ELEMENTARY *Islamic Teacher Journal*
E-ISSN : 2503-0256 / ISSN : 2355-0155
Volume 12 Number 1 January - June 2024 (PP. 169-192)
http://dx.doi.org/10.21043/elementary.v12i1.29346
Diakses di : http://journal.iainkudus.ac.id/index.php/elementary

Digital Safety Literacy Profile of Parents of Elementary School Students and its Relationship with Their Behavior in Using Digital Devices

Hamdan Husein Batubara[1*], Ruruh Sarasati[2], Amalia Risfianti[3], Selfi Dewi Rahmawati[4]

[1-4]Universitas Islam Negeri Walisongo Semarang, Indonesia
**corresponding author : huseinbatubara@gmail.com*

Abstract

Digital safety literacy is increasingly important for parents and elementary school children. This study aims to explore the level of digital safety literacy among parents of elementary school students, its relation to managing children's screen time, and the demographic factors associated with this literacy. A quantitative survey was conducted with parents of elementary school students. It collected data through an online questionnaire and analyzed data using descriptive statistics, person correlation, uji-t, and ANOVA. The results show that parents generally exhibit high digital safety literacy, especially in protecting personal data, recognizing cybercrime, and securing devices. However, gaps were found in understanding privacy and interaction security. The study also identifies a significant relationship between higher digital literacy and stricter management of children's screen time. A weak correlation was identified between digital safety literacy and parents' gender, age, education level, or device and internet usage duration. Nonetheless, younger, more educated parents who use digital devices more frequently show better digital safety literacy. This study also shows how parents' digital literacy impacts children's online safety, with demographic factors having minimal influence. The findings imply the need for targeted digital literacy programs for parents to improve digital safety practices and reduce risks to children's well-being. In addition, collaboration between schools, communities, and technology providers is crucial to creating educational initiatives that empower parents to guide their children in navigating online spaces safely and responsibly.

Keywords: *Digital Literacy, Digital Safety, Parents, Children, Screen Time, Demographic Factors*

INTRODUCTION

Parents' understanding of digital safety and strategies to protect themselves from the dangers of using digital devices is essential to keep themselves and their family members safe (Auxier et al., 2020). In Indonesia, the number of internet users has reached more than 215 million users or 78.19% in 2023 (Ida Ayu Yadnya Sari Dewi

Utami Pidada, 2023), and 76.8% of children in Indonesia are allowed by their parents to operate digital devices, including smartphones (Purnama et al., 2022). This report is also reinforced by the results of research which explains that many elementary school students are already accustomed to using the internet (Martin et al., 2021)

The role of parents in providing appropriate guidance and supervision is crucial to ensuring children's healthy and safe use of technology (Quayyum, 2023; N. Rahayu et al., 2022). In addition, research results reveal that parents' active involvement in supervising and guiding children positively impacts children's literacy development (Miranda et al., 2022). Therefore, parents urgently need good digital literacy to manage the use of digital devices in the family environment and protect themselves and their families from the various risks of using digital devices (Livingstone & Stoilova, 2021).

In Indonesia, many parents of elementary school students do not understand how to secure and limit safe content for children to access (N. Rahayu et al., 2022). In addition, many parents still struggle to guide and protect themselves and their families from the negative impacts of using digital devices. This is evidenced by the number of researchers reporting unhealthy use of digital devices that negatively impact students, such as online game addiction, myopic eyes, and deviant behavior (Miranda et al., 2022; Neustroeva & Filippova, 2022). The results of the recent study are also in line with reports of several research results which reveal that low parental attention and literacy about children's digital safety have led to cases of personal data leakage, cyberbullying, and online game addiction among children (Meates, 2020; Söylemez, 2023). Therefore, educators and digital service providers are indispensable in providing a safe digital environment for children (Rahman Pir et al., 2023).

The results of pre-research through interviews obtained information that parents of elementary school students still face various challenges in protecting children from internet dangers, such as sexual content and online game addiction. One parent said: "I have difficulty in monitoring and limiting the content that children can access (R1)," and another revealed: "The difficulty I face is limiting the duration of time my children use smartphones (R2)." These results of interviews also align with the researcher's observations in the field, which found that many parents of elementary school students allow and even tend to let their children play online games or open social media for more than two hours a day. These results align with previous researchers' findings, which said that although parents have recognized the potential negative effects of free use of digital devices, many parents struggle to limit their children's screen time (Solomon-Moore et al., 2018). In addition, digital device and internet use among

children has also been shown to be associated with mental health problems, depression, and suicidal behavior (Ortuño-Sierra et al., 2022).

The importance of digital literacy for parents is also shown by the results of Rahayu's research and her colleagues' research reveal that children's education in the family will continue to run well if parents can understand the limits of children in using digital technology, such as smartphones and computers (N. Rahayu et al., 2022). Meanwhile, another study by Salehudin showed that children's digital literacy skills are directly proportional to the convenience of digital facilities at home and directed guidance from parents (Miranda et al., 2022). Although a lot of literature discusses the influence of digital literacy on parents and children, few researchers examine matters related to parents' digital safety literacy profile.

Digital safety literacy is the ability and awareness to protect personal data and digital security in daily activities (Ameliah et al., 2022). Digital safety literacy is also defined as the ability to understand and manage risks in using digital technology and adopt safe practices to protect personal, data, and device security (N. Rahayu et al., 2022). Digital safety literacy is the knowledge, attitudes, and skills of parents to guide and protect their children in a digital environment (Anggraeni & Manik, 2023). Digital safety literacy is also defined as understanding digital safety threats, implementing appropriate controls and restrictions, and educating children to use technology responsibly (Livingstone & Blum-Ross, 2020).

Digital safety literacy indicators for parents include the ability to maintain a safe digital identity and personal health when using digital devices, assess the credibility of information, conduct safe interactions with other people and digital content, be aware of digital fraud, keep digital devices safe, and understand digital security for children Krisnaningsih et al. (2023). In addition, individual digital security literacy indicators also include the ability to maintain personal data and privacy (Ameliah et al., 2022).

The Indonesian government has been working to improve people's digital safety literacy through seminars, socialization, and the provision of a website https://literasidigital.id as an open learning resource for the community (Ika Sari et al., 2024; D. Rahayu et al., 2023). In addition, the Meta company has also developed the "We Think Digital" website (https://wethinkdigital.fb.com) to guide parents and children on how to maintain their safety when using social media (Meta, 2024). However, the 2022 survey results show that the digital safety of Indonesians still needs to be improved, as the average score was 3.12 out of a maximum score of 5 (Ameliah et al., 2022). Therefore, this research is very important in identifying the digital safety literacy profile

of parents of elementary school students and what is associated with their digital safety literacy profile.

Recent studies have explored the factors influencing digital literacy, especially among adults and older teachers. Age, gender, education level, and socioeconomic status are key demographic factors influencing digital literacy (J. Lee & Tak, 2022; Peng & Yu, 2022). Digital competencies, skills, and attitudes toward technology significantly impact eHealth literacy and digital adaptation (J. Lee & Tak, 2022; T. X. H. Nguyen et al., 2022). For older adults, digital literacy education programs have positively affected smartphone use, happiness, and cognitive function (H. Lee et al., 2022). Multilevel models emphasize the interaction of social, institutional, and individual factors in digital literacy acquisition (Kärnä et al., 2022). For teachers, contextual factors such as online learning, motivation, and introduction to technology influence digital literacy practices (Zhang, 2023). Understanding these factors is crucial for developing targeted interventions and policies to improve digital literacy across different populations (Schroeder et al., 2023).

