Parents' Attitudes towards Digital Technology Use in Early Childhood

Wan Nuur Fazliza Wan Zakaria, Siti Khadijah Omar, Anis Idayu Aziz, Asiah Said

Akademi Pengajian Bahasa, Universiti Teknologi MARA Cawangan Kelantan, Malaysia
Corresponding Authors Email: wfazliza@uitm.edu.my

Abstract
The use of digital technology is significant in improving children's teaching and learning experiences. For their children to experience the enormous advantages of digital technology, parental involvement is deemed crucial. On that note, this study investigates parents' attitudes towards the advantages and disadvantages of digital technology during the early years. Also, this study examines the relationships between family monthly income and the parents' perceptions towards the use of digital technology. Using a simple random sampling technique, a total of 136 completed survey questionnaires were collected from parents whose children enrolled at formal early childhood education institutions in Malaysia. Descriptive analysis, reliability analysis and a one-way Analysis of Variance (ANOVA) were performed. The finding reveals that parents showed positive attitudes towards the use of digital technology in early childhood. Additionally, the study indicates that family monthly income did not influence the parents' attitudes towards the advantages and disadvantages of digital technology. Future research is suggested to include the involvement of preschool stakeholders in designing and managing educational materials for preschoolers.
Keywords: Digital Technology, Early Childhood, Family Income, Parents' Attitudes

Introduction
Technology in education undergoes evolution over the years in assisting and supporting education at all levels. The use of technology is pertinent in Early Childhood Education (ECE) particularly in the teaching and learning activities which contribute to the cognitive development and language acquisition of a child (Ali et al., 2021). In the same tenet, Sakamoto (2015) highlights the use of technology in personalized language learning where it empowers the children to use language as a medium of communication with peers from other countries. Besides, young children comfortably blend in with digital devices that are rapidly emerging as cultural tools at home, schools, works and the community (Rideout et al., 2011).

In line with the advent of technology and its significance towards children's growth and development, parents, educators and related stakeholders' significant roles coalesce as the primary backbone in harboring beneficial outcomes. Di Pietro et al (2020) stipulated that the role of parents is crucial in executing these tasks - to assist their children with the homework and to execute the role of "teacher assistant" at home. Kim (2020) concurred by pointing out that parental involvement is an important factor as they are emerging with new roles in online teaching. In the light of this, the present study aims to look at parents' attitudes in technology use among young children. It is executed with the purpose to seek answers for the three research questions:

a) What are the parents' attitudes towards the advantages and disadvantages of computer use and their children's computer use?

b) Is there any mean difference between family monthly income and parents' attitudes towards computer use?

c) Is there any mean difference between family monthly income and parents' attitudes towards their children's computer use?

Problem Statement

The evolution in the use of technology has widened the application avenues of teaching and learning in education. Students and their stakeholders are presented with myriads of digital platforms to optimize teaching and learning experiences. However, there are still setbacks to this situation. Firstly, students faced difficulties in paying attention towards the learning process. Zomer and Kay (2016) reiterated that overuse of technology could affect the children's senses which eventually led to attention problems and poor concentration (House, 2012). On top of that, Zain et al (2021) reported in their findings that 45.6 percent of children in Malaysian preschools are passive and pay less attention to the lessons. This indicates the presence of technology use cannot be fully utilized without intervention from stakeholders in ensuring optimum outcomes.

Secondly, Zain et al (2021) too highlighted the issue of devices which indicates that parents were unable to provide appropriate gadgets for online learning. This can be the contributing factor to young learners' challenges in their learning as they are not able to put up a proper gadget for the teaching and learning experiences. Lastly, the lack of suitable customized digital educational aids can also impede teaching and learning opportunities (Chin, 2022). He reported in the Star news publication that Malaysia did not have enough sources of contextualized application for Malaysian children to learn Bahasa Malaysia, English and Mathematics. According to him, content designers should start offering scalable solutions in order to close the learning gap among children and focus on fun, interactive and engaging learning processes via technology use.

Significance of the Study

The findings of the current study will allow parents to have better learning engagement with their children. Parents' involvement is expected to gauge children's active learning via the use of technology. Jabbar et al (2019) highlighted that the use of Information Communication Technology (ICT) in preschool teaching allows active learning through individualizing learning. Some of the related activities are developing digital literacy through photo editing and video creation using computers, the use of songs to improve visual literacy skills and writing skills with interactive software. The recognition of Information Communication Technology (ICT)

internalizes students' imagination and creativity in learning and developing dynamic personal attributes (Nikolopoulou, 2018).

Additionally, parental participation in supporting the use of media and technology enables young learners to instill fundamental principles of accountability. Ainsa (1989) emphasized that computers aid the child's maturity and invoke a sense of control over their experiences hence magnify motivation and self-esteem (Clement & Swaminathan, 1995). Therefore, the present study anticipates to maximize parents' roles in ensuring their young children fully optimize the use of technology to improve teaching and learning experiences in education.

