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An Examination of Digital Parenting Behavior in Parents with Preschool Children in the Context of Lifelong Learning

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Abstract: This study, which has been carried out as a needs analysis project, reflects results from preliminary work for designing from scratch a digital parenting educational program for parents with preschool children in the Turkish province of Edirne. Convenience sampling method was used and a group of 231 parents participated in the study. Qualitative and quantitative methods were both used in this sequential mixed method research of descriptive nature. The Digital Parenting Attitude Scale has been used for data collection purposes, alongside a questionnaire form developed by the authors. In conclusion, it was understood that; (a) the digital parenting attitude scores of participants were found to be relatively low, with an average score of 21.74; (b) half of the participants were not willing to participate in a digital parenting educational program and that those unwilling to participate were also those who displayed poor digital parenting attitude; (c) not only gender and employment status, but also other variables such as awareness in concepts of digital footprints or cyberbullying result in significant differences in terms of digital parenting attitudes; (d) descriptive accounts of Turkish parents show that they are prone to conceptualizing digital parenting as screen time policies only; and (e) digital parenting educational programs should focus not only on the digital but also on (conventional) parenting skills and the notion of sustainability. Results emphasize the importance of increasing public awareness towards concepts related to digital parenting, as well as the economic exploitation of children in the cyber world and the establishment of dialogue with the child on this critical matter. Further research in the subject, especially with (a) greater emphasis on sustainability, (b) greater contribution from male participants, and (c) on the subject of specific deterrents against participation in digital parenting education may be needed.

Keywords: digital parenting; parenting education; adult education; lifelong learning; screen time; preschool children

1. Introduction

The number of Internet, computer, and smartphone users is increasing globally along with rapid developments in information and communications technology. Findings from the Digital 2020 April Global Statshot Report [1] reflect that from April 2019 to April 2020, the number of global Internet users rose by 301 million, while the number of social media users increased by 304 million, reaching 4.57 billion and 3.81 billion, respectively. Smartphone users also reached 5.16 billion with an increase of 128 million.

Similar results can be seen for the case of Turkey, a country of almost 84 million people, where the number of Internet and social media users reached 62 and 54 million, respectively, in the year 2020 [2]. A government survey carried out in 2019 has shown that the Internet access rate for Turkish people aged 16–74 is 75.3%, and that 88.3% of Turkish homes have Internet connectivity [3]. Moreover, it has

been surveyed that as far as device ownership is concerned, 89% of the Turkish population owns their own smartphone while 67% owns their own laptop and 45% their own Tablet PC [2]. These figures serve to illustrate how access to the Internet via information and communication technologies has proliferated both globally and regionally.

Numerous studies also detail the popularity of computer and Internet use among children. It has particularly been shown that children are introduced to Internet-connected touchscreen devices not long after they are born, and the age at which they are allowed to use these is getting lower by the day [4]. Yengil, Güner, and Toprakkaya [5] have carried out research on parents with 3 to 6-year-old children and found that 26.2% of children were introduced to devices with Internet connectivity at 1 to 2 years, 40.5% at 2 to 3 years, 23.8% at 3 to 4 years, and only 9.5% after they are 4 years old. Ahearne et al. [6] discovered that in Britain, 2 out of 3 children aged 0–3 spent approximately 15 min every day in front of a touchscreen device and that 1 out of 3 such children were capable of advanced gestures of control, such as bypassing the device lock screen. Expertise in device use increases rapidly with growing age, with another research showing that by the preschool age category, children are capable of operating at least one type of smart device (tablet or smartphone) or computer, and that they also watch television regularly every day [7]. Although half of the preschool children in this study has been shown to spend less than an hour per day using Information and Communication Technologies (ICT) devices; it was also shown that 26% spent more than 2 and 4% more than 4 h in front of the screen. Kenanoğlu and Kahyaoglu [8] also studied preschool children and have shown that 36% of these accessed the Internet on a daily basis and 27.8% on a weekly basis.

Despite the widespread use of ICT among children, studies have shown that uncontrolled and unlimited exposure to technology among young children brings about many physiological and psychological risks. These include health problems concerning vision or posture, as well as mental or behavioral problems such as reclusiveness, addiction, over-competitiveness, and pretentiousness [9–11]. The prevention of further physical, psychological, social, or academic problems that may arise in later years in children who are introduced to ICT at earlier ages puts an emphasis on parental counseling and model behavior. The American Academy of Pediatrics has therefore announced that as far as preschool children are concerned; safe, productive, and enjoyable activity in the cyber world is directly associated with parent involvement [12]. It has also been stated by the association that children of 18 to 24 months old display better learning and retention of content found in digital environments as long as they interact with the content alongside their parents, as they view and discuss together. The fact that children are prone to imitation at early ages requires parents to also be role models in terms of appropriate and ethical conduct in digital environments, as well as in terms of ICT use habits [13]. All and all, such actions required by parents for the prevention of risks and display of exemplary behavior in terms of Internet and digital technology use are collectively referred to as “digital parenting”.

This study therefore seeks to investigate digital parenting attitudes in Turkish parents with preschool children, in an attempt to establish the demographic or peripheral factors influencing digital parenthood, as well as describe the way these parents conceive digital parenting. The likelihood of participation in a digital parenting education program of the participants was also investigated and the results discussed in the light of academic literature, particularly in the field of deterrents to participation in a lifelong learning program.

Digital Parenting, Lifelong Learning, and Sustainability in Adult Education

Children born in the 21st century arrive and soon adapt into a digitally interconnected world, eventually considering digital devices and the Internet to be indispensable for their lives. In spite of the positive contribution of ICT to the psychomotor, social, linguistic, and cognitive development in children [14,15], risks and problems associated with excessive, inconsiderate, and uncontrolled ICT use is also highly pronounced. Moreover, it was these so-called digital natives, and the need for protecting them against such risks and problems, that necessitated the notion of digital parenting [16].

Needless to say, family is the first social environment in which children are seeking to fulfill their needs of learning, discovery, and conception. For this reason, parenting roles are among the most important factors in child development [17–19]. Moreover, in the pursuit of helping children grow as healthy, happy, and productive members of society, parenting today requires the protection of offspring against threats that may arise beyond the physical world. The modern parent needs to be knowledgeable and proficient in the appropriate use of computers, smart devices, and the Internet, in addition to being aware of risks involved in their use. Creation of a safe environment for media consumption through the selection of age-appropriate devices and content, alongside implementation of control policies, such as active accompaniment or setting up of content filters are among the responsibilities of a digital parent [20]. Moreover, the UNICEF [21] report titled *The State of the World Children: Children in a Digital World* suggests that parents should serve as examples to their children as responsible and respectful ICT users themselves. This requires parents to not only be much more proficient and aware of risks in ICT use than their children, but also to stay up-to-date with new products and trends in order to prevent the formation of a so-called digital divide between parent and child. The inevitable responsibility of digital parenting has therefore led parenting education programs worldwide to include digital parenting in their agenda.

Rode [22] explains that digital parenting predominantly involves the online safety and privacy of children in the virtual world, as well as ethical behavior therein. Whereas Huang et al. [23] establishes the tenets of digital parenting as protection, social media monitoring, finding of information, and resources and building relationships with the child, Yaman [24] breaks down skills involved in digital parenting into the categories of digital literacy, digital safety, and digital communication. Manap [25] on the other hand, explains five dimensions to digital parenting as efficient use, risk aversion, being a role model, digital non-neglect, and open-mindedness. In short, it can be said that digital parenting requires parents to display (a) proficiency in information technologies and Internet use, (b) an awareness of rights and responsibilities, and (c) correct ICT use habits for the ultimate goal of preparing a safe and healthy cyber environment for their children by maintaining constant communication with them in terms of risks associated with the incorrect and unsafe use of ICT and the Internet.