Local contexts also significantly influence parents' digital literacy. This is evidenced by studies worldwide showing that cultural and social dynamics, socioeconomic status, school type, and access to resources influence parental engagement in digital education. In addition, increasingly affordable mobile phones, education levels, and living environments also shape digital literacy in terms of internet safety. Therefore, this research is critical to emphasize the need for digital literacy strategies that are responsive to local cultural, social, and economic nuances to improve parents' digital skills effectively.

This study offers significant novelty by addressing gaps in existing research on digital literacy. While many studies emphasize the importance of parents' digital literacy, there is a notable lack of focus on the digital safety literacy of parents of elementary school students and its connection to their behavior when using digital devices (Meoded Karabanov & Aram, 2024; Sumiyati & Rossidy, 2024).

Unlike prior research, this study aims explicitly to explore parental elementary school students' digital safety literacy profile. It also examines how it relates to children's digital safety and demographic factors, such as parental gender, age, education, occupation, and experience with digital devices. This study's findings contribute theoretically and practically by providing empirical evidence that can guide policymakers, educators, and parents in developing effective strategies to enhance digital safety literacy. This focus on elementary school students' parents in the context of

digital safety represents a novel and crucial perspective, addressing the growing complexities of ensuring children's safety in an increasingly digital world.

METHODS

This study utilized a survey research design to examine the digital safety literacy profile of parents of elementary school students and its relationship with factors such as children's digital safety, parental gender, age, education, occupation, and experience with digital devices. The survey design was chosen because it enables data collection from a large and diverse group of 219 respondents, essential for understanding the broader trends and patterns in digital safety literacy among parents. Using a survey, the researcher efficiently gathered quantitative data from parents on their digital safety knowledge and behavior while also capturing demographic information that may influence these factors. This design is well-suited for identifying correlations and generalizing findings across a wide population.

The research data was obtained from 219 parents of elementary school students who volunteered as respondents or research informants. The sample was selected based on the criterion that participants had children attending elementary school. Of the total, 148 were women and 71 were men. The respondents' education levels varied, with two parents having completed elementary school, ten completed junior high school, thirteen completed high school, nineteen held diplomas, eighty-three had undergraduate degrees, and ninety-two had postgraduate degrees. The respondents' ages ranged from 29 to 61 years, with the most common age being 38. The types of employment included 66% (144 individuals) as educators (teachers/lecturers/instructors), 0.5% (1 individual) as an advocate, 2% (4 individuals) as social workers, 3% (6 individuals) as traders, 10% (21 individuals) as employees, 6% (14 individuals) as healthcare workers (nurses and doctors), and 13% (29 individuals) as homemakers.

The research instrument was administered via an online survey created using Google Forms, ensuring efficient distribution and streamlined data processing. Digital safety literacy was evaluated using a five-point Likert scale, covering five key aspects: personal data security, awareness of digital crime, device security and digital identity, privacy protection, and interaction safety. Three educational experts thoroughly reviewed the instrument's appropriateness, completeness, and readability, and its construct validity and reliability met the established standards.

Data for this study were collected using an online survey distributed via Google Forms, ensuring efficient distribution and data processing. The survey included

demographic information and a 5-point Likert scale to assess the digital safety literacy of parents of elementary school students. The digital safety literacy items were developed based on existing literature, focusing on five key aspects: personal data security, awareness of digital crime, device, and digital identity security, privacy protection, and interaction safety (Ameliah et al., 2022; Krisnaningsih et al., 2023; Tomczyk, 2020).

After collecting data from 219 parents, demographic information was analyzed by presenting frequencies and mean values. The digital safety literacy data were then analyzed using percentages and categorized into three levels (low, moderate, and high) based on the guidelines in Table 1 (Alkharusi, 2022). To examine the relationship between digital safety literacy and demographic factors, a correlation analysis using the r-test was performed, with results interpreted using the r-value interpretation table to determine the strength and direction of correlations between variables. In addition, a comparative analysis using the t-test independent sample and ANOVA was performed to determine the difference between demographic variables.

Table 1. Interpretation of Likert Scale mean scores in three categories

Mean	Interpretation
1,00 – 2,33	Low
2,34 – 3,67	Moderate
3,68 – 5,00	High

RESULTS AND DISCUSSION

Result

1. Levels of Parents' Digital Safety Literacy of Elementary School Students

The analysis of parental responses from primary school students indicates that the overall digital security literacy of parents with children in primary school falls within the high category, with an average score of 3.99. This is driven by the high level of literacy among parents concerning personal data security (M=4.71), vigilance against digital crime (M=4.65), and the security of digital devices and identities (M=4.51). However, their privacy and interaction security literacy remains in the moderate category, with mean scores of 3.18 and 2.89, respectively. Further details on the digital security literacy profile of parents of elementary school students can be found in Table 2.

Table 2. Digital Safety Literacy of Parents of Elementary School Students

Aspects	Mean	SD	MIN	MAX	Category
Personal data security	4,71	0,53	1,00	5,00	High
Beware of digital crime	4,65	0,66	1,00	5,00	High
Device security and digital identity	4,51	0,65	2,00	5,00	High
Privacy security	3,18	1,24	1,00	5,00	Moderate
Safety of interaction	2,89	1,33	1,00	5,00	Moderate
Mean	**3,99**				**High**

The results from the analysis of parents' digital safety literacy aspects are presented in Table 3.

Table 3. The Relationship Between Aspects of Digital Safety Literacy

	Device security and digital identity	Privacy security	Personal data security	Safety of interaction	Beware of digital crime
Device security and digital identity	1,00	0,11	0,26	0,04	0,20
Privacy security		1,00	0,07	0,57	0,03
Personal data security			1,00	0,03	0,25
Safety of interaction				1,00	-0,04
Beware of digital crime.					1,00
Average	**0,41**	**0,79**	**0,37**	**0,77**	**0,34**

According to Table 3, the aspects with the strongest relationship are maintaining privacy security and maintaining interaction security, scoring 0.57 and falling into the medium category. On the other hand, the relationships between other aspects are still weak. This indicates that a parent's ability to control who can see their location and the content they share on social media is connected to their ability to report harmful

content.

2. The Relationship Between Parents' Digital Safety Literacy and Their Children's Time on Digital Devices and the Internet

The findings regarding the relationship between parents' level of digital safety literacy and their children's daily digital device usage and internet usage duration can be seen in Table 4.

