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ORIGINAL PAPER

What is Digital Parenting? A Mixed-Method Study Exploring Parents' Views of the Role of Digital Technology in Parenting and Family Interactions

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Abstract

Background Digital parenting is an evolving concept that needs to be further studied and understood more profoundly.

Objective To explore the key themes of digital parenting and whether background factors (guardian type, children's age, parents' interest and competence in using digital technology) are related to these themes.

Methods An online questionnaire with six semi-structured open-ended questions was asked from 174 parents. Using a mixed-method approach, first a thematic analysis was conducted to reveal the themes. Next the relationship between background factors and the prevalence of the different quantified themes were examined.

Results Six main themes were generated based on parents' responses: (1) parenting styles related to digital technology; (2) social interaction through digital technology; (3) activities involving digital technology; (4) benefits of digital technology for family; (5) downsides of digital technology for family; and (6) the desired changes to digital technology. The most common subthemes concerned parents' attempts to restrict their children's digital technology use, using digital technology together and individually and how digital technology promotes family's social interactions. The parents with the lowest interest and competence in using digital technology were less likely to mention using it as a family. Compared to fathers, mothers were more likely to mention restricting digital technology and emphasize its negative impacts on family.

Conclusions Restricting digital technologies (e.g., limiting screen time) was largely emphasised by the parents rather than supporting its use. Nonetheless, parents have implemented digital technologies in their family life and use them in many ways with family members.

Keywords Digital parenting · Parental mediation · Digital technology · Mixed-method · Thematic analysis

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Introduction

Digital technologies play a role in our lives in multiple ways, such as in children's gameplay (e.g., Duffy & Derevensky, 2022), social media use (e.g., Subaşı et al., 2024), digital conflicts (e.g., Page Jeffery, 2024) and the use of artificial intelligence (e.g., Jordan & Natarajan, 2024). In recent years parents have become more aware of the risks and opportunities digital technologies present for their children (Benedetto & Ingrassia, 2021; Choy et al., 2024; Fidan & Olur, 2023; Page Jeffery, 2020). The increased use of digital technologies and their impact on, for example, children's education have also raised concerns among parents. Even schools globally have started to restrict smartphone access in the hope of mitigating its negative effects on academic outcomes (Rahali et al., 2024). To help children to become integrated into an increasingly digitalised society, parents should raise them with digital technology—embracing its benefits with caution (Shin et al., 2019)—a key tenet of digital parenting.

Although the concept of digital parenting is still evolving and lacks a clear consensus regarding its definition and measurement (Tan et al., 2024), it is often broadly characterized as "parental efforts and practices for comprehending, supporting, and regulating children's activities in digital environments" (Benedetto & Ingrassia, 2021, para. 1). In an umbrella review, Tan et al. (2024) suggested that digital parenting involves at least three key dimensions: (1) parents' mediation in children's digital technology use; (2) parents' incorporation of digital technologies into parenting practices; and (3) parents' digital skills. Digital parenting involves guiding children's digital experiences—from app usage and gaming to fostering digital literacy and healthy digital habits—and to address the broad range of digital interactions that impact children's development and well-being.

As conceptualization regarding digital parenting is still evolving, it is important to shed further light on parents' qualitative experiences of how digital parenting is manifested in daily family life. More family-level insight is needed into how digital parenting varies—between mothers and fathers, and by children's age and interest in technology—to better understand the phenomenon. Prior research has identified varying digital parental practices between mothers and fathers (e.g., Peng, 2022; Laws et al., 2019). However, comprehensive knowledge that considers families as a whole is lacking (Balleys, 2022). In this study, we used a mixed-method approach aiming to enrich the understanding of various phenomena related to digital parenting. Digital parenting encompasses not only parental mediation, but also the surrounding digital environment that influences families. We examined parents' perceptions of how digital technologies impact families, how parents mediate their children's digital technology use, and how one's surrounding digital environment possibly shapes family interactions.

Studies indicate that mothers and fathers often differ in their approaches to managing children's digital technology use (e.g., Soyoof et al., 2024). Accordingly, we expect that they may also hold partly different perspectives on digital parenting. A child's age also affects the use of digital technology. For example, older children tend to use digital technologies more often and more independently than younger children (Smahel et al., 2020). Depending on the age of the child, digital technologies can bring different concerns and challenges for parents. The interest and competence in using digital technologies might also influence on how and how much digital technologies are used (e.g., Rodafinos et al., 2024). Thus, parents' interest and competence in using digital technologies could shape the ways on how they

parent their children's digital technology use. As such, we also examined how background factors such as guardian type, children's age, and parents' interest and competence in using digital technology relate to the created themes of digital parenting. We answered the following research questions: What are the key themes related to digital parenting as described by parents, and how are these themes related to the background factors (i.e., guardian type, children's age, and parents' interest and competence in using digital technology)?