The scope of digital parenting is not just limited to the preschool period of child development. Parents need to fulfill their digital parenting duties starting from the child's birth and as she progresses into adulthood. All manner of cyber risks and threats await children of all ages in the digital world and at times, children themselves may begin posing threats on their own to other netizens. Cyberbullying and cyber-victimization are examples of such threats. A study conducted by Uludaşdemir [26] with 1129 adolescents showed 65.5% of participants to identify themselves as cyber victims and 56.6% as cyber bullies. Global cyberbullying data published by Statista for the year 2017 shows that 55% of children have at least once witnessed an act of cyberbullying [27]. Again, Pew Research Center [28] reports that during the year 2018, 59% of the young people in the USA have been subject to cyberbullying or cyber-abuse. Data from the National Center for Education Statistics displays that the ratio of children affected by cyberbullying in the 12–18 age bracket is 15% [29]. In another research by Comparitech, with over 1000 parents who had children older than 5 years old, 19.2% of parents were shown to report their child being victim of cyberbullying over social media, while 11% reported the cyberbullying medium as text messages, 7.9% as online games, 6.8% as websites excluding social media, and 3.3% as e-mail [30]. Following the COVID-19 pandemic countermeasures, over 1.5 billion children globally have had to use the Internet much more intensively for the sake of participation in online education and UNICEF [31] reports that risk of cyberbullying has therefore reached severe proportions.

Another common problem caused by haphazard use of ICT is the unauthorized online use of parents' financial resources, such as credit cards, by children. An 8-year old in the Turkish city of Bursa was reported to purchase 2 truckloads of tomatoes with his father's credit card and without his knowledge [32]. A similar case in England showed a teenager spending £691 from his father's credit card in exchange for online game accessories [33], while in Australia a 12-year old went as far as using the parent's credit card for flying to Bali, Indonesia and having a week-long five-star vacation without

his parents' consent [34]. A 13-year old in Lancashire, UK incurred a \$108,000 loss at online gambling, which he participated in using his father's credit card [35].

Another risk that ICT and the Internet pose for children is addiction. Academic literature investigates the matter under various categories such as video game addiction [36–44], Internet addiction [45–48], social media addiction [49–55], and screen addiction [56–61]. There are many other threats targeting children and teenagers in the cyber world, which involve concepts such as nomophobia, Fear of missing out (FOMO), like-addiction, Facebook depression, crackberry, phubbing, photolurking, stalking, cyberchondria, and Hikikomori to name a few.

The critical question as to why ethical practices by providers and strict enforcement of authorities in order to prevent such problems have not been put in place for almost two decades of cyber proliferation might have a simple answer. Whereas the digital world attracts children with its entertainment and education opportunities, the fact still stands that it is still a highly commercialized structure. Lievens and colleagues [62] suggest that economic exploitation schemes frequently encountered online do not care if the subject is an adult or child, explaining:

Behind the fun and playful activities available for children online lie different revenue models, creating value for companies (the material interest) by feeding children's data into algorithms and self-learning models to profile them and offer personalized advertising or by nudging children to buy or try to win in-app items to advance in the games they play (manipulation). The commercial aspects of the playful activities that children engage in when they access the digital environment are largely concealed to them (and often also to their parents). Such forms of exploitation can have a significant negative impact on various child rights, including their rights to development, privacy, freedom of thought and protection against economic exploitation . . .

. . . Children and their families are also exposed to a commercialization of play. They are being targeted by game and toy manufacturers, who embed commercial messages directly into children's gaming experiences both online and offline. Examples of such marketing strategies include the delivery of commercial messages through ingame advertising, advergames, or even interactive, connected toys. In addition, gambling elements are integrated into children's games, such as slot machines or lootboxes. The growing amount of new types of easily accessible games online which include gambling elements exacerbates the societal concern that minors are being progressively exposed to gambling.

All and all, "the 'common sense' of the early 21st century", i.e., neoliberalism [63] and its associated laissez-faire economic practices, seem to have quickly found a place in the cyber world and legal regulations for the prevention of harm against consumers, children in particular, has not been as quick or as effective. It might be that most risks that the notion of digital parenting seeks to address may merely be byproducts of unsustainable revenue models and marketing practices.

In the forefront of this fight against child exploitation in the cyberworld are parents, who have to constantly stay up-to-date with technology and be aware of their responsibilities. For this reason, digital parenting should also be considered from the theoretical perspective of lifelong learning, which encompasses all educational endeavors of an individual from preschool age to senior citizenship [64]. Taking into account the ever shifting and evolving nature of information and communication technologies, digital parenting should also be considered a long-term effort. As a relatively new dimension of parent responsibility that has been introduced alongside technological development, digital parenting education translates into a growing need for adult skill development in 21st century societies. However, from a sustainability perspective, it might be argued that an adult educational program in digital parenting would have to incorporate the sociopolitical dimension of the matter and establish critical dialogue with parents and as opposed to simply training them in the way of do's and don'ts.

Sustainable development has been defined as, “development that meets the needs of the present without compromising the ability of future generations to meet their needs” [65,66]. Earlier discussions and policy-making in the context of sustainable development, however, has been focused mostly on economic aspects of human life and these were likely born out of “a concern of how to secure potentially endless economic growth” [66]. This notion has been explained by assumptions based on neoliberalism, which is considered a hegemonic discourse in early 21st century, to pervade the way of thought on sustainability, as well as associated concepts of adult education and lifelong learning. Therefore, Casey and Asamoah [67] suggest that humanistic and holistic visions of lifelong learning have initially been marginalized and neglected; leading to a powerful hold of the human–capital oriented model of lifelong learning to take hold in time. However, a growing perspective of sustainability—namely, societal sustainability—has brought about new conceptions of adult education and lifelong learning; one which takes a global and holistic view of issues and involves learners participating in real community problem-solving, associates itself with “interdisciplinarity, democratic and inclusive social processes, active learning, critical thinking, having a future-orientation, forging community connections, and taking action” [65].

As of today, sustainability in adult education, particularly in the societal context, is a topic growing in importance, which certain international institutions have been starting initiatives on, in order to raise global awareness and foster societal change. One such institution is the United Nations (UN), which the Republic of Turkey is also a member of. In order to ensure a more sustainable and fair community for all, the UN has launched the Education for Sustainable Development (ESD) program, which aims to reach its goals by encouraging positive change in information, skills, and attitudes of people. At the core, the program seeks to help individuals become agents of change, who possess the courage to face global challenges and take active part in both local and global contexts for the solution of these, by ensuring high quality lifelong education is accessible by all [68]. The action plan, titled 2030 Agenda for Sustainable Development, developed by UNESCO, which lists 17 major goals of sustainable development, includes among other noble goals such as environmental preservation, ending of poverty, and the reduction of inequality, the goal SDG4 on ensuring inclusive and equitable quality education and the promotion of lifelong learning opportunities for all [69]. Projects and action plans such as these emphasize the importance of sustainability in education and lifelong learning. The notion of fostering digital parenting skills, which is covered by this study, is important in terms of both individual and social development and welfare. In conclusion, it therefore needs to be discussed under the theoretical framework of lifelong learning and adult education, but also in the context of sustainability.