Table 4. The Relationship Between Parents' Digital Safety Literacy and Their Children's Time on Digital Devices and the Internet

Child screen time / Aspects	Day off (24%)	0 - <1 jam (19%)	One jam (14%)	Two jam (20%)	3-4 jam (16%)	> 4 jam (8%)
Device security and digital identity	4,67	4,45	4,30	4,53	4,50	4,50
Privacy security	3,42	3,24	3,43	3,26	2,85	2,39
Personal data security	4,83	4,64	4,57	4,77	4,68	4,67
Safety of interaction	3,08	2,90	2,80	3,09	2,71	2,28
Beware of digital crime	4,81	4,64	4,63	4,53	4,65	4,56
Average	**4,16**	**3,98**	**3,95**	**4,04**	**3,88**	**3,68**

Table 4 reveals the "day off" group has an average of 4.16 with a variation of 0.71, the "0 to > 1" group has an average of 3.98 with a variation of 0.70, the "1 Hour" group has an average of 3.95 with a variation of 0.64, the "2 Hours" group has an average of 4.04 with a variation of 0.63, the "3-4 Hours" group has an average of 3.88 with a variation of 1.01, and the "> 4 hours" group has an average of 3.68 with a variation of 1.51. Although there is variation in the mean between groups, this difference is more influenced by variation within groups rather than between groups. This study also identified that parents with higher digital safety literacy (average score ≥4.0) tend to impose stricter limits on their children's screen time. For instance, those scoring 4.16 on average restrict screen time to weekends only, while parents with an average score of 4.04 allow a maximum of 2 hours per day. In contrast, parents with moderate digital safety literacy (average scores between 3.68 and 3.88) are more permissive, allowing their children to use digital devices for longer durations, such as 3-4 hours or more than 4 hours daily. This trend is reflected across specific aspects of digital safety, including personal data security, device security, and awareness of digital crime, with higher scores correlating to stricter regulation of screen time. Notably, lower scores in privacy security and interaction safety among all groups indicate these areas might require more parental awareness to strengthen regulation practices.

The research also included parental-reported information on the daily time elementary school children spend using digital devices and the Internet, as shown in Figure 1.

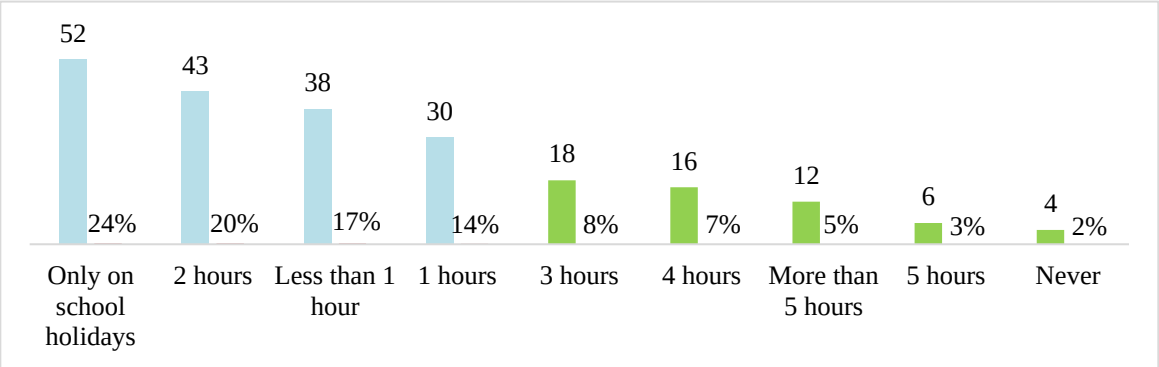

Figure 1. Duration of Time Children Use Digital Devices and the Internet in a Day

Figure 1 presents data on the daily duration of digital device and Internet usage among elementary school children, as reported by their parents. It reveals that 24% (52 individuals) of parents indicated their children only use digital devices and the Internet on school holidays. Additionally, 20% (43 individuals) reported their children use these tools for 2 hours daily, while 17% (38 individuals) stated usage is less than 1 hour per day. Another 14% (30 individuals) noted a daily usage of 1 hour, and 8% (18 individuals) mentioned 3 hours per day. Usage durations of 4 hours and 5 hours per day were reported by 7% (16 individuals) and 3% (6 individuals), respectively. Meanwhile, 5% (12 individuals) indicated their children spent more than 5 hours daily, and 2% (4 individuals) reported no usage at all. This data highlights that while a significant portion of children limit their digital usage to specific days or a few hours daily, 24% (52 children) engage with digital devices and the Internet for more than two hours daily.

The purpose of children using digital devices and the internet from the parents' perspective is shown in Figure 2 below.

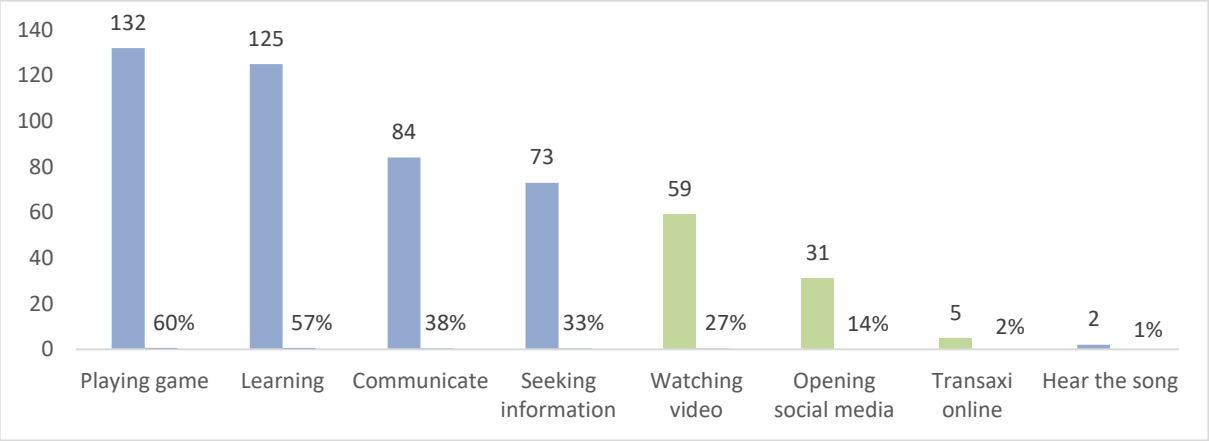

Figure 2. Children's purpose for using digital devices and the Internet

Figure 2 illustrates the purposes for which elementary school-aged children use digital devices and the Internet, as reported by their parents. The majority of children, 60% (132 individuals), primarily use these tools for gaming, followed closely by 57% (125 individuals) who use them for studying. Communication with others is a purpose for 38% (84 individuals), while 33% (73 individuals) use the Internet for information searches. Watching videos accounts for 27% (59 individuals), whereas 14% (31) access social media. A smaller percentage, 2% (5 individuals), engage in online transactions, and only 1% (2 individuals) use digital devices for listening to songs. These findings indicate that gaming and studying dominate children's use of digital devices, and other activities play a comparatively smaller role.

3. The Relationship between parents' digital safety literacy and the variables of gender, age, education level, and duration of usage time

The examination of the correlation between the average score of parental digital safety literacy and the variables of gender, age, level of education, and the duration of digital devices and internet usage can be found in Table 5.

