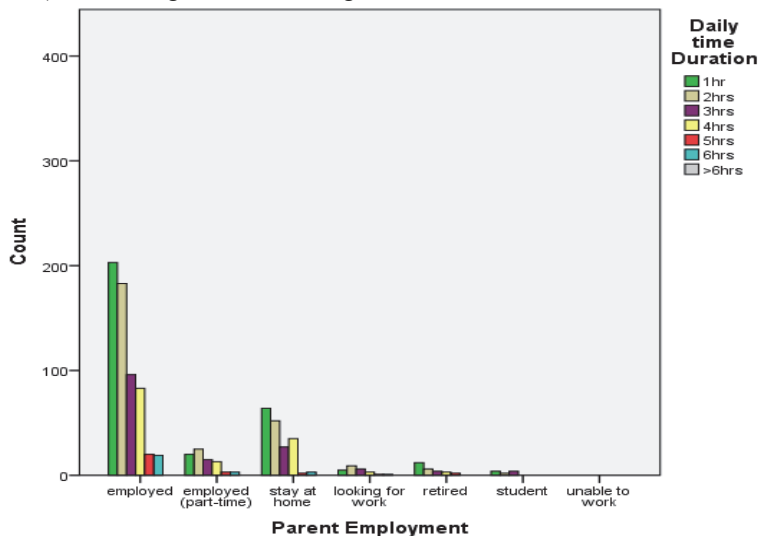


Figure 6.b. Shows the distribution of the sample according to the variable parent/guardian employment and its relationship with technology use (daily time duration)

Figure 6.b shows the source of difference comes from “Parent Employment” category “employed” followed by “stay at home” then “employed part time” and lastly “other”. The figure indicates that the highest class frequency in children’s technology use” Daily time Duration” is 1 hour, which means that almost half of the sample uses different technologies for 1 hour daily followed by 2 hours daily, 3 hours daily, 4 hours daily, etc. Thus, children whose parents are full-time employees stay at home or retired believe that their children should not spend more than 1 hour on technological devices, while part-time parents believe it can be up to 2 hours.

F2. There is a statistically significant difference between demographic characteristics parent/guardian “Employment” and children’s behavior “Benefits” chi-square (52.726, 20); P value (.000) is significant value at (0.05) level of significant. See Figure 6.c below.

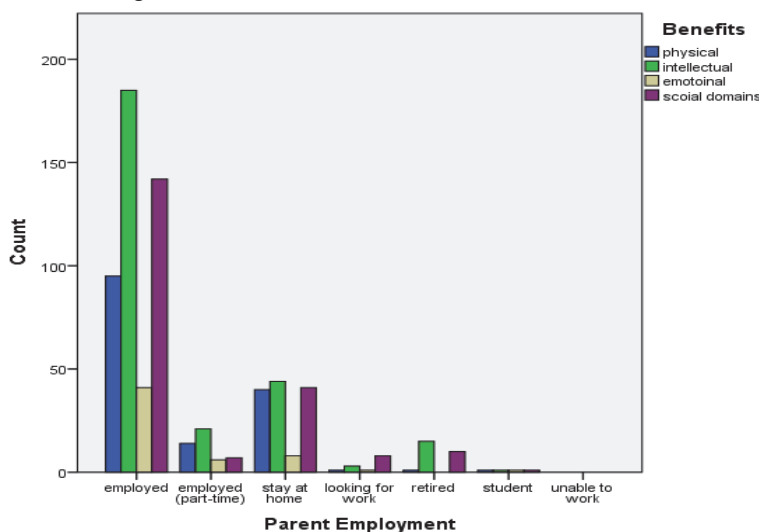


Figure 6.c. Shows the distribution of the sample according to the variable parent/guardian employment and its relationship with children’s behaviour (benefits)

Figure 6.c shows that the source of difference comes from parent employment category “employed” followed by

“stay at home” then “employed part time” then others. The figure shows that the highest class frequency in children’s behaviour “Benefits” is the intellectual domain which indicates that children’s most benefit they get from technology is intellectual development followed by social development. Thus, parents in all employment categories believed that their children benefit intellectually the most, followed by socially and physically.