Digital Technology in Early Childhood
In the age of the Internet, the use of digital technologies has been systematically celebrated and has become one of the most ubiquitous components in individuals' lives. Evidently, in recent years, digital technologies have become fully ingrained in the routines of individuals and have actively had an impact on the lives of people all over the world. This situation lends itself to the posing of a few questions, such as the following: What effect do digital technologies have on people? What are the advantages and disadvantages of utilizing digital technology in people's daily operations? One facet of digital technologies that has had a significant effect on people's lives is the ways in which they can assist individuals to achieve their goals and dreams (Hoehe & Thibaut, 2020; Iivari et al., 2020).

The pervasiveness of digital technologies can also be observed in the way it is utilised by numerous people to improve the quality of individuals' interpersonal relationships, as well as in its contribution to the formation of new connections between individuals (Hynan et al., 2014). People make daily use of digital technologies not only to acquire information and knowledge but also to communicate with one another and to express their wants, needs, and ambitions (Hoehe & Thibaut, 2020; Mochon, 2018). Interestingly, Mochon (2018) also concurred that people's day-to-day lives have been made much easier and serve as a source of happiness by the proliferation of technological devices like the Internet, computers, tablets, and smartphones.

Numerous studies demonstrate the significant influence that digital technologies have had on almost every aspect of modern life, particularly the educational system (Gjelaj et al., 2020; Konca & Erden, 2021; Maxwell et al., 2021; Preradovic et al., 2016). Not only have digital technologies progressed over the past few decades, but they have also emerged as the preeminent mode of instruction that is currently used in early childhood education. A significant body of studies (Fathi & Mustafa, 2017; Konca & Erden, 2021; Zomer & Kay, 2016) has been conducted and explored in the area of early childhood education and the use of digital technologies as educational aids for children.

Most researchers affirmed that digital technologies can be associated with all electronic devices, including but not limited to smartphones, telephones, computers, printers, televisions, tablets, electronic toys, interactive whiteboards, electronic musical instruments, and fax machines (Olowe & Kutelu, 2014). On the other hand, some studies (Konca & Erden, 2021; Lee, 2021; Zomer & Kay, 2016) identified digital technologies as being in the form of internet connections, software communication, and online learning tools (such as *Edukate, MyNeuroLAT, Funbrain, and ABCmouse*). Since the adoption of digital technologies in early

childhood education, numerous opportunities have been made available for children's education. These opportunities not only help children learn more easily but also enhance many different facets of early childhood education including children's learning experiences, professional learning as well as communication skills (Mishra & Joseph, 2012; Preradovic et al., 2016).

Positive Impacts of Digital Technology

There has been a growing body of research conducted in the field of digital technologies in early childhood education, addressing both the benefits and the drawbacks of using these technologies (Lee, 2021; Preradovic et al., 2016; Yelland, 2005). The use of digital technologies in early childhood education has been shown to have a positive impact in a variety of areas, including social, emotional, cognitive, and linguistics development (Hutinger & Johanson, 2000). Socially, digital technologies give children new and exciting ways to play, learn, communicate, explore, and grow (Downes, 2002; Kalas, 2013). This makes learning more interactive and collaborative. Furthermore, research has shown that the use of digital technologies is one of the factors that promotes children's social interaction (Lim, 2012).

Another way that digital technologies have affected early childhood education is in the field of cognitive development. Modern times have witnessed digital technologies have impacted both the children's cognitive abilities and their reasoning abilities (Bebell & Pedulla, 2015; Preradovic et al., 2016). This is supported by Fathi and Mustafa (2017), who noted that using digital tools helps kids visualize complex ideas more clearly and advances their mental growth and exposure to different cultures. Aside, it is also widely accepted that the utilization of digital technologies can assist children in the development of their literacy skills, as well as boost the academic achievement of children (Amendum et al., 2011). This is because of the interactive nature of these technologies, and it has been suggested that children are more likely to readily absorb information when presented in a digital format more than other formats.

Negative Impacts of Digital Technology

The use of digital technologies in early childhood education unavoidably brings about some difficulties along with its many positive effects. Few literatures (Ahmed, 2011; Calvert, 2006; Donohue, 2015) have adopted an analytical perspective with regard to the introduction of digital technologies into early childhood. These researchers expressed their concern regarding the negative effects that have been linked to the use of digital technologies in early childhood education. These effects include harm to the children's physical, social, intellectual, and mental development. The excessive use of digital technologies, such as playing video games, watching television, and using a computer, is associated with disturbed sleeping patterns. Numerous studies (Lund et al., 2021; Ribner & McHarg, 2019; Xu et al., 2016) have established that children who use electronic devices are more likely to have issues falling asleep, staying asleep, and waking up during the night.

Other potential adverse effects include an increased risk of a child being overweight or obese as well as decreased physical activity (Donohue, 2015; Preradovic et al., 2016). This association also exists in conjunction with a decreased likelihood of the child engaging in regular physical activity. In addition, the use of digital technologies presents challenges that are not limited to the implications for children's health, but also have a negative impact on

children's socialization and language development abilities (Carson et al., 2019; Gjelaj et al., 2020; Preradovic et al., 2016). This is a problem because children's ability to socialize with others and develop their language skills is negatively impacted. There is also a link between this and the fact that children's mental health is getting worse. In addition, studies have shown that children who use digital technologies for extended periods of time have poorer language skills and their imaginations are severely constrained (Livingstone & Smith, 2014; Pagani et al., 2016; Radesky et al., 2014). This was suggested because of the common practice of introducing children to various forms of technology at a young age.