Table 5. The Relationship Between the Mean Score of Parents' Digital Safety Literacy and Variables of Gender, Age, Education, and Usage Time

	R-values	Gender	Age	Education level	Usage Time
Gender	0,14	1,00			
Age	-0,10	-0,10	1,00		
Education level	0,18	-0,34	-0,03	1,00	
Usage Time	0,16	0,08	-0,14	0,21	1,00

The R-values in Table 5 indicate a weak correlation between parents' digital safety literacy and various personal factors. Specifically, the correlation coefficients for gender (r = 0.14), age (r = -0.10), education level (r = 0.18), and the duration and intensity of digital devices and Internet usage (r = 0.16) suggest minimal influence on digital safety literacy. Additionally, Table 3 reveals a similarly weak relationship between parent's education level and the duration of digital device usage, with an r value of 0.21. These findings imply that these personal factors contribute only marginally to parents' digital safety literacy, highlighting the need to explore other potential influences.

The score of parental digital safety literacy in various aspects by gender can be seen in Figure 3.

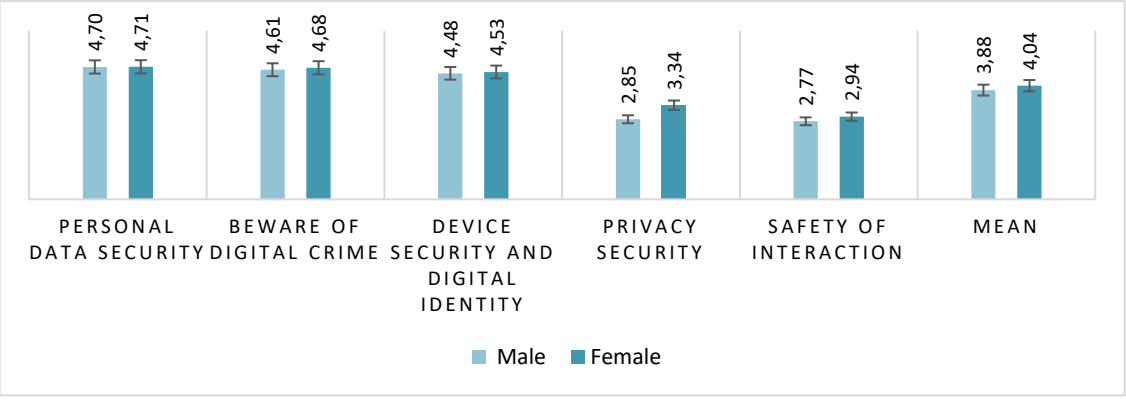

Figure 3. Parents' Digital Safety Literacy by Gender

Figure 3 shows that female parents have an average (mean) digital security literacy of 4.0392 with a variance of 0.2834 and 148 observations. Parents who are male have a mean of 3.8817 and a variance of 0.2875, with 71 observations. The results of the t-test analysis produced a significance value (v-value) of 0.02, so this shows that the average

value of digital security literacy of female parents is significantly higher than that of male parents. The most significant differences in parents' digital security literacy based on their gender are in the aspects of privacy security and interaction security. In both aspects, female parents scored higher than male parents, namely 3.34 to 2.85 in the privacy security aspect and 2.94 to 2.77 in the interaction safety aspect, as for the aspects of the ability to maintain personal data, awareness of digital crime and security of identity and digital devices are relatively the same.

The parental digital safety literacy score in various aspects by age group can be found in Figure 4.

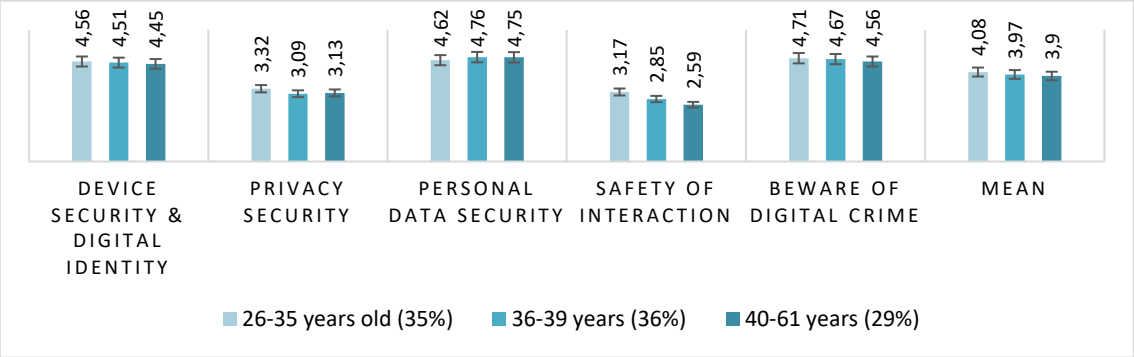

Figure 4. Parents' Digital Safety Literacy by Age

Figure 4 illustrates that the 26-35 years age group has an average of 4.08 with a variance of 0.2591, the 36-40 years age group has an average of 3.97 with a variance of 0.3152, and the 41-61 years age group has an average of 3.90 with a variance of 0.2832. The results of ANOVA (Analysis of Variance) conducted to test the differences in parents' digital security literacy by age group show that the significance value (v-value) obtained is 0,13 greater than 0.05, so it can be concluded that there is no significant difference in digital security literacy between the age groups of 26-35 years, 36-40 years, and 41-61 years. However, the largest average difference is observed in the aspect of interaction security, where younger parents demonstrate a higher ability to maintain secure interactions in cyberspace compared to older parents. This trend is also evident in the aspect of awareness of digital crime.

The score of parental digital safety literacy in various aspects by the level of education can be found in Table 6.

Table 6. Parents' Digital Security Literacy by Level of Education

Aspects \ Education	K1-6 (1%)	K7-9 (5%)	K10-12 (6%)	Diploma (9%)	S1 (38%)	S2/S3 (42%)
Device security and digital identity	5,00	4,20	4,46	4,42	4,58	4,50
Privacy security	1,50	2,40	2,77	3,16	3,29	3,27
Personal data security	5,00	4,70	4,62	4,58	4,72	4,73
Safety of interaction	1,50	2,50	2,54	2,95	2,78	3,09
Beware of digital crime	5,00	4,50	4,62	4,74	4,63	4,67
Average	**3,60**	**3,66**	**3,80**	**3,97**	**4,00**	**4,05**

Table 6 shows that parents with primary school education have an average score of 3.6 with a variance of 3.675. In contrast, parents with junior high school education have an average of 3.66 with a variance of 1.253. Parents with a high school education level have an average of 3.8 with a variance of 1.105, and parents with a diploma education level have an average of 3.97 with a variance of 0.717. Parents with a bachelor's/professional education level have an average of 4.0 with a variance of 0.809, and parents with a postgraduate education level have an average of 4.05 with a variance of 0.646.

The results of the ANOVA (Analysis of Variance) conducted to test the differences in parents' digital security literacy based on their education level show a significance value (p-value) of 0.98, which is greater than 0.05. This indicates that there is no significant difference in digital security literacy across the various education levels (elementary, junior high school, high school, diploma, bachelor/professional, and postgraduate). However, the mean scores of each group reveal a consistent trend, with parents having higher levels of education generally demonstrating slightly higher digital security literacy scores compared to those with lower levels of education.

The score of parental digital safety literacy in various aspects by the duration of use of digital devices and the internet can be seen in Table 7.