G. There is a statistically significant difference between demographic characteristics parent/guardian “number of children” and children’s behaviour “Benefits” chi-square (21.770, 12); P value (.040) is significant value at (0.05) level of significant. See Figure 7 below.

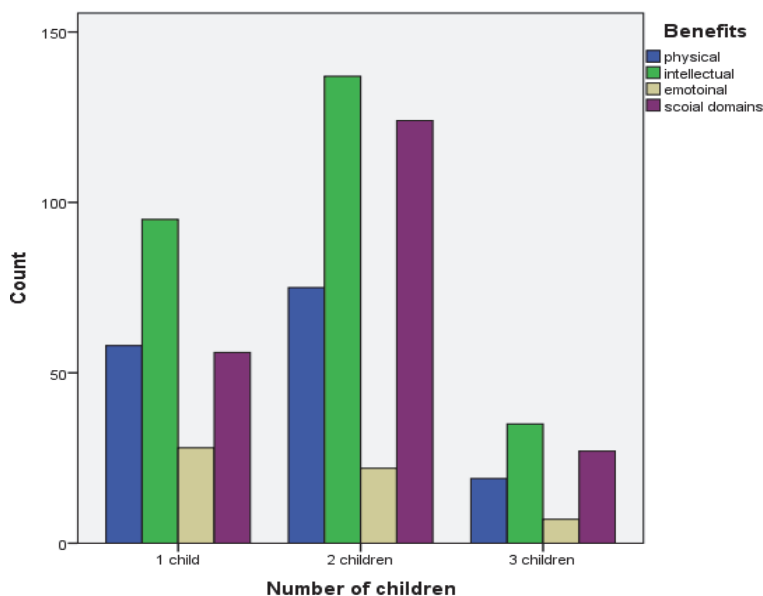


Figure 7. Shows the distribution of the sample according to the variable parent/guardian number of children and its relationship with children’s behaviour (benefits)

Figure 7 shows the source of difference comes from parent/guardian “number of children category, “2 children” followed by “1 child” then “3 children”. The Figure shows that the highest class frequency in children behaviour category “Benefits” is the intellectual domain which indicates that children benefit the most intellectually from technologies, followed by socially.

However, Tables 2 and Table 3 show the four most frequent developmental domain risks for children in using technological devices as identified by parents/guardians and the three most frequent developmental domain benefits for children in using touch screen devices as identified by parents/guardians, respectively.

Table 3. The four most frequent developmental domain risks for children in using technological devices as identified by parents/guardians

Developmental Domain	Risks
Physical	<ul style="list-style-type: none"> - Neck and back pain - Exhaustion - Health problems/ mental problems - Sight problems/Impaired vision - Fingers and joints pain - Laziness - Obesity and related diseases, carpal tunnel or tendonitis - Immobility - Lack of exercise
Intellectual	<ul style="list-style-type: none"> - Loses interest in traditional playing - Difficulty paying attention or focusing - Less creative skills or games - Shortens attention span

	<ul style="list-style-type: none"> - Degrades verbal and communications skills. - Mental risks -Teaches impatience - Being exposed to videos of pornography, violence, animals and reallife car accidents. - Delay in some developmental areas - Tasks can be solved by using an application instead of making an effort. - Impacts cultural values
Emotional	<hr/> <ul style="list-style-type: none"> - Addiction, obsession - Emotionally bonding -Increased aggression - Creates dependence - Emotional rollercoaster. - Mixed feelings: laughing, crying. - Develops rage or bad temper. - Postponing praying time
Social	<ul style="list-style-type: none"> -Affects their emotional wellbeing - Lack of communication with parents and friends - Limits their exploration of the world around them. - Limits their interaction with others or among themselves - Less desire to play outdoors - Social isolation - Anti-social - Inability to interact with people and solve problems. - Inability to choose the appropriate vocabulary for social attitudes. - Blocks external world/separates them from the world around them <hr/>

Table 4. The three most frequent developmental domain benefits for children in using touch screen devices as identified by parents/guardians