Background

Traditionally, parenting—parents' actions, strategies, and interactions to promote their child's development and well-being—was focused on physical settings, such as children playing at home, playgrounds, or daycare environments (e.g., Bradley, 2019). Nowadays, in the digital age, simply parenting in physical world is often not enough as digital technologies have become an integrated part of family life. Both children and parents spend a considerable amount of time in digital contexts.

Smahel et al. (2020) showed that on average 9–16-year-old children spend 2 h and 47 min online per day. By breaking down this sample according to age group, the time spent online nearly doubled from the youngest to the oldest group (9–11-year-old children for 1 h and 54 min, 12–14-year-old children for 3 h and 12 min, and 15–16-year-old children for 3 h and 49 min on average per day). Children may struggle to accurately estimate the actual time spend online, which may be even greater, as smartphones and other portable technology often prompt brief but frequent interactions (e.g., checking behaviour (Oulasvirta et al., 2012)) that may go unnoticed (e.g., Allaby & Shannon, 2020; Tkaczyk et al., 2024).

The impact of digital technology on education has raised concerns among many parents, who are attentive not only to home use but also to how technologies are used in formal settings such as schools and daycare. The use of digital technologies—especially smartphones—has become such a widespread issue in schools that many countries have introduced restrictions on smartphone access. However, evidence on the academic effects of these restrictions is mixed (Rahali et al., 2024), suggesting that factors beyond smartphone bans also shape academic outcomes.

In order to understand how parents mediate their children's digital technology use (e.g., Livingstone et al., 2018; Sciacca et al., 2022; Wade-Bohleber et al., 2024) a deeper understanding what digital parenting entails is crucial. Most studies have focused on the duration of children's screen time instead of how children use digital technology. However, previous research (e.g., Brannigan et al., 2022; Chase et al., 2022; Järvinen et al., 2023; Przybylski & Weinstein, 2017) consistently suggest that, instead of screen time, it is more relevant to focus on how digital technologies are used when assessing their benefits and costs. Specifically, the focus should be on the content engaged with using digital technologies and whether that engagement is active (e.g., drawing, reading, and so on) or passive (e.g., watching TikTok or YouTube videos).

While both children and parents use digital technology, the purposes and effects of their usage often differ. While both of them may use digital technologies for activities such as communication and learning, parents typically use them to focus on their work tasks, organise their family schedules, and stay informed, for example, about the news, whereas children tend to use them to play games, browse social media, and engage with educational apps.

Parenting in the digital age is thus not defined by children's digital technology use—it is defined by how parents' guide and influence their children's interactions with digital technology. Digital technologies are also part of family activities and parent–child interactions. To effectively support children's digital well-being, we need to shift the focus from simply monitoring their screen time to understanding the quality and nature of their digital interactions.

Positive and Negative Aspects of Digital Technologies in the Family Environment

Digital technology, as a new element in a family's everyday life, can have varying effects on child development. Przybylski and Weinstein (2017) found a nonlinear relationship between digital technology use and adolescents' mental well-being. According to their digital Goldilocks hypothesis, moderate use of digital technologies offers the greatest sense of well-being. If they are very rarely used, individuals, especially adolescents, could feel deprived of social connections and access to information; in contrast, excessive use can distract from important non-digital activities, such as social interactions, physical activities, and school-related tasks, such as homework. However, the threshold where digital technology use shifts from moderate to excessive—and potentially detrimental—was found to vary depending on the type of technology and when it was used (on weekdays or weekends). Other studies have supported this curvilinear relationship (e.g., Brannigan et al., 2022; Toth-Kiraly et al., 2021). McNamee et al. (2021) found that excessive social media use (more than four hours a day) among adolescents was linked to poor mental well-being and behavioural outcomes, whereas limited use (less than three hours per day) produced no adverse effects. Some studies, however, found little evidence to support the Goldilocks hypothesis (e.g., Kardefelt-Winther et al., 2020; Sanders et al., 2019). The inconsistency in these findings highlights a critical research gap: in addition to screen time, the quality and nature of digital engagement also matter, and how all these factors influence children's development and well-being remains unexplored.