Table 7. Parents Digital Safety Literacy by Digital Device and Internet Use Duration

Time usage / Aspects	< 1 – 3 jam (25%)	4 – 5 jam (28%)	6 – 8 jam (21%)	8 > jam (26%)
Device security and digital identity	4,41	4,53	4,50	4,60
Privacy security	2,98	3,05	3,09	3,60
Personal data security	4,78	4,73	4,46	4,82
Safety of interaction	2,63	2,89	2,93	3,09
Beware of digital crime	4,65	4,61	4,67	4,68
Average	**3,89**	**3,96**	**3,93**	**4,16**

Table 7 shows that the user group with a usage duration of <1 - 3 hours per day has an average digital security literacy of 3.89 with a variance of 1.01, the group with a duration of 4 - 5 hours has an average of 3.96 with a variance of 0.83, the group with a duration of 6 - 8 hours has an average of 3.93 with a variance of 0.71, and the group with a duration of > 8 hours has the highest average, which is 4.16, with the lowest variance of 0.59. The ANOVA analysis results obtained a significance value (p-value) of 0.9643, which is greater than 0.05. This indicates that there is no significant difference in the digital safety literacy of parents of elementary school students based on the duration of digital device use per day. Although the group with more than 8 hours of digital device use had the highest mean (4.16), the difference between groups was not large enough to be considered significant.

This study also provides information about the amount of time parents spend using digital devices (smartphones, computers, tablets) and the Internet each day, as well as the purpose for their usage. The data on parents' digital devices and internet usage duration can be found in Figure 5.

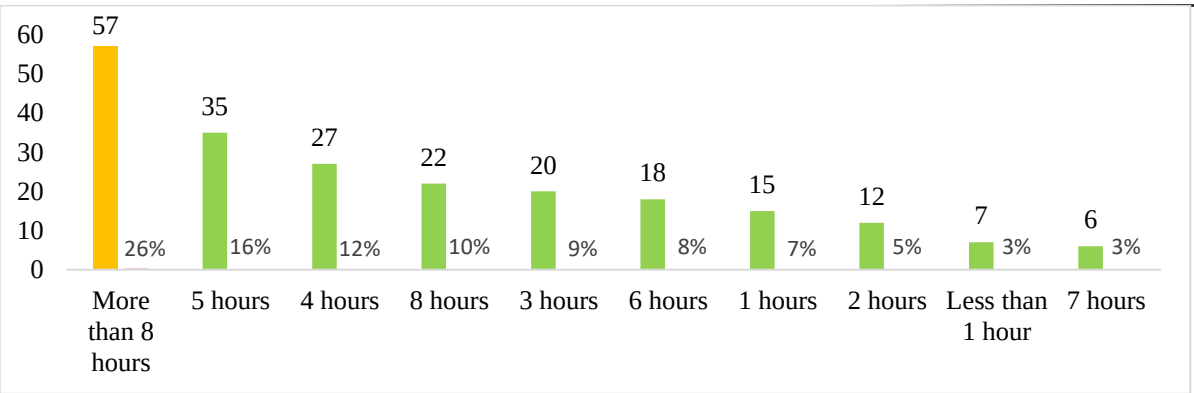

Figure 5. Duration of Time Parents Use Digital Devices and the Internet in a Day

In Figure 5, data reveals significant daily usage of digital devices and the internet among parents, with 90% of respondents spending more than one hour per day on these activities. Notably, 63% of parents devote between 5 to over 8 hours daily, emphasizing a trend of intensive digital engagement. The largest group, comprising 26% of respondents (57 people), uses these devices for more than 8 hours a day, indicating a substantial commitment to digital activities. Conversely, only a small proportion, 3% (7 people), report usage of less than one hour per day. On average, parents spend 5.6 hours per day using digital devices, highlighting the prevalence of digital media in their daily routines and suggesting its central role in their personal and possibly professional lives.

The parents' purpose for elementary school students using digital devices and the internet can be seen in Figure 6 below.

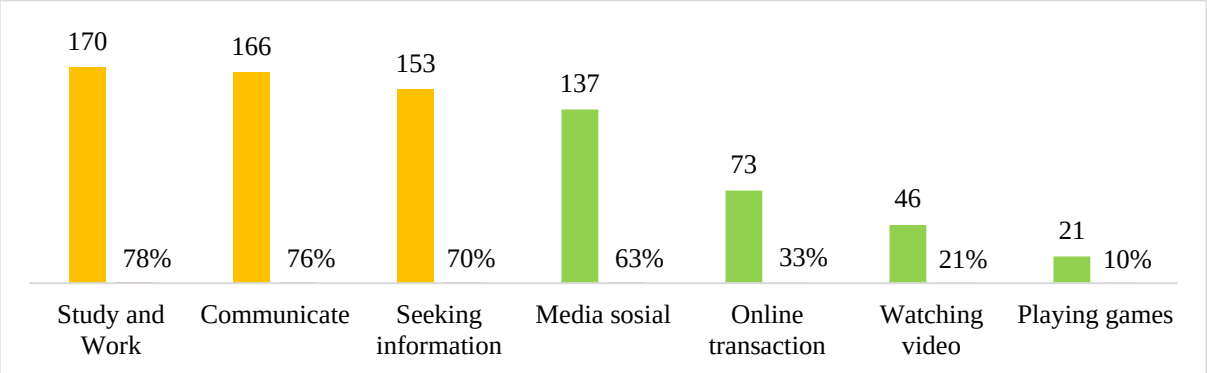

Figure 6. Parents' purpose for using digital devices and the Internet

Figure 6 illustrates that most parents of elementary school students utilize digital devices and the Internet for various purposes. The majority, 78% (170 individuals), use these tools for studying and work, followed by 76% (166 individuals) who use them for communication. Additionally, 70% (153 individuals) rely on these devices for information searches, while 63% (137 individuals) access social media. Online

transactions account for 33% (73 individuals), while 21% (46 individuals) use digital devices to watch videos. Only 10% (21 individuals) utilize the Internet for gaming. This data highlights the predominant use of digital tools for productive activities among parents.

Discussion

1. Levels of Parent' Digital Safety Literacy of Elementary School Students

This study reveals that digital security literacy among parents of elementary school students is generally categorized as high, with key strengths in protecting personal data, vigilance against cybercrime, and ensuring device security. These strengths reflect a commendable level of awareness and capability among parents to safeguard themselves and their families from digital threats. However, the moderate proficiency in aspects of privacy and interaction security highlights the need for targeted improvements to enhance parents' ability to manage digital privacy and ensure safe online interactions.

The findings align with previous studies emphasizing the critical role of digital literacy in safeguarding personal data and fostering safer online behaviors (T. T. Nguyen et al., 2024; Saritepeci et al., 2024). Moreover, parents' digital literacy directly influences early childhood literacy and their readiness to engage with formal education systems (Meoded Karabanov & Aram, 2024). Additionally, socio-demographic factors and parental mediation strategies significantly shape children's digital literacy, particularly during early developmental stages (Cao et al., 2024; Lou et al., 2024). These insights underscore the importance of empowering parents with enhanced digital literacy to protect their children and strengthen their role as caregivers in the digital age.