Past Studies

Gjelaj et al (2020) conducted a study in seven publicly funded preschools in Kosovo to examine the attitudes and practices of preschool teachers and parents regarding the integration of digital technologies into early childhood education. This study employed a mixed research methodology, which included in-depth interviews as well as an online questionnaire, with the goal of examining eight preschool teachers and one hundred parents. According to Gjelaj et al (2020), parents and preschool teachers have different beliefs and practices regarding how digital technologies can aid in the development of young children. In line with the findings of Gur and Turel (2022); Konca and Erden (2021); Papadakis et al (2019) and Wood et al (2016), the authors reported that parents believed that the use of digital technologies in early childhood education was indeed important. The authors also asserted that their findings coincided with those of Hatzigianni and Kalaitzidis (2018); Palaiologou (2016), whom all stated that the majority of teachers exhibited negative attitudes toward incorporating digital technologies into early childhood education. However, few literatures (Koc, 2014; Kol, 2012) found that kindergarten teachers have positive perceptions about the use of computers in early childhood settings, conflicts with the findings of (Gjelaj et al., 2020). Additionally, Kol (2012) revealed that teachers believe the use of computers in the classroom improves teaching and has beneficial effects on children. Beneficial results include enhanced concentration and participation in the instructional process, as well as facilitated interpersonal communication (Bayhan et al., 2002; Kol, 2012).

The aforementioned earlier studies primarily used mixed-method analysis, but Preradovic et al (2016) investigated 152 parents of the children age range three to seven from one of the largest public kindergartens in Croatia using a questionnaire containing 17 closed-ended questions. The authors investigated three areas: 1) parents' perspectives on the benefits and drawbacks of general computer use; 2) parents' perspectives on the integration of digital technologies in kindergarten curriculum; and 3) parents' viewpoints on how their children use computers at home. The result of this study is in tune with the previous findings (Hatzigianni & Margetts, 2014; Plowman et al., 2012) which revealed that the majority of kindergarten parents understand how crucial it is for their children to have access to computers and stress the importance of it. This finding is consistent with the finding of Papadakis et al (2019), which discovered that parents are enthusiastic about utilising technologies into early childhood education. However, the results of this study are different from Palaigeorgiou et al (2018), who interviewed 54 Greek parents about how they felt about using digital technologies at home and in school. The data indicated that most parents are against the use of digital technologies as educational aids for children. Instead, many parents prefer more traditional methods of education. Preradovic et al (2016) also found that parents' education had no bearing on parents' attitudes toward children using digital technologies in the early years or

how they use computers at home. A slightly different conclusion was reached by Papadakis et al (2019), who found that demographic variables such as gender, age, household income, and profession have no significant relationship with parents' attitudes toward digital technologies integration in early childhood education. However, Livingstone et al (2015) discovered that parents' age groups strongly influence how they perceive their children's engagement with digital technologies. Even though these past studies have different findings, most of these previous publications agree that children's interaction with digital technologies is inevitable and cannot be denied.

Methodology
The study aimed to investigate parents' attitudes towards the use of digital technology in early childhood. It utilized quantitative research methodology wherein a questionnaire was used to collect the data. A set of questionnaires consisting of 27 questions divided into three sections was developed based on a questionnaire used previously by another study (Preradovic, et al., 2016). While demographic section contains categorical question-types, Likert-scale questions consisting of five-point rating scale were used in the other two sections of the questionnaire namely:
i) Parents' attitudes towards the advantages and disadvantages of computer use
ii) Parents' attitudes towards the advantages and disadvantages of children's computer use

The respondents were parents whose children enrolled at formal early childhood education institutions in Malaysia. The sampling technique was based on simple random sampling in which each respondent was given an equal probability of being selected from the population (Creswell, 2008). A total of 136 responses on parents' perceptions towards the use of digital technology revealing their interests and concerns were gathered. To protect the privacy and confidentiality of the respondents, they were informed that the questionnaire would be used only for the research purposes.

The data analysis process of this study included three stages - descriptive analysis, reliability analysis and parametric statistical analysis. In describing the parents' attitudes towards computer use and children's computer use, a descriptive analysis was chosen. Mean values indicating positive and negative perceptions towards each item and standard deviation were presented in tables. The next step is to determine the reliability measure for the measuring items under each section. The reliability analysis was conducted by computing the Cronbach's Alpha for each section of independent and dependent variables. The closest Cronbach 's Alpha coefficient is to 1.0 which is the highest internal consistency of items in the scale (Goforth, 2015). For both Section B and C which represent parents' attitude towards the advantages and disadvantages of computer use and children's computer use, the Cronbach's Alpha values are .879 and .883 respectively. These values indicate a high level of Cronbach Alpha therefore representing a good reliability and internal consistency. Since the skewness of the data is -.084, the normality condition is achieved as supported by Kline (2011) who stated that skewness value should be lower than 3.