Integrating digital technology into a family's daily life could be important for maintaining a family's identity. Previous studies have suggested that, besides the time spent online and the content consumed, it is crucial to consider a family's co-use of digital technologies at home. Co-using digital technologies can positively affect family relationships—for instance, it could lead to increased affection between siblings (Coyne et al., 2016), stronger family connections (Padilla-Walker et al., 2012), a more positive family climate (Festl & Gniewosz, 2019), greater closeness between family members and improved family satisfaction (Wang et al., 2018) and more positive interactions between family members (Coyne et al., 2011; Skaug et al., 2018). The integration of digital technologies in a family and their co-use can thus potentially nurture family life and parent–child interactions.

Parental Mediation, Family Cohesion, and Digital Agency

Digital parenting integrates insights from parental mediation, family cohesion, and digital agency to address how parents guide their children's digital interactions, maintain strong family bonds, and empower their children to effectively navigate the digital world. In the context of digital technology use, parental mediation—the ways in which parents regulate, monitor, and discuss their children's digital technology use—encompasses various parental

strategies (e.g., Livingstone & Helsper, 2008). Parental mediation aims to guide children's digital technology use in a way that maximises its positive effects (such as learning and maintaining social connections) while minimising its potential risks (such as bullying, exposure to violence or sexual content, and the addictive aspects of technology) (Bozzola et al., 2022; Livingstone & Helsper, 2008).

Valkenburg et al. (1999) were the first to group parental mediation regarding television viewing into three strategies: active mediation, restrictive mediation, and co-viewing. Later, Livingstone and Helsper (2008) found that parents employed these strategies in the context of internet use as well. In active mediation, parents discuss the content of digital technology with their children and encourage them to use digital technology. In restrictive mediation, parents set the rules for digital technology use without necessarily discussing the content or the reasons for restriction. Co-viewing entails the parents being present while their children engage with digital technology. Livingstone and Helsper (2008) found two more mediation strategies: technical restrictions for usage and monitoring children's online activity. In addition to outlining the previous categories concerning parental mediation, Clark (2011) suggested a new category: *participatory learning* (parents learn from their children). By using digital technologies that are more interactive than television together, parents can learn from and with their children (for example, collaborative learning through interactive online games). It is possible that a shift to a more digital-driven society could make the parent–child relationship more collaborative (Clark, 2011). Studies have found mixed results on, for example, the association between reducing screen time or problematic internet use and parental mediation practices (Chen & Shi, 2019; Nielsen et al., 2019). One hypothesis is that, for example, restrictive mediation is generally vaguely defined and thus a confusing concept (Nielsen et al., 2019). These mixed findings highlight the need for research that examines how digital technologies have permeated families' everyday life and interactions, and how parents are adapting their practices and developing new strategies in response.

Digital technologies can also influence family's cohesion—the emotional bonding and connection between family members (Baer, 2002)—by introducing new dynamics and challenges. In a stable and cohesive family, a balance exists between togetherness and separateness: high levels of togetherness may indicate reduced independence, while high levels of separateness may suggest weaker attachment to the family (Olson et al., 2019). In contemporary settings, families face new challenges in maintaining this balance. Low family cohesion is associated, for example, with higher levels of depression (Bian et al., 2024), increased aggressive behaviours (Fang et al., 2009), and even a higher risk of suicide (Rapp et al., 2017). Conversely, family cohesion is positively associated with, for example, help-seeking among adolescent who experienced bullying (Grüne & Willems, 2024). Also, parent–child discussions, where parents and children actively engage in educational conversations, can reduce children's problematic behaviours, such as truancy, and improve their school achievements (McNeal, 1999). Understanding how digital technologies shape family dynamics and interactions is key to maintaining balanced family cohesion.

Festl and Gniewosz (2019) examined the role of parenting related to internet use in family life. The parents who were confident in managing their children's internet use often used the internet with their children, which, in turn, was found to positively influence the family climate. This indicates that parents' perceived confidence in using digital technologies could be considered when exploring family cohesion. Festl and Gniewosz (2019) also found that restrictive parental mediation did not affect the family climate. In contrast, Beyens and

Beullens (2017) found that higher restrictive mediation on the use of digital technologies, such as a tablet, was positively associated with parent–child conflicts and negatively with the family climate. Similarly, the study also found that there were fewer conflicts when parents regularly used tablets with their children—in other words, the co-use of digital technology positively affects family cohesion. Generally, many aspects of family cohesion, such as emotional bonding and communication, are also applicable to digital contexts, thus highlighting the need to understand how these traditional concepts translate into the digital age.