Developmental Domain	Benefits
Physical	<ul style="list-style-type: none"> -Educational games that help hand-eye coordination - Applications that require physical activity
Intellectual	<ul style="list-style-type: none"> -Educational cartoons or games or videos helps in discipline. - Learn from cartoon characters of certain shows good behavior and manners. - More aquatinted with things an adult might not know - makes children smarter - Willing to search and investigate more. - Access to interactive educational material. - Technologically savvy for a globalized world - learning alphabets, spelling words, singing songs - Enriches knowledge - Enriches language - Learning through play and being exposed to different teaching strategies - Open to new cultures - Allows imagination to expand - Used as a research tool
Emotional Social	<hr/> <p>No emotional benefit from the sample’s view point</p> <ul style="list-style-type: none"> - Exposed to the world - Connecting with family members living abroad. - Interacting with peers - Peer interaction - Social applications <hr/>

6. Discussion and Conclusion

With the advent of technology, young children are consistently being exposed to technological devices at home and in school. There is a sharp disagreement about whether technological devices are harmful or beneficial for children. Thus, this study explored literature review regarding the impact of technology on children's intellectually, social, physical and emotional development, from parents' points of view.

Despite concerns that technological devices have risks on children, the findings of the study have found this to not be primarily the case. In fact, parents concurred that technological devices benefit children in developing intellectually and socially. The former coincides with studies conducted by (Gimbert & Cristol, 2004), (Clements and Samara, 2003) and (Downes, 2002), while the latter is in agreement with studies conducted by (Kumtepe, 2006) and (Downes, 2002). This is evident through social applications that children install on their technological devices, such as Facebook, WhatsApp, Snapchat and peer interaction. This is also evident in Erikson's theory of psychosocial development (1963, 1982) which has implications for early technology use stating that appropriate softwares provide children with an abundance of choices that can be easily used and manipulated by children; and allows them to take initiative in their learning and increases their self-esteem. Lee Vygotsky (1978) also asserted that the technological environment provides for peer scaffolding, by allowing children to work together in a 'shared problem space' in which they complete tasks and solve problems together (Freeman & Somerindyke, 2001).

Parents concurred that technological devices could also have risks on their children's physical development which was number one and could be attributed to the fact that children spend a wealth of time on their smartphones. This coincides with the studies conducted by (Epstein, et al., 2008) and (Choi, & Kong, 2011).

Smartphones were the most used technological devices and the most effective in the sample regardless, the educational level of the parent, age, employment, gender and number of children, which indicates that our modern society is based on smart technology. E-reading, surprisingly, was the least used by the sample, which indicates that the culture we are living in, is smartphones.

Overall, in this study parents seemed to be supportive of children's access and use to technological devices under some limits pertaining to the duration which should not exceed according to them and the literature to two hours daily. Parents appeared to know the potential risks of technological devices but they did not seem to be aware of the importance of their own engagement, guidance and support which could prove to be useful in hindering the risks and negativities associated with technology. Further research is warranted to examine the impact of technology on children in school settings.

7. Recommendations

Based on the results, the study recommends the followings:

- Parents should encourage their children to read via e-reading, and provide the necessary time and environment for their children to engage in such enriching activities.
- Parents should determine the time period for children who are allowed to use technological devices from 1 hour to 40 minutes on average. Parents should allocate the 40 minutes to e-reading and other educational activities.
- Schools should invest in providing parents with awareness sessions on their children's technological use, the benefits and risks associated with technology and how to integrate ICT in educational settings.
- Parents need to supervise their children regularly and be more involved in their children's use of technological devices by establishing screen free zones at home by making sure there are no technological devices in bedrooms, during family time and dinner time.
- Technology use could be beneficial for children over 3 years of age if monitored properly and if educational activities are utilized instead of games, chatting etc.
- Installing applications that increase emotional needs of children.
- Smartphones were the most used technological devices for fun activities but e-reading was totally disregarded; thus, educators need to increase the awareness of parents to help them install applications that will in turn increase e-reading skills for children to change the culture that does not promote reading.

References

- Ainsa, T. (1989). Effects of computers and training in head start curriculum. *Journal of Instructional Psychology*, 16(2), 72-78.
- Akpınar, Y. (2005). *Bilgisayar destekli eğitimde uygulamalar*. Ankara: Anı Yayıncılık.