There exist certain public or private institutions that strive to help their societies in developing digital parenting skills and awareness. Such efforts manifest in the shape of face-to-face or online courses and seminars, as well as informative web sites, social media pages, social media groups, or blogs. Attempts at providing standardized and target-driven assistance and guidance in digital parenting can be considered fairly important and global examples in this context include parentzone.org.uk, parentinfo.org, digitalparenting.ie, open.edu, alison.com, indiaeducation.net, thepci.net, or parentingforthefuture.blog. Digital parenting course modules may also be encountered in popular Massive Open Online Courses (MOOCs) such as Canvas, Coursera, Udemy, and Edx. As in the case of Turkey, multiple websites that offer free digital parenting education may be listed as guvenlinet.org.tr, guvenliweb.org.tr, teknolojikanneler.com, pembeteknoloji.com.tr, siberzorbalik.com.tr, dijitalyildizlar.com, dijitalkarga.com, moblobi.com, and egitimteknoloji.net. In addition to these, there are also state-backed projects carried out mostly by the Turkish Ministry of National Education. In addition to local seminars and parenting workshops, the Ministry’s Directorate of Special Education and Counseling Services has published, and distributed for free, in May 2020 two reference materials named the Handbook on Safe Internet Use for Children [70] and Handbook on Cyberbullying [71]. The Ministry of Family and Social Policies has also been actively promoting digital

parenting, as can be seen in its 2013 handbook titled *Family and the Internet*, developed as part of the Parent Education Project [72].

Although there are many initiatives that put forth digital parenting educational products, it is striking that most of these programs do not seem to have been designed with sustainability in mind; approaching the matter superficially and often seeking to simply train parents in technical skills and knowledge in order to help them get better at limiting/monitoring their child's access to electronics and the Internet.

Another problem is that the design process for such courses and programs are shrouded in mystery. As far as instructional design is concerned, there is a gap in the academic literature concerning what should be considered when developing specific educational interventions in the context of digital parenting for specific target audiences. This research reflects findings from the first step of an instructional design effort, namely the needs analysis stage, for the preparation of a digital parenting education program for local parents in a Turkish town.

2. Materials and Methods

This study, which aims to investigate the state of digital parenting behavior in Turkish parents with preschool children, follows a sequential mixed method design [73,74] and is of a descriptive nature [75,76]. The sequence starts with the quantitative phase where an attempt at determining the level of digital parenting attitude in participants, and certain demographic and peripheral factors that might affect this is made. The ensuing qualitative phase seeks to establish how participants conceive digital parenting, by analyzing responses to open-ended questions as to what rules and policies they implement and what the curriculum in an educational program in digital parenting should look like. All and all, the study reflects an effort at analyzing the needs of the populace as a first step to developing a local digital parenting educational program. The following research questions pertaining to Turkish parents with preschool children (the population) have been formulated for this purpose:

- What is the overall level of digital parenting attitude in the population?
- Is there a difference in digital parenting attitude among the population based on their willingness to participate in an educational program on digital parenting?
- Is there a difference in digital parenting attitude among the population based on demographic variables of
 - Gender,
 - Age,
 - Education level, and
 - Employment status?
- Is there a difference in digital parenting attitude among the population based on peripheral variables of
 - Average time spent daily on the Internet,
 - Awareness on adverse effects that online games might cause in children,
 - Awareness of content rating systems such as Pan European Game Information (PEGI) or Entertainment Software Rating Board (ESRB),
 - Awareness on strategies for coping up with cyberbullying,
 - Capability of using parental controls and privacy settings in social media sites,
 - Awareness on the concept of digital footprints?
- How does the population describe activities that they consider fall under the category of digital parenting?
- What kind of content does the population expect to find in an educational program on digital parenting that they would be willing to participate?

2.1. Study Group

Representing a population of Turkish parents with preschool (36 to 72 months old) children, the study was carried out with a sample of 231 participants. Convenience sampling method was used for the selection of participants from among parents of students in 4 standalone kindergarten institutions and 5 kindergarten classrooms in larger schools, which were either for-profit private or nonprofit government establishments within the jurisdiction of the Turkish Ministry of National Education.

2.2. Data Collection Instruments

The following instruments have been used for the collection of data.

2.2.1. Digital Parenting Attitude Scale

Developed by Kaya, Bayraktar, and Yılmaz [77], this five-point Likert scale instrument is utilized for determining digital parenting attitude in parents. The scale consists of 12 items that fall under two categories, namely the Approval of Effective Digital Media Use and Protection Against Risks in Digital Media with Cronbach Alpha internal consistency quotients of 0.776 and 0.724 respectively.

2.2.2. Digital Parenting Questionnaire

The questionnaire, which was developed by the researchers, consists of 18 questions that are divided into three sections. The first part comprises four multiple choice questions that seek to collect demographic information from participants. The second part, which has 12 multiple choice questions, aims to determine the smartphone and Internet usage habits in parents, as well as their stance towards Internet based children's games, and their awareness on concepts such as social network safety and security issues, cyberbullying, and digital footprints; all of which are thought to be associated with digital parenting attitude. The third part consists of two open-ended questions. The first of these asks parents to describe their digital parenting activities in their own words. Finally, participants are asked whether they would be willing to partake in a digital parenting educational program and if so, what they would expect to find in such a program.

The questionnaire does not borrow questions from another instrument and was developed in accordance with steps for developing items in measurement and evaluation tools [78]. A literature review was conducted in order to establish validity by deriving from recent studies in the same field [5,24,25,79–98]. In addition, informal meetings were carried out with preschool teachers who have preschool children of their own, in order to consult their evaluations regarding digital parenting. An item pool was thus created after these efforts. The 21-item pool has been submitted to one in-service ICT teacher, one in-service preschool teacher, and two academics from the field of Instructional Technology in order to ask their opinions and establish content validity. The assistance of an in-service Turkish teacher was sought for linguistic validity. Before the final questionnaire was implemented, the entire 21-item version of the questionnaire was shared with a small group of parents that were not eventually included in the participant group. This group of parents was asked to respond to the questions and each item was later discussed with them so as to get their feedback. In this pilot study, no suggestions, criticism, or misunderstanding of questions were received from the parents.

2.3. Data Collection Procedure

After the questionnaire was finalized and before data were collected from participants, an approval from the ethical commission of Social and Humanities Studies of the university where the researchers were employed was taken. This was followed by an online application for approval to the Provincial Directorate of National Education, an office that supervises the educational institutions where the children of participating parents were enrolled as preschool students. The approval and ethical commission documents were presented to school principals and related personnel, informing them of the goals, scope, and procedure of the research, seeking their consent. School principals were asked to

help in the administration of data collection instruments to parents of enrolled children. Data were collected from parents with the help of school principals during hours parents brought their children to, or took their children from, schools. Each parent who consented to participating in the study filled a Form of Voluntary Consent before filling in the scale and the questionnaire forms. The data collection procedure lasted four weeks, considering that there were multiple establishments and numerous parents involved.

2.4. Data Analysis

Statistical evaluation of data handled in the quantitative phase was carried out using the SPSS 24 statistical analysis software bundle. Prior to tests involving the comparisons of means, it was ensured that all statistical assumptions were met. The assumption of normal distribution of data associated with such tests was investigated using Kolmogorov–Smirnov tests and it was found that data did not show significant deviance from normal distribution under any circumstance ($p > 0.05$). It was therefore decided to employ independent samples t-tests and ANOVA tests for the purpose.