Table 1
Reliability Statistics

Sections	Number of Items	Cronbach's Alpha	Skewness
Section B			
Parents' attitudes towards the advantages and disadvantages of computer use	10	.879	.199
Section C			
Parents' attitudes towards the advantages and disadvantages of children's computer use	10	.883	-.084

Since the data obtained in the study were normally distributed, parametric statistical analysis could be employed. A one-way Analysis of Variance (ANOVA) was conducted to investigate significant mean differences between family monthly income and parents' attitudes towards computer use and their children's computer use. In the process of examining these relationships, the differences between the mean scores of family monthly income and the parents' perceptions towards the use of computers were calculated. A *p*-value of less than 0.05 was required to show significant differences hence allowing the rejection of the null hypothesis, H_0 (Grabowski, 2016). The following are the proposed hypotheses for this study:
H_1: There is a significant mean difference between family monthly income and the parents' perceptions towards computer use.
H_2: There is a significant mean difference between family monthly income and the parents' perceptions towards children's computer use.

Demographic Analysis
Table 2 displays the frequency and percentage of categorical socio-demographic variables. Majority of the respondents were mothers (119; 87.5%). Of the 136 respondents, 89 were 30 to 39-year-old parents or guardians. As for the family monthly income, 42 respondents earned between RM2001 and RM4000 followed by those whose earnings were between RM6001 and RM10000 (32; 23.5%). The respondents who earned more than RM10000 monthly constituted 11.8 percent of the study sample while the least were those earning between RM1000 and RM2000 (16; 11.8%). The number of children from each age group varied with 46 aged 1 to 3 years old, 106 aged 4 to 6 years old, 41 aged 7 to 9 years old and 22 were 10 years old and above. It is worth to note that smartphones and televisions were the most popular technological devices available in the household which represent 86 percent and 75.7 percent respectively. Additionally, more than half of the parents or guardians reported that they had computers and laptops available at home for their children's use (100; 73.6%).

Table 2
Respondents' Demographic Profile

Characteristics	Frequency (N)	Percentage (%)
Parent's Gender & the Family Role		
Father	15	11.0
Mother	119	87.5
Guardian	2	1.5
Age of the Parent/Guardian		
<less than 29 years old	20	14.7
30-39 years old	89	65.4
40-49 years old	25	18.4
>50 years old	2	1.5
Parent's/Guardian's Education Level		
Primary School	4	2.9
Secondary School	24	17.6
Pre-University	15	11.0
University	93	68.4
Family Monthly Income		
RM1000-RM2000	16	11.8
RM2001-RM4000	42	30.9
RM4001-RM6000	29	21.3
RM6001-RM10000	32	23.5
>RM10000	17	12.5
Number of Children		
1	22	16.2
2	41	30.1
3	45	33.1
4	15	11.0
5	9	6.6
6	4	2.9
Age of Children		
1-3 years old	48	35.3
4-6 years old	106	77.9
7-9 years old	41	30.1
10 years old and above	22	16.2
Availability of Technological Device/s in the Household	27	19.9
Computer	73	53.7
Laptop	41	30.1
Computer Tablet	117	86.0
Smartphone	103	75.7
Television		

Parents' Attitudes towards the Advantages and Disadvantages of Computer Use
Table 3 below depicts parents' attitudes towards the advantages and disadvantages of computer use which was obtained from the analysis of 10 items in Section B. Parents' attitudes on both advantages and disadvantages of computer use were measured on a 5-point

Likert Scale; Strongly agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1). The item on believing that computers as well as smartphones have significantly speeded up and facilitated work had the highest agreement (M:4.28); followed by the item on considering the Internet as joining pleasure with usefulness (M:4.21). Another item to be highlighted which had a strong agreement from the parents was modern technologies have significantly improved people's lives (M:4.20).

Based on the descriptive analysis for Section B, the findings found that the highest agreement was on how computers and smartphones have been a great helper in settling people's everyday business. It was also shown in the findings that parents believed the Internet is useful and provides contentment to its users and this is supported by Konka and Erden's (2021) study. In addition, the parents who have been exposed to digital technologies and used computers were said to be more understanding of their children's computer use and they were informed about any websites visited by their children (Uncu et. al., 2014). Significantly, the findings of this current study were parallel with the previous studies focusing on the parents' positive attitudes towards the use of computers. The study discovered that the majority of parents were delighted over the use of computers and ascertained the importance of computer usage (Papadakis et al., 2019; Plowman et al., 2012). With the attitudes shown, it can be said that the parents were prepared to share the experience with their children while acknowledging the dangers children might face when they utilize all sorts of digital technologies. Additionally, these results are also crucial since the parents will be their children's facilitators during any digital activities; positive attitudes towards the advantages of computer use may be beneficial in offering children's countless opportunities and experiences in digital technology (Konka, 2021).