- American Academy of Pediatrics. (2011). Media use by children younger than 2 years. *Pediatrics*, *128*(5), 1040-1045. <https://doi.org/10.1542/peds.2011-1753>
- Anand, S., & Krosnick, J. A. (2005). Demographic predictors of media use among infants, toddlers, and preschoolers. *American Behavioral Scientist*, *48*(5), 539-561. <https://doi.org/10.1177/0002764204271512>
- Anđelić, S. (2005). *Information technology in the education of children of preschool age* (Unpublished master's thesis). University of Belgrade, Belgrade, Serbia.
- Ari, M., & Bayhan, P. (2003). *Okul öncesi dönemde bilgisayar destekli eğitim*. Ankara: Epsilon Yayınları.
- Arrowood, D., & Overall, T. (2004). Using technology to motivate children to write: Changing attitudes in children and preservice teachers. In R. Ferdig et al. (Eds.). *Proceedings of Society for Information Technology and Teacher Education International Conference, 2004*, 4985-4987.
- Australian Bureau of Statistics. (2011). *Household use of information technology, Australia, 2010-11*. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/0/D11394A54F8B9ED1CA25796600152C62?opendocument>
- Burg, K. (1984). The microcomputer in the kindergarten. *Young Children*, *39*(3), 28-33.
- Choi, K. C., & Kong, A. P. S. (2011). Association between cardiovascular risk and prolonged television viewing and computer use in Hong Kong Chinese school children. *International Journal of Cardiology*, *147*, S30. [https://doi.org/10.1016/S0167-5273\(11\)70100-0](https://doi.org/10.1016/S0167-5273(11)70100-0)
- Chung, Y., & Walsh, D. J. (2006). Constructing a joint story-writing space: The dynamics of young children's collaboration at computers. *Early Education and Development*, *17*(3), 337-420. https://doi.org/10.1207/s15566935eed1703_4
- Clements, D. H., & Swaminathan, S. (1995). Technology and school change: New lamps or old? *Childhood Education*, *71*, 275-281. <https://doi.org/10.1080/00094056.1995.10522619>
- Cordes, C., & Miller, E. (Eds). (2000). *Fool's gold: A critical look at computers in childhood*. College Park, MD: Alliance for Childhood. Retrieved from http://drupal6.allianceforchildhood.org/fools_gold
- DeShelter, L., & Slutsky, R. (2017) Should technology be a concern for parents of preschoolers? *Dimensions of Early Childhood*, *45*(2), 29-36.
- Downes, T. (2002). Children's and families' use of computers in Australian homes. *Contemporary Issues in Early Childhood*, *3*(2), 182-196. <https://doi.org/10.2304/ciec.2002.3.2.3>
- Early Childhood Ireland. (2015). *Children's use of technology*. Retrieved from <https://www.earlychildhoodireland.ie/childrens-use-of-technology/>
- Ekici, F. (2016). Parents' views on the use of technology in the early childhood period. *Journal of Education and Training Studies*, *4*(12), 58-70. <https://doi.org/10.11114/jets.v4i12.1925>
- Erickson, E. H. (1963). *Childhood and Society* (2nd ed.). New York: Norton.
- Erickson, E. H. (1982). *The life cycle completed: A review*. New York: Norton.
- Fein, G., Campbell, P., & Schwartz, S. (1987). Microcomputers in the preschool: Effects on social participation and cognitive play. *Journal of Applied Developmental Psychology*, *8*(2), 197-208. [https://doi.org/10.1016/0193-3973\(87\)90014-1](https://doi.org/10.1016/0193-3973(87)90014-1)
- Fox Cities. (2006). *Life I the news*. Retrieved from <http://www.foxcitieslifestudy.org/>
- Freeman, N. K., & Somerindyke, J. (2001). Social play at the computer: Preschoolers scaffold and support peers' computer competence. *Information Technology in Childhood Education*, *2001*(1), 203-213.
- Gimbert, B., & Cristol, D. (2004). Teaching curriculum with technology: Enhancing children's technological competence during early childhood. *Early Childhood Education Journal*, *31*(3), 207-216. <https://doi.org/10.1023/B:ECEJ.0000012315.64687.ee>
- Holloway, D., Green, L., & Livingstone, S. (2013). *Zero to eight young children and their internet use*. LSE, London: EU Kids Online. Retrieved from http://eprints.lse.ac.uk/52630/1/Zero_to_eight.pdf
- Joksimović, G. (2004). *Računar kao najbolji drug*. Retrieved from <http://www.sk.rs/2004/05/sktz01.html>
- Kaiser Family Foundation. (2010). *Daily media use among children and teens up dramatically from five years ago*. Retrieved from <https://www.kff.org/disparities-policy/press-release/daily-media-use-among-children-and-teens-up-dramatically-from-five-years-ago/>