The qualitative phase involved content coding of participant responses to open-ended questions and the task was carried out using QSR NVivo 10 qualitative analysis software. As a method of content coding in open-ended responses, frequency coding [99] was selected eventually, as participants in the pilot study were shown to give rather short responses to the open-ended questions.

3. Results

3.1. Digital Parenting Attitude Overall Levels

Descriptive statistics for total score in the Digital Parenting Attitude scale, as well as scores in the two subdimensions, for 231 parents in the study group is shared in Table 1.

Table 1. Digital Parenting Attitude Scores—Descriptive Statistics.

	<i>n</i>	\bar{X}	<i>X_{avg}</i>	<i>X_{max}</i>	<i>SD</i>	<i>Se_{\bar{X}}</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Min.</i>	<i>Max.</i>
Approval of Effective Digital Media Use	231	12.04	12	12	3.49	0.23	0.555	0.934	6	24
Protection Against Risks in Digital Media	231	9.70	9	6	2.95	0.19	0.502	−0.592	6	18
Total Score in Digital Parenting Attitude	231	21.74	22	21	4.33	0.28	−0.046	−0.484	12	31

Table 1 shows the average score in Digital Parenting Attitude for the study group to be 21.74, whereas averages in subdimensions of Approval of Effective Digital Media Use and Protection Against Risks in Digital Media are 9.70 and 12.04, respectively. Considering the possible ranges, it may be inferred that scores are low, especially in the subdimensions.

3.2. Willingness to Participate in a Digital Parenting Educational Program

At the end of the digital parenting questionnaire, participants were asked whether they would be willing to participate in a Digital Parenting Educational Program in order to learn how to protect their children against risks in a cyber-world. It was found that among the total number of 231 participants, 51% ($n = 119$) were not willing to participate in such a program and 49% ($n = 112$) were. Responses to this yes/no question were then analyzed to see whether there was a difference between respondents in terms of digital parenting attitude score. Results of the independent samples t-test are given in Table 2.

Table 2. Digital Parenting Attitude Scores Categorized by Demographic Variables—Descriptive Statistics.

Willing to participate in a Digital Parenting Educational Program?	<i>n</i>	\bar{X}	SS	Sd	<i>t</i>	<i>p</i>
Yes	112	22.5378	4.18794	229	-2.950	0.00
No	119	20.8839	4.33246			

It was understood that the parents who were willing to participate in a digital parenting educational program already displayed significantly greater digital parenting attitude score ($\bar{X} = 22.53$) than those parents who stated they would not be interested ($\bar{X} = 20.88$) in participating in such a program ($t(229) = -2.950 p < 0.05$).

3.3. Difference in Digital Parenting Attitude Based on Demographics

Descriptive statistics on demographic data of participants is shared in Table 3.

Table 3. Digital Parenting Attitude Scores Categorized by Demographic Variables—Descriptive Statistics.

Variable	Categories	<i>n</i>	\bar{X}	SD
Gender	Female	197	22.07	4.23
	Male	34	19.76	4.41
Age	25–30	45	21.46	4.02
	31–36	108	21.62	4.48
	37–42	65	22.38	4.13
	43 and above	13	20.30	4.93
Highest Level of Education Attained	Primary	20	22.70	4.11
	Elementary	17	22.94	4.91
	High School	95	21.93	3.78
	Associate Degree	26	21.07	5.26
	Bachelor's Degree	67	21.40	4.43
	Master's/Doctoral	6	18.50	5.24
Employment Status	Unemployed	102	22.70	4.20
	Employed part-time	22	21.68	4.40
	Employed full-time	107	20.82	4.27

Table 4 shows the results of the independent samples *t*-tests, comparing average scores in digital parenting attitude in terms of gender.

Table 4. The Difference in Digital Parenting Scores based on Gender—Independent Samples *t*-test Results.

Gender	<i>n</i>	\bar{X}	SD	df	<i>t</i>	<i>P</i>
Female	197	22.07	4.23	229	2.922	0.00
Male	34	19.76	4.41			

It was revealed that digital parenting attitude average scores in female (2.07) parents differs significantly from male ($\bar{X} = 19.76$) parents ($t(229) = 2.922 p < 0.05$).

Remaining categories of demographic data were investigated using ANOVA tests to see whether differences between groups exist. Tests were carried out once it was understood that all assumptions were met and results are given collectively in Table 5.

Table 5. The Difference in Digital Parenting Scores based on Age, Highest Level of Education Attained, and Employment Status—ANOVA results.

Independent Variable	Source of Variance	Sum of Squares	df	Mean Squares	F	p	Post-hoc Difference
Age	Between Groups	58.353	3	19.451	1.038	0.38	-
	Within Groups	4252.539	227	18.734			
	Total	4310.892	230				
Highest Level of Education Attained	Between Groups	128.664	5	25.733	1.384	0.23	-
	Within Groups	4182.228	225	18.588			
	Total	4310.892	230				
Employment Status	Between Groups	185.316	2	92.658	5.121	0.01	1–3
	Within Groups	4125.575	228	18.095			
	Total	4310.892	230				

ANOVA results show that there are no significant differences in digital parenting attitude in terms of age ($F_{(3,227)} = 1.038$ $p > 0.05$) and education level ($F_{(3,225)} = 1.384$ $p > 0.05$). In terms of employment status, however, a significant difference is observed in digital parenting attitude scores ($F_{(2,228)} = 5.121$ $p < 0.05$). Scheffe post-hoc test reveals the differing groups to be parents to be those that are unemployed ($\bar{X} = 22.70$) and those that are employed full-time ($\bar{X} = 20.82$), who have a significantly lower average score in digital parenting attitude.

3.4. Difference in Digital Parenting Attitude Based on Peripheral Variables

As part of the needs analysis effort, possible differences in digital parenting attitude was investigated in terms of peripheral variables that are thought to be associated with the notion of digital parenting. These peripheral variables have been determined as follows: (a) average time spent daily using the Internet, (b) awareness on adverse effects that online games might cause in children, (c) awareness on content rating systems such as PEGI or ESRB, (d) awareness on strategies for coping up with cyberbullying, (e) capability of using parental controls and privacy settings in social media sites, and (f) awareness on the concept of digital footprints.

Descriptive statistics on data pertaining to these peripheral variables are given in Table 6, alongside questions that were asked in their collection.

Table 6. Digital Parenting Attitude Scores Categorized by Peripheral Variables to Digital Parenting—Descriptive Statistics.

Question	Response Categories	n	\bar{X}	SD
How many times a day do you spend using the Internet?	0–2 h	159	22.01	4.23
	2–5 h	59	21.38	4.52
	Over 6 h	13	19.84	4.29
Are you aware of adverse effects that online games might cause in children?	Yes	184	25.52	4.29
	Partially	38	21.89	4.35
	No	9	21.33	3.64
Are you aware of the function of content rating systems such as PEGI or ESRB?	Yes	30	21.36	4.36
	No	201	20.94	4.29
Are you aware of strategies for coping up with cyberbullying?	Yes	65	22.10	4.46
	Partially	95	21.47	4.25
	No	71	21.66	4.20

Table 6. Cont.

Question	Response Categories	<i>n</i>	\bar{X}	SD
Are you capable of using parental controls and privacy settings in social media sites?	Yes	112	22.55	3.41
	Partially	76	21.64	4.62
	No	43	21.48	4.43
Are you aware of the concept of Digital Footprints and how they are formed?	Yes	29	22.22	4.18
	Partially	30	20.96	4.75
	No	172	19.62	4.10

ANOVA tests were carried out for each peripheral variable once it was ensured that associated assumptions were met. The results are given in Table 7.