Table 3
Descriptive Analysis of Parents' Attitudes towards the Advantages and Disadvantages of Computer Use

Items		Mean	Std. Deviation
1.	Computers ease our lives.	4.16	.623
2.	I am thrilled with the ease of communication through the internet with anyone in the world.	4.10	.708
3.	I consider using the internet as joining pleasure with usefulness.	4.21	.576
4.	I believe that computers and smartphones have significantly speeded up and facilitated the work.	4.28	.554
5.	I can meet new people on the internet.	3.84	.781
6.	Searching the internet is fun.	3.92	.741
7.	The Internet helps me to be informed.	4.39	.519
8.	Modern technologies have significantly improved people's lives.	4.20	.618
9.	Computers facilitate learning.	4.17	.694
10.	Despite all dangers, I believe children should be taught how to use the internet.	4.16	.669

Parents' Attitudes towards the Advantages and Disadvantages of Children's Computer Use

The aim for this current study also focuses on parents' attitudes towards the advantages and disadvantages of children's computer use which the descriptive analysis for this section (Section C) was presented in Table 4 below. Table 4 shows the most acceptance items and least agreement by the parents which were derived from the analysis of 10 items. It was revealed that parents agreed that children would learn new and useful things on the computer followed by children gaining valuable IT skills which would be useful for them in the future with the mean values supporting these two items which are 3.82 and 3.76 respectively. Meanwhile, most of the parents disagreed that the use of computers might strengthen the bond between children and parents or guardians (2.62); another item which was considered as having a high disagreement by the parents was children spent more quality time on the computer than watching television (2.86).

With reference to the descriptive analysis for Section C, the findings reported that parents positively reflected that the use of computers could enlighten their children with new and useful knowledge. Interestingly, the findings of this current study were equivalent to the research conducted by Downes (2002) which asserted that digital technologies have brought the children to a new knowledge and stimulating ways to play and explore. In addition, the children would possibly not only gain new knowledge, but they would also acquire IT skills effectively. Thus, this has reflected on the findings of this current study. Even though the findings appeared to be more on positive sides, there were few items that parents would not agree upon. For instance, parents did not agree that computers could improve children's relationship with their parents or guardians. They believed that when children spend more time on the screen, it would possibly interrupt the relationships which is also confirmed by Konka (2021) that parents should consider restricting their children's screen time to protect family relationships. Added to this, the parents also disagreed that children spend more quality time on the computer than watching television. The main reason is because most of the parents with children who are in kindergartens particularly believe that their children still need full assistance from the elders when they must use smartphones rather than televisions. This is supported by a study conducted by Plowman et al (2012) who found that the most well-liked device among children at home would be televisions even though smartphones provide them with a lot of attractive games. It is said that children find it difficult to attend the games by themselves and need their older siblings' or parents' assistance whereas televisions are easy to work with and less support is needed from the elders.

Table 4
Descriptive Analysis of Parents' Attitudes towards the Advantages and Disadvantages of Children's Computer Use

Items		Mean	Std. Deviation
1.	Children learn new and useful things on the computer.	3.82	.665
2.	Children who regularly use computers are learning to be independent.	3.05	.937
3.	Computers can have a positive influence on children's development.	3.40	.847
4.	Despite the increased computer use, children can still engage in sport activities.	3.44	.995
5.	Use of computers may strengthen the bond between children and parents/guardians.	2.62	.835
6.	Computer use may develop social skills among children.	2.91	.962
7.	When using computers, children gain valuable IT skills which will be useful for them in the future.	3.76	.669
8.	Children can better develop their skills while playing computer games.	3.24	.873
9.	Thanks to computers, children's intellectual development is enhanced.	3.37	.778
10.	Children spend more quality time on the computer than watching TV.	2.86	.936

Determining Mean Difference between Family Monthly Income and Parents' Attitudes towards Computer Use

To address the second research question, the one-way between subjects ANOVA was conducted to compare family monthly income and the parents' attitudes towards computer use. The result is shown in Table 5 which indicates that there was no significant mean difference in respondents' attitudes towards computer use when they were classified according to their family monthly income. The study fails to reject the null hypothesis since the *p*-value is higher than 0.05. Therefore, the research hypothesis, H_1 - there is a significant mean difference between family monthly income and the parents' perceptions towards computer use - is not supported. Hence, it can be concluded that family monthly income did not influence the respondents' attitudes towards the advantages and disadvantages of computer use.

Table 5
Statistical Difference between Mean Test Scores for Parents' Attitudes towards Computer Use in relation to Family Monthly Income

	Sum of Squares	df	Mean Square	F	Significance Value (p)
Between Groups	1.538	4	.385	1.936	.108
Within Groups	26.014	131	.199		
Total	27.553	135			

Determining Mean Difference between Family Monthly Income and Parents' Attitudes towards Children's Computer Use
As can be seen in Table 6, the significance value is 0.990 which is greater than 0.05. The research hypothesis, H_2 - there is a significant mean difference between family monthly income and the parents' perceptions towards children's computer use - is rejected. Thus, it can be stipulated that the mean difference was statistically insignificant between the respondents' attitudes towards the advantages and disadvantages of their children's computer use and the family monthly income. This echoed with the study of Papadakis et al. (2019) on parental involvement and attitudes towards young children's technology usage which found that household income had an insignificant relationship with parents' attitudes toward digital technologies integration in early childhood education.