The use of digital technology in everyday family life also challenges parental agency. Agency, in short, refers to the capacity for intentional actions and changes (Heilala et al., 2024; Schlosser, 2015). Digital agency extends this concept to human interactions in various sociotechnical environments. According to Passey et al. (2018), digital agency involves digital competence, confidence, and accountability, enabling individuals to manage and adjust to the digital world. Digital competence provides the essential skills for safe and effective digital navigation, including literacy and critical thinking, which are crucial for digital agency. Digital confidence goes beyond mere technical skills; it involves the ability to use technology adeptly across various contexts, thus enhancing personal autonomy and decision-making in digital settings. Digital accountability refers to one's responsibility and ethical considerations while engaging in digital activities, including one's awareness of the impact on security and privacy. Moreover, understanding digital agency involves examining whether technology controls us (technological determinism) or whether we shape technology through our use and interaction (the social shaping of technology) (Passey et al., 2018). The risk of ineffectively integrating into the digital society due to low digital agency can shape parents' discussions of digital technologies with their children, and this, in turn, could affect children's digital technology use and how they integrate themselves into the digital society (e.g., Choroszewicz, 2024; Lafton et al., 2024).

Materials and Methods

Participants and Data Collection

The data of this study were collected in September 2023 through the Prolific.co participant recruitment service. A total of 174 parents (52% mothers, 46% fathers, 2% other guardians; Mean age = 36.8 years, SD = 8.5 years, range 21–58 years) filled in the online questionnaire. Of the participants 13% were from United States, 49% from Europe, and 38% from other parts of the world. Western countries are therefore strongly represented in this study.

The participants were asked to specify their role as a guardian (mother/father/other), their age, the number of children, and children's ages. Participants were also asked to rate their level of interest and perceived competence in using digital technologies and services ("On a scale of 0–10, how interested and competent are you in using digital devices and services?") on a scale of 0 (not at all) to 10 (extremely). In addition, the participants were asked the following six open-ended questions about digital parenting, with a minimum of 250 characters allotted for each answer.

1. *What positive aspects has digitalization brought to your life, your child's life, and your family's life? As a parent, how have you tried to support the positive sides of digitalization? Please provide examples.*
2. *What kind of negative things has digitalization brought into your life, your child's life, and your family's life? As a parent, how have you tried to reduce these negative aspects? Please provide examples.*
3. If you could change anything related to digitalization, what would you change and how?
4. *How would you describe face-to-face and digital interaction among your family members? How has digitalization changed this interaction?*
5. *What digital-related activities do you do together with your child? What does your child do independently or alone?*
6. *What kind of agreements or rules does your family have related to digital use? How are these rules monitored?*

Data Analysis

We used a conversion mixed-method design (Guest, 2012) to analyse the data. We applied a sequential exploratory design (Vedel et al., 2019) to reveal the parents' experiences and key digital parenting themes. This approach aimed to deepen understanding of digital parenting by transforming qualitative data into quantitative form. Figure 1 presents an overview of the linear process. First, we read the parents' open-ended responses and set them into different codes; next, we generated the different digital parenting themes from the codes. After the quantified themes that were constructed from the qualitative data, we examined the relationship between background factors and the prevalence of different themes.

We used Braun and Clarke's (2006) six-phase approach to thematic analysis (Fig. 3 and in Results Fig. 4): (1) familiarising with data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) writing the final report. The coding process involved inductive thematic analysis, for which we utilised a bot-