Table 7. Digital Parenting Attitude Scores Categorized by Peripheral Variables to Digital Parenting—ANOVA results.

Variable	Source of Variance	Sum of Squares	df	Mean Squares	F	<i>p</i>	Post-hoc Difference
Average time spent daily using the Internet	Between Groups	66.222	2	33.111	1.779	0.17	
	Within Groups	4244.670	228	18.617			-
	Total	4310.892	230				
Awareness on adverse effects that online games might cause in children	Between Groups	125.449	2	62.724	3.417	0.03	
	Within Groups	4185.443	228	18.357			1–3
	Total	4310.892	230				
Awareness on strategies for coping up with cyberbullying	Between Groups	93.074	2	46.537	3.516	0.04	
	Within Groups	4217.818	228	18.499			1–3
	Total	4310.892	230				
Capability of using parental controls and privacy settings in social media sites	Between Groups	36.915	2	18.457	0.985	0.375	
	Within Groups	4273.977	228	18.746			-
	Total	4310.892	230				
Awareness on the concept of Digital Footprints	Between Groups	188.941	2	94.470	5.225	0.006	
	Within Groups	4121.951	228	18.079			1–3
	Total	4310.892	230				

Although descriptive statistics show a trend of digital parenting attitude decreasing as time spent daily using the Internet increased, ANOVA results show differences among groups to be insignificant ($F_{(2,228)} = 1.779$ $p > 0.05$). Same goes for the capability of using parental controls and privacy settings in social media sites, where groups that were capable, partially capable, or incapable of handling such settings show no significant difference in terms of digital parenting attitude scores ($F_{(2,228)} = 0.985$ $p > 0.05$).

Significant differences in terms of digital parenting attitude scores was observed, however, based on awareness on adverse effects that online games might cause in children ($F_{(2,228)} = 3.417$ $p < 0.05$), awareness on strategies for coping up with cyberbullying ($F_{(2,228)} = 3.516$ $p < 0.05$), and awareness on the concept of Digital Footprints ($F_{(2,228)} = 5.225$ $p < 0.05$).

Scheffe Post-hoc tests were carried out for each significant result, pointing out that digital parenting attitude score in participants who reported awareness on adverse effects that online games might cause in children ($\bar{X} = 25.53$) was significantly higher than those who admitted being unaware ($\bar{X} = 21.33$). As for awareness on strategies for coping with cyberbullying, it was also discovered that those who reported awareness in this context ($\bar{X} = 22.10$) displayed significantly greater digital parenting attitude scores than those who do not ($\bar{X} = 21.66$). Lastly, the group of participants with an awareness of the concept of digital footprints ($\bar{X} = 22.22$) also display significantly greater digital parenting attitude scores than those without ($\bar{X} = 19.62$).

Due to participant responses falling under only two categories, awareness on content rating systems such as PEGI or ESRB was investigated using an independent samples t-test, revealing that those who report awareness ($\bar{X} = 21.37$) to display significantly greater digital parenting attitude scores than those who do not ($\bar{X} = 20.94$) ($t_{(229)} = 2.867$ $p < 0.05$).

3.5. Investigation of Digital Parenting Behavior

In order to gain insight on the digital parenting behavior of the study group, participants were asked in the digital parenting questionnaire to describe activities that they consider fall under the category of digital parenting. Answers to the open-ended question were analyzed via content coding. Out of 231 participants, 207 chose to respond. The questions and the themes that emerged during content coding are given in Table 8, alongside number of coding references.

Table 8. Themes and Their Number of Coding References That Emerged During Analysis of Participant Responses Describing Digital Parenting Behavior ($n = 207$).

Common Themes on Rules and Limitations	<i>f</i>		<i>f</i>
Explains activities ...	207	Refers to limiting screen time ...	226
... using vague terms	80	... using allowed quotas in terms of hours and minutes	145
... using clear and specific terms	127	... using specific allowed time windows	79
Specific references to: ...	67	Periodic references ...	116
... a device (tablet, smartphone, PC)	24	... on a daily basis	84
content type (videos, games, images)	43	... mentioning weekends or holidays	32
Miscellaneous themes			<i>f</i>
Screen time offered conditionally, as a reward			22
Screen time along parents' presence and under their supervision			16
Difficulty in enforcing rules			4

Themes that emerged throughout the analysis were been cross-inspected against demographic variables, and observations thought to be worthy of interest are shared alongside graphics in the following sections.

3.5.1. Common Themes

It has been seen that while describing digital parenting behavior, namely the approaches, rules, policies, and activities regarding the interaction of their children with digital devices, 61% ($f = 127$) of participant responses ($n = 207$) used clear and specific terms in expression, such as:

1 hour on weekends and half an hour in weekdays, under our supervision only.

On weekends and only 2 h a day in that.

She is allowed to view an hour and a half each day. She can use this hour and a half for as long as she follows other rules around the house.

She can play only half an hour and only after dinner. This is limited to twice per week.

On the other hand, 39% of responses ($f = 80$) show parents using vague expressions in their definitions. These may be interpreted either as the parent not having a set rule or policy in the first place or as the rules being flexible depending on circumstance. Examples include:

She can view cartoons, for a limited time only.

Only at certain times, certain intervals...

She can view TV or play games on the tablet at given times.

During school days, she attends school in the afternoon. In the morning however, she spends time using the tablet.

As the distribution of language used in descriptions across categories of demographic variables were investigated, a trend implying that specificity in expression may increase as the level of education decreases, was discovered. The graph showcasing this trend is shared in Figure 1.

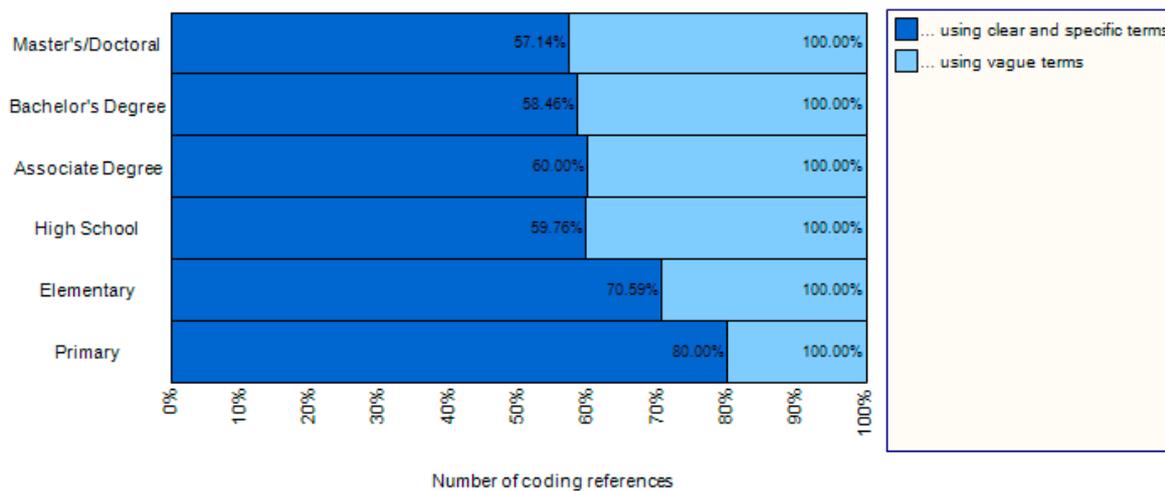


Figure 1. Graph of the distribution of vagueness/certainty in expression in digital parenting activity descriptions compared with the responder's level of education.