Table 6
Statistical Difference between Mean Test Scores for Parents' Attitudes towards Children's Computer Use in relation to Family Monthly Income

	Sum of Squares	df	Mean Square	F	Significance Value (p)
Between Groups	.108	4	.027	.073	.990
Within Groups	48.232	131	.368		
Total	48.340	135			

Conclusion
This study aimed to investigate parents' attitudes towards the advantages and disadvantages of computer use and their children's computer use. It also focuses on determining the mean differences between family monthly income and the parents' attitudes towards computer use and children's computer use. The study succeeded in obtaining a positive relationship between parents' attitudes and the advantages and disadvantages of computer use and the children's computer use. Even more, the results showed that parents are alert of the impact of their involvement on the young children and concurrently aware of the risks of technology use towards the children. This finding will enable the researchers to encourage parents' active involvement with the children by improving the designs of learning materials. Additionally, the findings revealed that there are no significant mean differences between family monthly income and computer use as well as the children's computer use. Hence, the advocacy on the risks of technology use can be disseminated more rigorously by teachers in raising awareness among parents as they are concerned of technology implications on their children (American Academy of Pediatrics, 2011).

Eventually, it is worth noting that this study too has its limitations. Future studies may want to have a larger sample size to generate more generalizable results in representing Malaysian parents. Meanwhile, related stakeholders in the preschool education system could opt for additional digital materials to be made available offline to encourage learning motivation (Singh et al., 2022). Awareness on parental involvement should be in-tandem with parental training to manage educational activities with their children. All in all, the findings from this study aspire to spread awareness among the preschool stakeholders on the vital influence of parents in supporting students' holistic learning.

References

Ahmed, R. (2011). Children's quantitative and qualitative use of media and modern technologies between reality and aspirations: A survey study. *Childhood Studies, 14*(52), 225-245.

Ainsa, T. (1989). Effects of computers and training in head start curriculum. *Journal of Instructional Psychology, 16*(2), 72-78.

Ali, A., Abdul Malik, M., & Tee, C. M. (2021). Teachers' Perception of Technology Integration Easiness in Teaching Preschool Children. *International Conference on Education*. 205-214.

Amendum, S. J., Vernon-Feagans, L., & Ginsberg, M. C. (2011). The effectiveness of a technologically facilitated classroom-based early reading intervention: The targeted reading intervention. *The Elementary School Journal, 112*(1), 107-131.

American Academy of Pediatrics. (2011). Media use by children younger than 2 years. *Pediatrics, 128*(5), 10401045. https://doi.org/10.1542/peds.2011-1753

Bayhan, P., Olgun, P., & Yelland, N. J. (2002). A study of pre-school teachers' thoughts about computer-assisted instruction. *Contemporary issues in early childhood, 3*(2), 298-303. https://doi.org/10.2304/ciec.2002.3.2.11

Bebell, D., & Pedulla, J. (2015). A quantitative investigation into the impacts of 1: 1 iPads on early learner's ELA and math achievement. *Journal of Information Technology Education. Innovations in Practice, 14*, 191. Retrieved from
http://www.jite.org/documents/Vol14/JITEv14IIPp191-215Bebell1720.pdf

Calvert, S. L. (2006). Media and early development. In: McCartney, K., Phillips, D.A. (Eds.). *Handbook of Early Childhood Development*. Boston, MA: Blackwell, 843–879.

Carson, V., Lee, Eun-Young, L., Hesketh, K. D., Hunter, S., Kuzik, N., Predy, M., Rhodes, R. E., Rinaldi, C. M., Spence, J. C., & Hinkey, T. (2019). Physical activity and sedentary behavior across three time-points and associations with social skills in early childhood. *BMC Public Health*, *19*(27), 1-8. https://doi.org/10.1186/s12889-018-6381-x

Chin, C. (2022). How Malaysian Teachers Use Social Media to Capture Students' Attention. Retrieved from
https://www.thestar.com.my/news/education/2022/09/11/new-way-to-learn

Chiong, C., & Shuler, C. (2010). Learning: Is There an App for That? Investigations of Young Children's Usage and Learning with Mobile Devices and Apps. New York: The Joan Ganz Cooney Center at Sesame Workshop.
http://pbskids.org/read/files/cooney_learning_apps.pdf

Clement, 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

Creswell, J. W. (2008). *Educational research: planning, conducting and evaluating quantitative and qualitative research*. Upper Saddle River: Pearson.

Di Pietro, G., Biagi, F., Costa, P., Karpinski Z., & Mazza, J. (2020). The likely impact of COVID-19 on education: Reflections based on the existing literature and international datasets, EUR 30275 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-19937-3, doi:10.2760/126686, JRC121071

Donohue, C. (2015). Technology and digital media as tools for teaching and learning in the digital age*. In Technology and Digital Media in the Early Years.* New York: Routledge and Washington.

Downes, T. (2002). Children's and families' use of computers in Australian homes. *Contemporary Issues in Early Childhood, 3*(2), 182–196.

Gjelaj, M., Buza, K., Shatri, K., & Zabeli, N. (2020). Digital technologies in early childhood: attitudes and practices of parents and teachers in Kosovo. *International Journal of Instruction, 13*(1), 165-184.