The implications of this research extend to education, social risk reduction, and the enhancement of family roles in digital contexts. Adequate digital literacy among parents can mitigate online security risks and reduce social inequalities by fostering employment opportunities and entrepreneurship (Zhou et al., 2024). Thus, developing comprehensive digital literacy programs involving schools, communities, and government entities becomes essential. Such programs should address the identified weaknesses in privacy and interaction security to reinforce parents' roles as digital guardians for their children.

Future research should focus on three key areas. First, designing and testing targeted digital literacy programs specifically for parents of elementary school students to address identified gaps in digital security. Second, conducting in-depth analyses of

how socio-economic factors influence parents' levels of digital literacy to understand the dynamics of literacy disparities better. Third, measurement instruments should be refined to provide more accurate and relevant assessments of digital security literacy.

This study provides a novel contribution by offering a comprehensive profile of digital security literacy among parents of elementary school students. Another significant contribution lies in identifying the strong correlation between privacy and interaction security, providing fresh insights into digital literacy patterns within this demographic. Furthermore, it addresses gaps in the existing literature, which predominantly focuses on adolescents and young adults (Flynn et al., 2024).

Based on these findings, stakeholders must proactively enhance digital security literacy from schools and communities' government bodies. Schools can integrate digital literacy content into parenting workshops, while communities can organize awareness campaigns specifically targeting parents. Governments should support these efforts by implementing policies that offer comprehensive digital literacy guidelines and interactive platforms for family learning. Researchers are encouraged to continue developing and refining effective interventions in this field. Through these collaborative and systematic efforts, digital security literacy can be significantly improved, fostering a safer, more inclusive, and supportive digital ecosystem for families in the digital era.

2. The Relationship Between Parents' Digital Safety Literacy and Their Children's Time on Digital Devices and the Internet

This study reveals a significant relationship between parents' digital safety literacy and their ability to manage children's screen time. This finding highlights the importance of parents' knowledge in regulating digital consumption. The findings align with previous research that suggests parents with higher digital literacy are more likely to enforce stricter screen time limits, as shown by Wang et al. (2022) and Steinfeld (2021). This indicates a strong correlation between parents' digital literacy and their ability to manage children's digital consumption, which can help reduce online risks and improve children's well-being in the digital world.

Additionally, this research explores various aspects of parents' digital literacy, including awareness of data privacy and online crime. These findings support Haunschild and Leipold's (2023) research, which emphasizes the importance of parents' digital skills in protecting children's privacy online. However, gaps in knowledge about privacy and interaction safety highlight the need for further parental education in these areas, as pointed out by Torjinski and Horwood (2023). The impact of parents' digital literacy is also linked to socio-demographic factors, which can affect their ability to

manage children's digital consumption, in line with Johnson et al. (2024).

The study also examines the role of parental behaviors, such as phubbing and family supervision, in preventing negative outcomes like cyberbullying, underscoring the protective role of informed parenting practices, as supported by Elboj-Saso et al. (2024). This research is especially relevant in the context of the challenges faced by parents during the COVID-19 pandemic, which worsened difficulties in managing children's screen time, as shown by Blake et al. (2024). The pandemic also highlighted the need to support parents with information and non-screen alternatives.

The implications of these findings call for more comprehensive digital literacy programs to equip parents with the necessary skills to guide their children in a safe digital environment. These programs are crucial for addressing socioeconomic gaps and creating safer digital spaces, as recommended by Johnson et al. (2024) and Torjinski and Horwood (2023). The novelty of this study lies in its holistic approach to parents' digital safety literacy, focusing on the interaction between parents' knowledge and children's digital engagement and providing actionable strategies that can be applied in today's digital age, as outlined by Jensen et al. (2023).

Future research should further explore the long-term effects of parents' digital literacy on children's digital skills and well-being, considering socio-demographic factors more deeply, as suggested by O'Reilly and Mohan (2023). This study offers valuable insights to strengthen the role of parents in supporting their children's digital safety. It provides a foundation for developing more effective educational programs to address digital literacy challenges among parents.

3. The Relationship between parents' digital safety literacy and the variables of gender, age, education level, and duration of usage time

The study identifies a weak correlation between parental digital safety literacy and demographic factors, including gender, age, education level, and internet usage duration. These findings suggest that demographic variables, traditionally considered influential, play a limited role in shaping digital safety literacy. This conclusion partially aligns with prior research that emphasizes education as a significant factor in digital competence (Adigwe et al., 2024; Tomczyk & Potyrała, 2021). However, it contrasts with studies that highlight a stronger influence of age and education on digital literacy. For instance, Adigwe et al. (2024) found that socio-demographic factors like age and education significantly affect parental mediation strategies, with digital literacy acting as a mediator. Similarly, Tomczyk and Potyrała (2021) revealed gaps in parental digital safety knowledge, particularly in areas such as secure login practices and malware

protection. The current findings challenge these assertions by demonstrating the minimal impact of these factors, thus providing a nuanced perspective on digital safety literacy.

The implications of this study's findings are significant for designing interventions aimed at improving digital safety literacy among parents. Traditional strategies that focus solely on demographic characteristics may be insufficient. Instead, initiatives should emphasize enhancing specific digital skills and fostering awareness through targeted literacy programs. This shift in focus is critical for addressing the complexities of digital safety literacy, which may be influenced more by the quality and type of digital engagement than by demographic factors alone.

The study contributes novel insights by highlighting the limited role of demographic variables in determining digital safety literacy. Unlike much of the existing literature, which attributes significant weight to factors like education and age, this research underscores the potential influence of less-explored variables, such as the nature of online activities and the content consumed. This perspective adds depth to the understanding of digital literacy and opens new avenues for inquiry.

Building on these findings, future research should explore alternative determinants of digital safety literacy. Potential areas of investigation include the effectiveness of digital literacy programs, the impact of specific digital content, and the role of qualitative aspects of digital engagement. Comparative studies across diverse cultural and socio-economic contexts could further enrich the understanding of how digital literacy operates in varying environments. Such research would inform the development of more adaptive and impactful strategies for improving digital literacy among parents, ensuring safer and more informed digital environments for children.

CONCLUSION

The findings of this study reveal several key insights into the digital safety literacy of parents of elementary school students. Overall, parents exhibit a high level of digital safety literacy, with an average score of 3.99. This competency is particularly evident in personal data security, vigilance against digital crime, device security, and digital identity. However, moderate scores in privacy and interaction security indicate areas where parental awareness and practices need improvement. The analysis also demonstrates a notable relationship between parental digital safety literacy and their children's digital consumption habits. Parents with higher literacy levels enforce stricter limitations on screen time, suggesting a direct impact of parental literacy on

children's digital behavior.

The implications of these findings are multifaceted. First, the high overall literacy levels reflect the effectiveness of current digital literacy initiatives but also underscore the necessity for targeted interventions in weaker areas, such as privacy and interaction security. Second, the strong correlation between parents' digital literacy and their regulation of children's screen time emphasizes the importance of empowering parents with the knowledge to manage digital consumption effectively. Finally, the minimal influence of demographic variables such as age, gender, education level, and personal digital engagement duration on digital safety literacy highlights the potential for universal literacy programs to bridge gaps across diverse parental groups.