It was observed that frequent references to time limit quotas ($f = 226$) were made by parents as they describe activities falling under the category of digital parenting, particularly referring to screen time policies. A 64% majority of such references ($f = 145$) explained time limits in terms of hours and minutes, regardless of which interval they prefer.

Three times a day for 15 min each session. Only on weekends.

Only whenever I allow her and even this can't exceed half an hour in any case.

1 hour once after she's done with her homework.

Another 34% of responses referring to time limit quotas made mention of time windows ($f = 79$) instead of setting a consumable, set time limit in terms hours and minutes. The child is allowed screen time only in the specified time window and it is left up to the child how long she may interact with the device within the time window.

Usually after meals and before bedtime.

She may use only during the time we are at the shop together. I don't let her use at home.

I let her take it usually after 8 o'clock in the evening, after dinner, until 9.

Parents setting time quotas or windows for screen time usually made references to certain intervals ($f = 116$). Seventy-two percent of all these references to intervals were on a daily basis ($f = 84$).

I let her play 1 hour per day.

She has a right to watch TV for half an hour each day.

Twice a day, once in the morning and once in the evening and 2 h at most. If she breaks my rules she gets a parking fine, which means she can't use for 2 days.

Twenty-seven percent of interval references ($f = 32$) made mention of other periods intervals were based on, such as weekends or school holidays.

The phone is allowed only on weekends during the time school's open. When the school closes for summer, she can have the tablet daily in certain hours.

Tablet she can have only on holidays. An hour a day at most, and (device parental controls) set to kids' mode.

She watches cartoons on weekends at specific times.

It was observed that there were certain specific references to device type and content type in expressions where parents defined their digital parenting activities. These specific references made up 32% (f = 67) of all references; whereas 64% of these (f = 43) were references to content type such as videos, images, or games. These references may be interpreted as parents being aware of different types of content and distinguishing among these as they build and implement their digital parenting policies.

She may watch for half an hour only the videos that I’ve chosen for her. As for games, she can play them for half an hour at most.

Games on specific days (for an hour). Movies for a limited time, on weekends.

Morning hours are for cartoons. Evening is for a little amount of games.

She may only view photos on my mobile phone once a week.

Thirty-five percent of specific references (f = 24) were references to device type where the parent made mention of not only a specific type of device, but also a brand or model. These references may be interpreted as parents acting selectively or distinguishing between devices as they enforce digital parenting rules.

The phone is allowed only on weekends during the time school’s open. When the school closes for summer, she can have the tablet daily in certain hours.

We rarely ever activate the smartphone Internet connection as we hand it to our child and only for 15 to 20 min at that, which is used for viewing educational videos on Youtube.

Otherwise, we never ever let her touch the phone.

If the children of our house visitors are playing with phones or tablets, I also hand the phone or tablet to my child so that she’s not bored. Other days, I hand her the tablet once a month only for one hour, only on the condition that she views the things that I allow her to view.

A glance at the distribution of specific references from parents based on their demographics, it was observed that males are more prone to making specific references to device type while females are more prone to referring to content type. The graph showcasing this visual trend is shared in Figure 2.

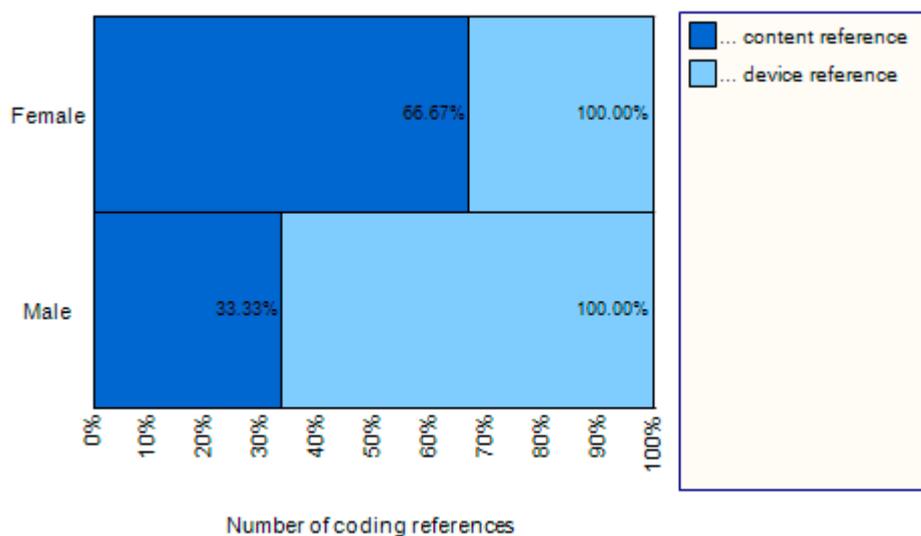


Figure 2. Graph of the distribution of specific references to device/content type in digital parenting activity descriptions compared with the respondent’s gender.

Another trend observed on specific references, was the tendency to refer more to devices and less to content type as age increased. Graph showcasing this visual trend is shared in Figure 3.

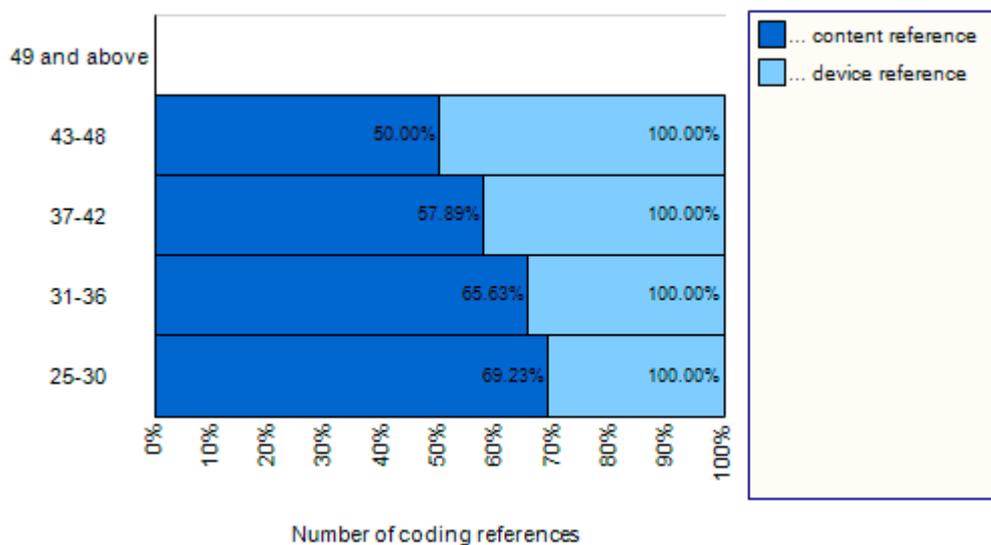


Figure 3. Graph of the distribution of specific references to device/content type in digital parenting activity descriptions compared with respondent age group.

3.5.2. Miscellaneous Themes

Some participants have hinted in their responses that they offered digital access to their children based on certain conditions and mostly as a reward for positive behavior. This theme has been observed in 11% ($f = 22$) of all references.

She is allowed to view an hour and a half each day. She can use this hour and a half for as long as she follows other rules around the house.

I allow her to use the Internet as a reward once after she's finished her homework and had her meal.