Goforth, C. (2015). Using and Interpreting Cronbach's Alpha. University of Virginia Library Research Data Services Sciences. Retrieved August 23, 2022 from https://data.library.virginia.edu/using-and-interp reting-cronbachs-alpha.

Grabowski, B. (2016). "P< 0.05" might not mean what you think: American Statistical Association clarifies P values. *JNCI: Journal of the National Cancer Institute*, *108*(8).

Gur, D., & Turel, Y. K. (2022). Parenting in the digital age: Attitudes, controls and limitations regarding children's use of ICT*. Computers & Education, 183*, 104504. https://doi.org/10.1016/j.compedu.2022.104504

Hatzigianni, M., & Kalaitzidis, I. (2018). Early childhood educators' attitudes and beliefs around the use of touchscreen technologies by children under three years of age*. British Journal of Educational Technology, 49*(5), 883-895. https://doi.org/10.1111/bjet.12649

Hatzigianni, M., & Margetts, K. (2014). Parents' beliefs and evaluations of young children's computer use. *Australasian Journal of Early Childhood, 39*(4), 114-122. https://doi.org/10.1177/183693911403900415

Hoehe, M. R., & Thibaut, F. (2020). Going digital: How technology use may influence human brains and behavior. *Dialogues Clin Neurosci, 22*(2), 93-97. doi: 10.31887/DCNS.2020.22.2/mhoehe.

House, R. (2012). The inappropriateness of ICT in early childhood education: Arguments from philosophy, pedagogy and developmental psychology. In S. Suggate & E. Reese (Eds.), *Contemporary debates in childhood education and development* (pp. 105-121). New York: Routledge.

Hutinger, P. L., & Johanson, J. (2000). Implementing and maintaining an effective early childhood comprehensive technology system. *Topics in Early Childhood Special Education, 20*(3), 159-173. https://doi.org/10.1177/027112140002000305

Hynan, A., Murray, J., & Goldbart, J. (2014). 'Happy and excited': Perceptions of using digital technology and social media by young people who use augmentative and alternative communication. *Child Language Teaching and Therapy, 30*(2), 175–186. https://doi.org/10.1177/0265659013519258

Iivari, N., Sharma, S., & Venta-Olkkonen, L. (2020). Digital transformation of everyday life – How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? *International Journal of Information Management, 55*, 102183.

https://doi.org/10.1016/j.ijinfomgt.2020.102183

Jabbar, S. A, Al-Shboul, M., Tannous, A., Banat, S., & Alderabi, H. (2019). Young Children's Use of Technological Devices: Parents' views. *Modern Applied Sciences*, *13* (2), 66-80.

Kalas, I. (2013). Integration of ICT in early childhood education. Paper presented The X World Conference on Computers in Education, Torun, Poland.

Kim, J. (2020). Learning and teaching online during Covid-19: Experiences of student teachers in an early childhood education practicum. *International Journal of Early Childhood, 52*, 145-158.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York: Guilford Press. 50.

Koc, K. (2014). The use of technology in early childhood classrooms: An investigation of teachers' attitudes. *Gaziantep University Journal of Social Sciences, 13*(3), 807-819.

Kol, S. (2012). Evaluating the opinions of the preschool teachers on computer assisted education. *Educational Sciences: Theory and Practice, 12*(2), 897-903.

Konka, A. S. (2021). Digital Technology Usage of Young Children: Screen Time and Families. *Early Childhood Education Journal*. https://doi.org/10.1007/s10643-021-01245-7.

Konca, A. S., & Erden, F. T. (2021). Digital technology (DT) usage of preschool teachers in early childhood classrooms. *Journal of Education and Future, 19*, 1-12. DOI: 10.30786/jef.627809

Lee, J. (2021). The relationship between preschool teachers' teaching experience and belief and their usage of ICT and the Internet in early childhood education. *In CoMBInES-Conference on Management, Business, Innovation, Education and Social Sciences*, *1*(1), 35-49.

Lim, E. (2012). Patterns of kindergarten children's social interaction with peers in the computer area. *International Journal of Computer-Supported Collaborative Learning,7*(3), 399-421.

Livingstone, S., & Smith, P. K. (2014). Annual research review: Harms experienced by child users of online and mobile technologies: The nature, prevalence and management of sexual and aggressive risks in the digital age. *Journal of Child Psychology and Psychiatry, 55*(6), 635-654.

Livingstone, S., Mascheroni, G., Dreier, M., Chaudron, S., & Lagae, K. (2015). *How parents of young children manage digital devices at home: The role of income, education and parental style*. London, UK: EU Kids Online.

Lund, L., Solvhoj, I. N., Danielsen, D., & Andersen, S. (2021). Electronic media use and sleep in children and adolescents in western countries: a systematic review. *BMC public health, 21*(1), 1-14. https://doi.org/10.1186/s12889-021-11640-9

Maxwell, J. C., Kamp, J., & Cullen, T. (2021). Parent perceptions of technology use in K-12 classrooms. *SRATE Journal, 30*(1), 1-13.