However, this study has limitations. Its cross-sectional design prevents causal inference, and self-reported data may introduce biases because reflecting perceived rather than actual literacy. Focusing on parents of elementary students limits generalizability. Future research should consider longitudinal designs, objective measures of digital literacy, and broader demographic groups to deepen insights into digital safety literacy and its impact on child development.

REFERENCES

Adigwe, I., Mason, J., & Gromik, N. (2024). Investigating the relationship between socio-demographic variables of parents, digital literacy and parental mediation practices in the digital age: Nigeria in focus. E-Learning and Digital Media. https://doi.org/10.1177/20427530241232495

Alkharusi, H. (2022). A descriptive analysis and interpretation of data from Likert scales in educational and psychological research. Indian Journal of Psychology and Education, 12(2), 13–16. https://squ.elsevierpure.com/en/publications/a-descriptive-analysis-and-interpretation-of-data-from-likert-sca

Ameliah, R., Negara, R. A., Minarto, B., Manurung, T. M., & Akbar, M. (2022). Status Literasi Digital di Indonesia 2022. Kementerian Komunikasi dan Informatika Republik Indonesia. https://cdn1.katadata.co.id/media/microsites/litdik-/ReportSurveiStatusLiterasiDigitalIndonesia2022.pdf

Anggraeni, N., & Manik, Y. M. (2023). Pembelajaran Anak di Era Digital. Edu Cendikia: Jurnal Ilmiah Kependidikan, 3(01), 173–177. https://doi.org/10.47709/-EDUCENDIKIA.V3I01.2399

Auxier, B., Anderson, M., Perrin, A., & Turner, E. (2020). Parenting children in the age of screens. Pew Research Center: Internet, Science & Tech. https://doi.org/https://-doi.org/20.500.12592/3594wd

Blake, L., Tucker, P., & Vanderloo, L. M. (2024). Mothers' perspectives of the barriers and facilitators to reducing young children's screen time during COVID-19: A reddit

content analysis. PLOS ONE, 19(3), e0301089. https://doi.org/10.1371/-journal.pone.0301089

Cao, S., Zhang, J., Dong, C., & Li, H. (2024). Digital resources and parental mediation parallelly mediate the impact of SES on early digital literacy among Chinese preschoolers. European Early Childhood Education Research Journal, 1–15. https://doi.org/10.1080/1350293X.2024.2334319

Elboj-Saso, C., Íñiguez-Berrozpe, T., Cebollero Salinas, A., & Bautista Alcaine, P. (2024). "Listen to me!" The role of family supervision and parental phubbing in youth cyberbullying. Family Relations, 73(3), 1568–1587. https://doi.org/10.1111/-fare.12968

Flynn, S., Doolan Maher, R., & Byrne, J. (2024). Child protection and welfare risks and opportunities related to disability and internet use: Broadening current conceptualisations through critical literature review. Children and Youth Services Review, 157, 107410. https://doi.org/10.1016/j.childyouth.2023.107410

Fu, Y., Johnson, N. J., Liu, M., Vandendort, T. B., Robertson, R. K., & Hartwick, H. T. (2024). An exploration of the post-pandemic profiles and predictors of children's digital literacy and multimodal practices in Canada. Early Child Development and Care, 1–18. https://doi.org/10.1080/03004430.2024.2328027

Haunschild, I. M. S., & Leipold, B. (2023). The Use of Digital Media and Security Precautions in Adulthood. Human Behavior and Emerging Technologies, 2023, 1–9. https://doi.org/10.1155/2023/1436710

Ida Ayu Yadnya Sari Dewi Utami Pidada. (2023). Digital marketing communication strategy of rinjani trekking tour packages at Muji Trekker Tour & Travel. International Journal of Social Science, 3(2), 223–240. https://doi.org/10.53625-/ijss.v3i2.6305

Ika Sari, G., Winasis, S., Pratiwi, I., Wildan Nuryanto, U., & Basrowi. (2024). Strengthening digital literacy in Indonesia: Collaboration, innovation, and sustainability education. Social Sciences & Humanities Open, 10, 101100. https://doi.org/10.1016/j.ssaho.2024.101100

Jensen, M., Navarro, J. L., Brown, M. T., & Hussong, A. M. (2023). Dyadic parent–college student digital interaction styles. Journal of Family Psychology, 37(6), 864–874. https://doi.org/10.1037/fam0001117

Kärnä, E., Aavikko, L., Rohner, R., Gallistl, V., Pihlainen, K., Müller, C., Ehlers, A., Bevilacqua, R., Strano, S., Maranesi, E., Cerna, K., Hengl, L., Kolland, F., Waldenberger, F., Naegele, G., Park, S., Hess, M., Reuter, V., Frewer-Graumann, S., & Korjonen-Kuusipuro, K. (2022). A Multilevel Model of Older Adults' Appropriation of ICT and Acquisition of Digital Literacy. International Journal of Environmental Research and Public Health, 19(23), 15714. https://doi.org/10.3390/ijerph192315714

Krisnaningsih, E., Dwiyatno, S., Dedi Jubaedi, A., & Shafitri, A. (2023). Increasing Ethical Understanding of the Use of Information Technology Through Digital Literacy Proficiency Training. Dinamisia : Jurnal Pengabdian Kepada Masyarakat, 7(3),

789–801. https://doi.org/10.31849/dinamisia.v7i3.12809

Lee, H., Lim, J.-A., & Nam, H.-K. (2022). Effect of a Digital Literacy Program on Older Adults' Digital Social Behavior: A Quasi-Experimental Study. International Journal of Environmental Research and Public Health, 19(19), 12404. https://doi.org/10.3390/ijerph191912404

Lee, J., & Tak, S. H. (2022). Factors associated with eHealth literacy focusing on digital literacy components: A cross-sectional study of middle-aged adults in South Korea. DIGITAL HEALTH, 8, 205520762211027. https://doi.org/10.1177/-20552076221102765

Livingstone, S., & Blum-Ross, A. (2020). Parenting for a Digital Future: How Hopes and Fears about Technology Shape Children's Lives. Parenting for a Digital Future. https://doi.org/10.1093/OSO/9780190874698.001.0001

Livingstone, S., & Stoilova, M. (2021). The 4Cs: Classifying Online Risk to Children. (CO:RE Short Report Series on Key Topics). Leibniz-Institut für Medienforschung | Hans-Bredow-Institut (HBI); CO:RE - Children Online: Research and Evidence. https://doi.org/https://doi.org/10.21241/ssoar.71817

Lou, J., Wang, M., Xie, X., Wang, F., Zhou, X., Lu, J., & Zhu, H. (2024). The association between family socio-demographic factors, parental mediation and adolescents' digital literacy: a cross-sectional study. BMC Public Health, 24(1), 2932. https://doi.org/10.1186/s12889-024-20284-4

Martin, F., Gezer, T., Anderson, J., Polly, D., & Wang, W. (2021). Examining Parents Perception on Elementary School Children Digital Safety. Educational Media International, 58(1), 60–77. https://doi.org/10.1080/09523987.2021.1908500

Meates, J. (2020). Problematic digital technology use of children and adolescents: Psychological impact. Teachers and Curriculum, 20. https://doi.org/10.15663/-tandc.v20i1.349