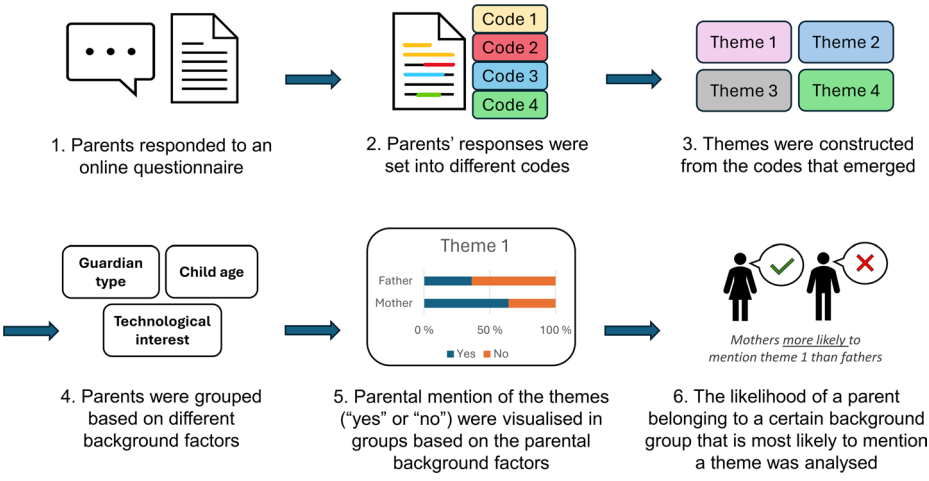

Fig. 1 An illustration of the analysis process

tom-up approach; patterns from the parents' responses helped us create the themes. According to Braun and Clarke (2006), choosing between inductive and theoretical approaches to thematic analysis depends on the purpose of the analysis data. Since we aimed to broaden the understanding of digital parenting based on the parents' responses, we refrained from aligning them with the previous theories related to the topic. Instead, we derived themes from the original responses to create a rich representation of the parents' perspectives.

We used the qualitative analysis software ATLAS.ti to facilitate coding (Fig. 2). The three subset sizes used for the analysis (N=20, 84, 70) were randomly selected, with the responses in each subset organised in chronological order. The conclusion that the saturation point was reached followed an iterative process of coding and refining the framework (i.e., Rahimi & Khatooni, 2024). Initially, a preliminary structure was developed from the first subset of 20 responses. As the second and third subsets were analysed, the framework was expanded and adjusted to incorporate the emerging codes. Saturation was reached after the third subset, meaning no new codes emerged that could not be either merged with the existing ones or integrated into the established themes.

We first read the data thoroughly to familiarise ourselves with the parents' answers. Although the actual coding process did not start at this point, we took some notes that seemed interesting and reflected our initial thoughts, i.e. memoing (Young & Florian, 2012). For example, the process of categorising the responses into subthemes was facilitated by these initial memos.

By analysing a subset of 20 parents' responses, we performed the initial systematic coding process to create the first version of the codebook. The answers were labelled within the text segments and created as codes. For example, the sentence "It can help when I need to get a household chore done for them to watch or play something for a little while" from one of the answer segments was labelled as "Provides free time for parents". It was common for multiple codes to be generated from a single data segment, but each code was applied only once per segment. For instance, even if parent mentioned twice in one answer that digital technology has strengthened their family bonds, this was not labelled twice with the code "Nurturing family relationships", but only once (see the example in Table 1). The number of times a parent mentioned a theme in one answer was not considered important as to whether the theme was mentioned at all.

After finalising the initial coding, the codes were re-examined, and similar codes were grouped as subcategories. Then, we reviewed the initial themes and defined each code and the descriptions of the themes to create the codebook. We then finalised the initial codebook

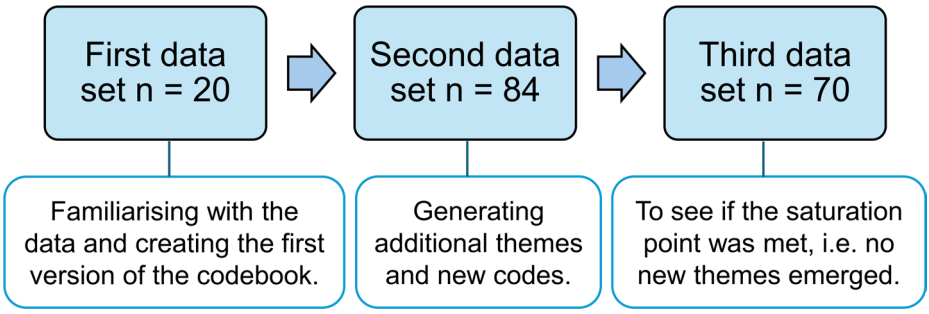

Fig. 2 Overview of the coding process for the data in ATLAS.ti software (N=174)

Table 1 An example of a data extract from one parent's answer, its codes, themes, and subthemes