- Konca, A. S., & Koksalan, B. (2017). Preschool children's interaction with ICT at home. *International Journal of Research in Education and Science*, 3(2), 571-581. <https://doi.org/10.21890/ijres.328086>
- Kuckkoculu, B. (2013). Okul oncesi egitime yonelik bilgisayar destekli ogretim tasarimi. Retrieved from <https://www.ulusaltezmerkezi.net/okul-oncesi-egitimine-yonelik-bilgisayar-destekli-ogretim-tasarimi/3/>
- Kumtepe, A. T. (2006). The Effects of computers on kindergarten children's social skills. *The Turkish Online Journal of Educational Technology*, 5(4), 52-57.
- Lee, M. W., & Houston, E. S. (1987). Computers in preschool: why and why not! *Journal of Human Behavior and Learning*, 4(1), 10-13.
- Lentz, C., Lorelle, Kyeong-Ju Seo, K., & Gruner, B. (2014). Revisiting the early use of technology: A critical shift from "how young is too young?" to "how much is 'just right'?" *Dimensions of Early Childhood*, 42(1), 15-23.
- Lepper, M. R., & Gurtner, J. (1989). Children and computers. *American Psychologist*, 44(2), 170-178. <https://doi.org/10.1037/0003-066X.44.2.170>
- Li, Y., & Ranieri, M. (2010). Are digital natives' really digitally competent? A study on Chinese teenagers. *British Journal of Educational Technology*, 41(6), 1029-1042. <https://doi.org/10.1111/j.1467-8535.2009.01053.x>
- Özmert, E. (2006). Erken cocukluk gelisminin desteklenmesi-III: Aile. *Çocuk Sağlığı ve Hastalıkları Dergisi*, 49(3), 256-273.
- Plowman, L., & McPake, J. (2013). Seven myths about young children and technology. *Childhood Education*, 89(1), 27-33. <https://doi.org/10.1080/00094056.2013.757490>
- Recchia, S. L. (1997). Play and concept development in infants and young children. *Journal of Visual Impairment & Blindness*, 91(4), 401-416.
- Reynaldo, J. A., & Santos, A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of Extension*, 37(2), 1-4.
- Seo, H. A., Chun H. Y., Jwa, S. H., & Choi, M. H. (2011). Relationship between young children's habitual computer use and influencing variables on socio-emotional development. *Early Child Development and Care*, 181(2), 245-265. <https://doi.org/10.1080/03004430.2011.536644>
- Siegle, D. (2005). Six uses of the internet to develop students' gifts and talents. *Gifted Child Today*, 28(2), 30-36. <https://doi.org/10.4219/gct-2005-167>
- Siegle, D., & Mitchell, M. S. (2017). Learning from and learning with technology. In J. VanTassel-Baska & C. A. Little (Eds.). *Content-based curriculum for high-ability learners* (3rd ed., pp. 347-373). Waco, TX: Prufrock Press.
- Sivin-Kachala, J., & Bialo, E. R. (1994). *Research report on the effectiveness of technology in schools, 1990-1994*. Washington, DC: Software Publishers Association. Retrieved from <https://files.eric.ed.gov/fulltext/ED371726.pdf>
- Stout, K. (1983). Bringing up better babies. *Families*, 21(4), 132-139.
- Talley, S., Lance, D. F., & Lee, T. R. (1997). Children, storybooks and computers. *Reading Horizons*, 38(2), 116-128.
- The Organization for Economic Co-operation and Development. (2011). The protection of children online: Risks faced by children online and policies to protect them. OECD Digital Economy Papers, No. 179, OECD Publishing, Paris.
- Theodoto, E. (2010). Using computers in early years education: What are the effects on children's development? Some suggestions concerning beneficial computer practice. In Tseles D. (Ed.). *Proceedings of International Scientific Conference "eRA-5": The SynEnergy Forum*, 438-442.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).