Meoded Karabanov, G., & Aram, D. (2024). 'Let's write a shopping list on the phone together': Parents' digital literacy activities with their preschoolers and the children's early literacy skills. Journal of Research in Reading, 1–17. https://doi.org/10.1111/1467-9817.12469

Meta. (2024). We Think Digital. https://wethinkdigital.fb.com/

Miranda, D., R., M., Linarsih, A., & Amalia, A. (2022). Pengenalan Keterampilan Literasi Digital pada Anak Usia Dini. EDUKATIF : JURNAL ILMU PENDIDIKAN, 4(3), 3844–3851. https://doi.org/10.31004/EDUKATIF.V4I3.2767

Neustroeva, A. B., & Filippova, L. D. (2022). Competence and safety of digital environment consumption by children and parents. Digital Sociology, 5(1), 107–116. https://doi.org/10.26425/2658-347X-2022-5-1-107-116

Nguyen, T. T., Tran, T. N. H., Do, T. H. M., Dinh, T. K. L., Nguyen, T. U. N., & Dang, T. M. K. (2024). Digital literacy, online security behaviors and E-payment intention. Journal of Open Innovation: Technology, Market, and Complexity, 10(2), 100292. https://doi.org/10.1016/j.joitmc.2024.100292

Nguyen, T. X. H., Tran, T. B. N., Dao, T. B., Barysheva, G., Nguyen, C. T., Nguyen, A. H., & Lam, T. S. (2022). Elderly People's Adaptation to the Evolving Digital Society: A Case Study in Vietnam. Social Sciences, 11(8), 324. https://doi.org/10.3390/-socsci11080324

O'Reilly, C., & Mohan, G. (2023). Parental influences on excessive Internet use among adolescents. Internet Research, 33(7), 86–110. https://doi.org/10.1108/INTR-12-2021-0904

Ortuño-Sierra, J., Lucas Molina, B., Gutiérrez, A., Aritio Solana, R., Pérez-Albéniz, A., & Fonseca Pedrero, E. (2022). Suicide behaviour and Problematic Internet Use. European Psychiatry, 65(S1), S69–S70. https://doi.org/10.1192/j.eurpsy.-2022.220

Peng, D., & Yu, Z. (2022). A Literature Review of Digital Literacy over Two Decades. Education Research International, 2022, 1–8. https://doi.org/10.1155-/2022/2533413

Purnama, S., Wibowo, A., Narmaditya, B. S., Fitriyah, Q. F., & Aziz, H. (2022). Do parenting styles and religious beliefs matter for child behavioral problem? The mediating role of digital literacy. Heliyon, 8(6). https://doi.org/10.1016/-j.heliyon.2022.-e09788

Quayyum, F. (2023). Collaboration between parents and children to raise cybersecurity awareness. European Interdisciplinary Cybersecurity Conference, 149–152. https://doi.org/10.1145/3590777.3590802

Rahayu, D., Nugraha, Y., & Rosliani, E. (2023). Seminar Literasi Digital Sebagai Upaya Peningkatan Kecakapan Teknologi Dalam Membangun Masyarakat Digital di Desa Galihpakuwon Balubur Limbangan. Jurnal Pengabdian Literasi Digital Indonesia, 2(2), 69–76. https://doi.org/10.57119/abdimas.v2i2.43

Rahayu, N., Putri H, S., Nunlehu, M., Sumiani, M., Ludgardis, M., Sudarya, A., Panca, U., & Bekasi, S. (2022). Pendidikan Anak Usia Dini Pada Lingkungan Keluarga. Jurnal Pendidikan Indonesia, 3(10), 886–894. https://doi.org/10.59141/JAPENDI-.V3I10.1211

Rahman Pir, R. M. S., Rabbi, M. F., & Islam, M. J. (2023). Applying a machine learning model to forecast the risks to children's online privacy and security. Proceedings of 2023 International Conference on Intelligent Systems, Advanced Computing and Communication, ISACC 2023. https://doi.org/10.1109/ISACC56298.2023-.10084054

Saritepeci, M., Yildiz Durak, H., Özüdoğru, G., & Atman Uslu, N. (2024). The role of digital literacy and digital data security awareness in online privacy concerns: a multi-group analysis with gender. Online Information Review, 48(5), 983–1001. https://doi.org/10.1108/OIR-03-2023-0122

Schroeder, T., Dodds, L., Georgiou, A., Gewald, H., & Siette, J. (2023). Older Adults and New Technology: Mapping Review of the Factors Associated With Older Adults' Intention to Adopt Digital Technologies. JMIR Aging, 6, e44564. https://doi.org/10.2196/44564

Solomon-Moore, E., Matthews, J., Reid, T., Toumpakari, Z., Sebire, S. J., Thompson, J. L., Lawlor, D. A., & Jago, R. (2018). Examining the challenges posed to parents by the contemporary screen environments of children: a qualitative investigation. BMC Pediatrics, 18(1), 129. https://doi.org/10.1186/s12887-018-1106-y

Söylemez, N. H. (2023). An Investigation of Processes of Children's Digital Technologies Usage from the Perspective of Digital Age Parents. The Journal of Selcuk University Social Sciences Institute, 50, 63–77. https://doi.org/10.52642/-SUSBED.1219439

Steinfeld, N. (2021). Parental mediation of adolescent Internet use: Combining strategies to promote awareness, autonomy and self-regulation in preparing youth for life on the web. Education and Information Technologies, 26(2), 1897–1920. https://doi.org/10.1007/s10639-020-10342-w

Sumiyati, S., & Rossidy, I. (2024). Penguatan Literasi Digital dalam Mengantisipasi Penyalahgunaan Teknologi Siswa di SDI Nurul Jadid Singosari. ISLAMIKA, 6(3), 1291–1303. https://doi.org/10.36088/islamika.v6i3.5113

Tomczyk, Ł. (2020). Skills in the area of digital safety as a key component of digital literacy among teachers. Education and Information Technologies, 25(1), 471–486. https://doi.org/10.1007/s10639-019-09980-6

Tomczyk, Ł., & Potyrała, K. (2021). Parents' knowledge and skills about the risks of the digital world. South African Journal of Education, 41(1), 1–19. https://doi.org/10.15700/saje.v41n1a1833

Torjinski, M., & Horwood, S. (2023). Associations between nature exposure, screen use, and parent–child relations: a scoping review protocol. Systematic Reviews, 12(1), 217. https://doi.org/10.1186/s13643-023-02367-2

Wang, X., Wu, Y., Yao, C., Wu, X., Ruan, Y., & Ye, S. (2022). Correlates of preschoolers' screen time in China: parental factors. BMC Pediatrics, 22(1), 417. https://doi.org/10.1186/s12887-022-03443-7

Zhang, J. (2023). EFL teachers' digital literacy: the role of contextual factors in their literacy development. Frontiers in Psychology, 14. https://doi.org/10.3389/-fpsyg.2023.1153339

Zhou, D., Zha, F., Qiu, W., & Zhang, X. (2024). Does digital literacy reduce the risk of returning to poverty? Evidence from China. Telecommunications Policy, 48(6), 102768. https://doi.org/10.1016/j.telpol.2024.102768