Mishra, P. K., & Joseph, A. (2012). Early childhood care & education: An ICT perspective. *Information Technologies and Learning Tools, 27*(1).

Mochon, F. (2018). Happiness and technology: Special consideration of digital technology and internet. *International Journal of Interactive Multimedia and Artificial Intelligence 5*(3), 162. DOI: 10.9781/ijimai.2018.12.004

Nikolopoulou, K. (2018). Creativity and ICT: Theoretical Approaches and Perspectives in School Education. In T.A. Mikropoulous (ed.), *Research on e-Learning and ICT in Education,* (pp. 87-100). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-95059-4_5

Olowe, P. K., & Kutelu, B. O. (2014). Perceived importance of ICT in preparing early childhood education teachers for the new generation children. *International Journal of Evaluation and Research in Education, 3*(2), 119-124.

Pagani, L. S., Levesque-Seck, F., & Fitzpatrick, C. (2016). Prospective associations between televiewing at toddlerhood and later self-reported social impairment at middle school in a Canadian longitudinal cohort born in 1997/1998. *Psychological medicine, 46*(16), 3329-3337. doi:10.1017/S0033291716001689

Palaigeorgiou, G., Katerina, K., Bratitsis, T., & Xefteris, S. (2018). Parental mediation of tablet educational use at home and at school: Facilitators or preventers?. *Interactive Mobile Communication, Technologies and Learning, 725,* 924-935. doi: https://doi.org/10.1007/978-3-319-75175-7_90

Palaiologou, I. (2016). Teachers' dispositions towards the role of digital devices in play-based pedagogy in early childhood education. *Early Years, 36*(3), 305-321.

Papadakis, S., Zaranis, N., & Kalogiannakis, M. (2019). Parental involvement and attitudes towards young Greek children's mobile usage. *International Journal of Child-Computer Interaction, 22*, 100144. https://doi.org/10.1016/j.ijcci.2019.100144

Plowman, L., Stevenson, O., Stephen, C., & McPake, J. (2012). Preschool children's learning with technology at home. *Computers & Education, 59*(1), 30-37. doi:10.1016/j.compedu.2011.11.014

Preradovic, N. M., Lesin, G., & Sagud, M. (2016). Investigating parents' attitudes towards digital technology use in early childhood: A case study from Croatia. *Informatics in Education, 15*(1), 127-146. DOI: 10.15388/infedu.2016.07

Radesky, J. S., Silverstein, M., Zuckerman, B., & Christakis, D. A. (2014). Infant self-regulation and early childhood media exposure. *Pediatrics, 133*(5), 1172-1178.

Ribner, A. D., & McHarg, G. G. (2019). Why won't she sleep? Screen exposure and sleep patterns in young infants. *Infant Behavior and Development, 57*, 101334.

Rideout, V. J., Lauricella, A., & Wartella, E. (2011). Children, Media, and Race: Media Use among White, Black, Hispanic, and Asian American Children. Evanston, IL: Center on Media and Human Development, School of Communication, Northwestern University. http://web5.soc.northwestern.edu/cmhd/wpcontent/uploads/2011/06/SOCconfReportSingleFinal-1.pdf

Sakamoto, B. H. (2015). The role of technology in early years language education. Early Years Second Language Education: International Perspectives on Theories and Practice, 120–136.

Singh, C. K. S., Wong, W. L., Chen, M. J., Lee, M. C., Noor, N., Jegir Singh, J. K., Singh, M. G. K., Abdul Rahman, S., Maniam, M., Gopal, R., & Singh, M. T. S. (2022). Pre-School Teachers' Experiences and Challenges of Online Teaching During the COVID-19 Pandemic. *Asian Journal of Assessment in Teaching and Learning, 12*(1), 98-108. https://doi.org/10.37134/ajatel.vol12.1.10.2022

Uncu, Y., Vural, P., Buyukuysal, C., Alper, Z., & Kilic, E.Z. (2014). How parental attitudes affect the risky computer and Internet usage patterns of adolescents: a population-based study in the Bursa District of Turkey. Retrieved August 23, 2022 from https://doi: 10.21101/cejph.a4012. PMID: 25622487.

Wood, E., Petkovski, M., De Pasquale, D., Gottardo, A., Evans, M. A., & Savage, R. S. (2016). Parent scaffolding of young children when engaged with mobile technology. *Frontiers in Psychology, 7*, 690.

Xu, H., Wen, L. M., Hardy, L. L., & Rissel, C. (2016). Associations of outdoor play and screen time with nocturnal sleep duration and pattern among young children. *Acta Paediatrica, 105*(3), 297-303. https://doi.org/10.1111/apa.13285

Yelland, N. (2005). *Critical issues in early childhood education*. McGraw-Hill Education (UK).

Zain, A., Basir, J. M., & Rafi, M. F. A. M. (2021). Challenges Faced by Preschool Teachers in Implementing Physical Activity During Home-Based Teaching and Learning. *International Journal of Academic Research in Business and Social Sciences,* 11(11), 910 – 919.

Zomer, N., & Kay, R. K. (2016). Technology use in early childhood education: A review of literature. *Journal of Educational Informatics, 1*, 1-25.