When she started school, I denied her the tablet until the end of semester. Sometimes I let her use –only- my own smartphone for an hour or two and under my direct supervision at that, provided she's been good at following the rules around the house.

Another theme that arose within 8% of all references ($f = 16$) was the act of parent supervision. This theme is a collection of references where the parent is somehow implying that she is putting special effort into the direct monitoring or supervising of the child's digital access, typically by being physically next to the child as she uses the device.

I let her use on weekends. I give her half an hour of time. I always ask her to play right beside us. She plays right next to either me or her mother.

Once after she arrives from school and is done with her meal and other things, she takes the phone and plays with it within the time I allow her. She listens to music too. This all happens under my watch, I constantly view what's being played on the screen.

She may not play games or watch videos if I'm not with her.

Lastly, a theme manifesting within 2% of ($f = 4$) total responses was the difficulty in enforcing digital parenting rules. Within this theme's context, parents have reported the conflict that they experience with the child in enforcing rules, complaining about their failure.

What good are rules anyway, there are no children who follow these.

We let her have it at 9 o'clock in the evening supposedly for an hour, but it almost always goes much more than an hour in the end.

Even though I set rules she keeps on insisting against them, cries and causes a racket, especially the 6-year-old one. She watches cartoons all the time. The 9-year-old one partially follow the rules.

3.6. Expectations from a Digital Parenting Education Program

Participants who responded positively to the question as to whether they would participate in a digital parenting education program were also asked what subjects they would expect such a program to cover, i.e., in what matters they sought improvement the most. Open-ended responses of participants ($n = 112$) were content-coded and emerging themes are shared in Table 9.

Table 9. Themes and Their Number of Coding References that Emerged During Analysis of Participant Responses Describing what They Would Expect to Find in a Digital Parenting Educational Program ($n = 112$).

Theme	f	Theme	f
Knowledge in ...	99	Skills Training in ...	64
... Internet Safety	59	... Parenting skills	20
... Staying up to date (new concepts, products, services)	13	... Cybersecurity	13
... Established Harms and Benefits of ICT Use	12	... Computer literacy	11
... Child Behavior and Psychology	8	... Effective limiting	11
... Cyberbullying	6	... Effective monitoring	8

It was discovered that there were two major theme categories in participant responses, namely those who sought further knowledge and those who sought applicable skills training from a digital parenting educational program.

Those who sought knowledge ($f = 99$), most prominently did so in the notion of Internet safety ($f = 59$), meaning they wanted to gain further information on the risks that awaited their children on the Internet and how these threats may be alleviated. Some parents expressed their need to stay up-to-date with new concepts, products, or services that may help them in the effort to protect their children ($f = 13$). Others were in need of finding out more about both the harms and benefits of ICT use in children in a broader sense ($f = 12$), so as to make better judgments about the issue. Lastly, whereas a portion of parents expressed they required more knowledge in child behavior and psychology ($f = 8$), some wished to learn more about the notion of cyberbullying ($f = 6$).

Parents also expressed that they sought training in applicable skills from a digital parenting educational program ($f = 64$). The most frequent type of training mentioned by participants was parenting skills training ($f = 20$), and it should be noted here that by parenting skills participants mostly referred to an ability of maintaining authority over the child and better enforcing set rules. Another demand in skills training was related to maintaining cybersecurity ($f = 13$). Here, parents expressed that they wished to know how to make sure that unwanted content that is not safe for children's eyes does not leak into their devices automatically in forms of viruses or adware nor that sensitive information regarding their children leak out. Some parents were in need of broader skills under the terms of computer literacy ($f = 11$), these usually confessed to not being proficient enough in digital device use so as to protect their children from harm. Lastly, some parents wished to learn ways they could more effectively limit the child's screen time, using computerized tools ($f = 11$), and others wished to learn how to use technical intervention to monitor more effectively what their child does with digital devices ($f = 8$).

4. Discussion and Conclusions

This study was carried out as a needs analysis, which is preliminary work for designing from scratch a digital parenting educational program in the Turkish province of Edirne. The goal was to assess the current situation among parents with preschool children in terms of digital parenting attitude. The results will be discussed here under the light of current academic literature so as to help advance the body of knowledge in the field of digital parenting education, which may be considered to belong under broader fields of adult education and lifelong learning.

The first finding in the study implies that digital parenting attitude among study participants is somewhat low, particularly in the context of subdimensions. However, comparative studies are required in order to reach solid conclusions.

The second finding is that approximately half of the parents in the study group do not wish to participate in a digital parenting educational program. It has also been found that the parents who do not wish to participate in education are also those who score significantly lower in terms of digital parenting attitude. In other words, parents who would probably benefit the most from participating in such an educational course are unwilling to do so. The subject of deterrents to participation in adult education and lifelong learning has been extensively studied in the literature. A list of such deterrents includes, but is not limited to, lack of confidence, lack of course relevance, personal problems, situational barriers, lack of time/conflicting schedules, negative belief in program cost, and negative belief in program benefit [100,101]. There also exist demographic deterrents such as educational level, number of children, family income level, and employment status [100]. Future research should inquire potential participants further and perhaps try to uncover if there are any special contributors to participation unwillingness under the specific case of digital parenting education. An example of one such special contributor might perhaps be the reluctance caused by belief that digital literacy is a prerequisite of participation in such programs, fueled by the social stigma associated with lack of digital literacy [102]. The fact that some participants in this study expected a digital parenting program to first provide them with basic skills training in digital literacy also needs to be viewed in the light of this information.

Nevertheless, literature also suggests methods for increasing participation in adult education programs. For example, Ramsay and Holyoke [103] suggest that appeal to hedonistic emotions is important and that pleasure or enjoyment need to be emphasized in parent education programs. It has also been claimed that key motivators to participation in parenting education are a) the need to invest in personal growth, b) the need for socialization, and c) the opportunity of escaping domestic routine [104]. It is understood that these factors need to be considered when designing promotion strategies for the digital parenting education program at hand. However, as is the case with deterrents, there might also be special motivators for participating in digital parenting education and these are also in need of investigation in future research efforts. The listed motivators seem to be better targeted at the unemployed female parent, which was the predominant type of participant in this study. However, as the third finding of this study, it was also discovered that female parents display significantly greater digital parenting attitude compared to males and that unemployed parents display significantly greater digital parenting attitude compared to full-time employed parents. Thus, it can be said that those who are in greater need of participating in this kind of educational program are full-time employed parents and particularly males. This finding is consistent with the current and earlier body of literature. Oden [105] reports that mothers score significantly higher than males in digital parenting attitude and according to Johnson [100], full time employment is a great deterrent to parenting education. It is hinted here that digital parenting education is no exception and solutions for overcoming this obstacle may be lying in the design of course programs that include distance/hybrid education options with flexible schedules, with special promotion strategies for drawing in full-time employed parents and specifically males.

The discovery of certain peripheral variables such as awareness of adverse effects that online games might cause in children, content rating systems such as PEGI or ESRB, strategies for coping with cyberbullying, and the concept of digital footprints being associated with significant difference in terms of digital parenting attitude should not come as a surprise. These notions may, hence, be utilized in both promotional material and course content design when developing a digital parenting educational program. Although increasing average daily time spent by the parent using the Internet seemed to be associated with a decreasing trend in digital parenting attitude, the test has not provided statistically significant results. This finding seems to contradict with Lampard, Jurkowski, and Davison [106] who report in their study that decreasing parent screen time is significantly associated with parent

likelihood to restrict screen time. However, it should be understood that the study in question has been conducted only among low-income parents and that digital parenting itself may not be defined only as screen time restriction likelihood.

Then again, analysis of qualitative data showed that many parents with preschool children in this study might also be unaware of this fact. As they were asked to describe activities that they would consider falling under the category of digital parenting, it was found that the majority of them used rigid, clear, and definitive wording and referred to the implementation of time limit quotas—mostly in terms of hours and minutes—on the child’s screen time, on a daily basis.

Few parents displayed in their words sensitivity or distinguishing behavior on different types of content the child might interact with using a digital device. In Altun’s [79] study, it is indicated that for the parents of preschool children, content type is considered as important as screen time in establishing digital parenting policies. However, this result was achieved without consulting qualitative data. The findings of this study, which makes use of qualitative data obtained from parents and which contradicts Altun’s [79] results, suggest that especially male and older aged parents may be prone to ignoring various types of content a child might interact with while using a digital device.

Even fewer parents made mention of monitoring or supervision of the child’s digital activities, which are critical aspects of digital parenting. Considering this along with the first finding reporting low overall scores of digital parenting attitude—especially in the Protection Against Risks in Digital Media subdimensions—it may be concluded that for a portion of the study group, digital parenting is misunderstood and reduced to screen time policies only. This finding is consistent with the recent literature, where reports of screen time alone leading to conflict between parent and child, rather than particular digital activities, was shared. It is indicated in this study targeting parents of children aged 0–17, which has been conducted by Livingstone and colleagues’ [107] with over 2000 participants in the UK, that the study group reported significantly more conflict about screen time than about the particular ways children use the digital devices. It needs to be understood, however, that connection is as vital as behavior control in conventional parenting [107] and its digital counterpart is no exclusion.

When asked what kind of content they would like to find in a digital parenting educational program, participants reported that they would like to receive knowledge and also skills training. Aside from the expected results, it may be considered interesting that in addition to some parents expressing interest in learning more about child behavior and psychology, most parents are seeking parental skill training. A need for training in digital skills such as digital literacy or cybersecurity was also reported, but seems to be of secondary importance. This phenomenon was also reflected by Livingstone et al. [107], where parents were revealed to be lacking support in terms of parenting advice and frequently sought answers to their digital dilemmas online as a result. All and all, it may be concluded that a digital parenting program needs to focus as much on parenting as it needs to focus on the digital.

In accordance with the findings, it may be suggested that a digital parenting educational program for parents of preschool children in the province of Edirne may include the following topics in its curriculum:

- Digital literacy (computers, internet, and social media use)
- Cybersecurity (Internet security, e-mail security, social media safety, device security, personal data protection, cyberbullying, scam, and phishing etc.)
- The use of software for safe Internet use by children (screen time monitoring tools, web activity monitors, website and application filters, etc.)
- Risks associated with online games and their aversion
- Selection of content suitable for children and international content rating systems
- Digital footprints
- Benefits and harms of ICT use
- Parenting skills

- Child behavior and psychology

It is noteworthy that participant responses to description of digital parenting behavior were mostly short sentences that briefly explained the limitation of screen time. However, there were a few complaints as to how children do not follow the house rules that fall under the category of digital parenting. Seemingly, parents have been mechanically describing their rules and at times, critical of their own child's behavior for not complying with them. However, there was no response from any of the participants complaining about why the cyber world is such a risky environment for children and why they must exert great effort to protect their children from it. The lack of such a critical stance may imply that in order to render such an educational program sustainable, the literature on critical pedagogy and adult education may be referred to, in order to help parents adopt a critical view and engage in praxis so as to influence policymaking towards the reduction in the magnitude of market forces, which are underlying most of the risks targeting preschool children in the cyber world.

As Davis [65] points out, sustainability is a holistic concept with economic, political, and environmental aspects to it and it is a responsibility of all individuals. Cooperation of institutions in the creation of an adult educational program on digital parenting is, therefore, vital for maintaining sustainability. This cooperation is required both for keeping up-to-date with the ever-changing technical nature of the digital world and for the transformation of the society for active engagement in policymaking procedures. As such, at the end of this needs analysis, the following steps were proposed for the development of a digital parenting education for parents with preschool children:

- Preschool institutions need to keep databases with the demographic information of parents whose children are enrolled within the institution.
- Preschool institutions need to regularly gather with parents in meetings and introduce the concept of digital parenting, its context and importance. This might be required to encourage parents who are unwilling to participate in educational programs in digital parenting.
- Written, oral, and/or practical exams for determining the readiness of parents to participate in digital parenting programs may be conducted.
- Computer experts, ICT teachers and ICT/cybersecurity specialists, as well as psychologists and education sociologists working in universities, private sector firms, or Non-Governmental Organisation (NGO)'s, may participate in both the preparation of exams and the implementation of the educational program.
- Parents may be divided into classrooms depending on their readiness levels, as well as their work schedules or special needs, including health problems or physical/mental disabilities of self or children, so as to reduce factors of deterrence.
- Parents with little or no conception of digital parenting need to take introductory courses in the matter, which include ICT literacy skills as well.
- Parents that successfully complete the educational program may be awarded certificates so as to increase the motivation of course participants. Holders of such certificates may be offered additional incentives, perhaps such as support from government or other institutions in the form of scholarships or academic aid.
- Parents with busy schedules or other special circumstances that act as deterrents may be included by offering online distance education or hybrid models. Infrastructures of schools, as well as supporting public education centers, libraries, universities, or private firms may be utilized for this task.
- Parents who lack all means to participate in face-to-face meetings should not be abandoned. These may be encouraged to participate in the program via asynchronous modes of education including educational videos and podcasts while using the digital communication tools to keep in close contact with the instructors.
- Content suited for individuals with disabilities should be prepared by considering accessibility standards.

- Online educational tools where participants may gather (social media groups, learning management systems, MOOC platforms etc.) and enjoy group activities in (Kahoot, Padlet etc.) may be used. Educational games and gamification may be utilized alongside collaborative learning approaches, increasing motivation in learners and helping build a community.
- The educational program needs to be designed in a way that may be repeated for new parents every year and a system that compels instructors to revise the curriculum systematically in accordance with advancing ICT technology needs to be implemented.
- A help desk of online support forum at the provincial level may be created, where content authors in the educational program may also directly respond to assistance requests of program participants.
- Parents should be asked to contribute in online forums and reflect on their experiences. Feedback should be provided for these.
- Critical updates in terms of information may be submitted to participants via personalized e-mail or SMS messages, whereas critical updates pertaining to skills may be shared in digital environments in the form of educational videos or images.
- Public–private sector partnerships may be encouraged to render such programs gratis for low-income participants and launch protocols to support those parents who have limited access to computers and the Internet, as digital technologies are highly pervasive and children may be exposed to risks even if a household may not afford them.

The period of COVID-19 global pandemic has caused the human population to spend much more time using computers, smartphones, and the Internet. Alongside fundamental human activities of communication and commerce, education from kindergarten to college has also started to depend more and more on digital platforms and applications. This situation may be here to stay longer than expected. This implies that, screen time for preschool children may increase for the sake of online education and their parents will have to spend even more time assisting in this process. Lack of digital parenting skills among parents is adding to the current state of crisis and emphasizing in retrospect how a sustainable digital parenting education program might have benefitted human communities. Parents today are in need of digital parenting skills so as to support the academic, cognitive, and psychological development progress of their children. More so, they need to start viewing this matter from a critical perspective. This study has proposed the framework for a digital parenting educational program that hopefully serves to attain these goals easier.

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