Data extract	Coded for	Themes	Subthemes
"Digitalization has enriched our lives in many ways. It's a valuable educational tool for our 6-year-old girl, aiding in learning through interactive apps and online resources. For example, we've bonded as a family while playing educational games together, promoting quality time. To ensure a balanced approach, we set screen time limits and use parental controls. Digitalization has made learning fun and strengthened family connections."	"Variety in learning materials", "Nurturing family relationships", "Playing games together", "Parental control", "Limiting screen time", "Makes learning engaging"	"Benefits of digital technology for family", "Social interaction through digital technology" "Activities involving digital technology", "Parenting styles related to digital technology"	"More scope for learning", "Benefits to social interaction", "Joint use", "Restrictive"

and shared it with two researchers. Each code was discussed in terms of its definition and whether it reflected its definition.

We analysed the second set of data ($n=84$) to generate possible new codes and themes. Due to a large amount of data and the existing initial codebook, the subset was further divided into three parts and given to three researchers to code independently. As in the first part, when initialising the codebook, each new code was discussed in terms of its definition and whether it reflected its definition. The codes were then rearranged, themes were generated, and some codes were merged if they were found to be similar. In total, six main themes were constructed (see Results). Finally, the last set of participants ($n=70$) was analysed to check if any new codes could be created and if the saturation point was met. Some new codes were created, but since they could either be merged into the other codes or the already existing themes, we concluded that we had reached the saturation point.

To check the coding reliability of the finalised codebook, its inter-rater reliability was calculated. Two researchers coded five answers from the same parents independently, and Cohen's kappa test was used to measure the level of agreement between the two raters (Landis & Koch, 1977). The Cohen's kappa coefficient was 0.83, indicating almost perfect reliability. We constructed six main themes along with 12 subthemes and 99 codes. Figure 3 demonstrates a word cloud of the codes: the bigger the size of the code, the greater the number of parents who mentioned it.

We quantified the different themes based on the following background factors: guardian type (mother or father), technological interest category ("Interest 7 or less": 21%; "Interest 8": 24%; "Interest 9": 27%; and "Interest 10": 28%), and the children's age ("child age$\leq$5": 26%; "6$\leq$child age$\leq$12": 40%; "13$\leq$child age$\leq$18": 11%, and "different age children": 23%, if there were children of different ages in the family). The differences between a background factor and the presence of a theme in the responses were found using the Chi-square test or Fisher's exact test. The effect sizes of the statistically significant results were calculated using Cramer's V. An effect size between 0.10 and 0.30 was considered a small effect, 0.30 and 0.50 a medium effect, and over 0.50 a large effect (Cohen, 1988).

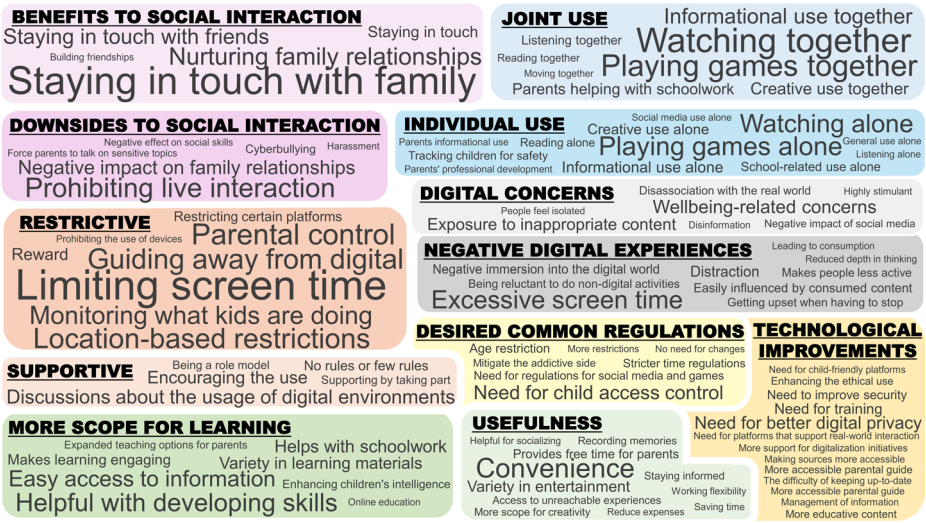

Fig. 3 A word cloud of the codes. The size of the code implies the number of times the parents mentioned it. The bigger the size of the code, the more often it is mentioned, and vice versa. The codes are grouped by headline and colour according to their subtheme

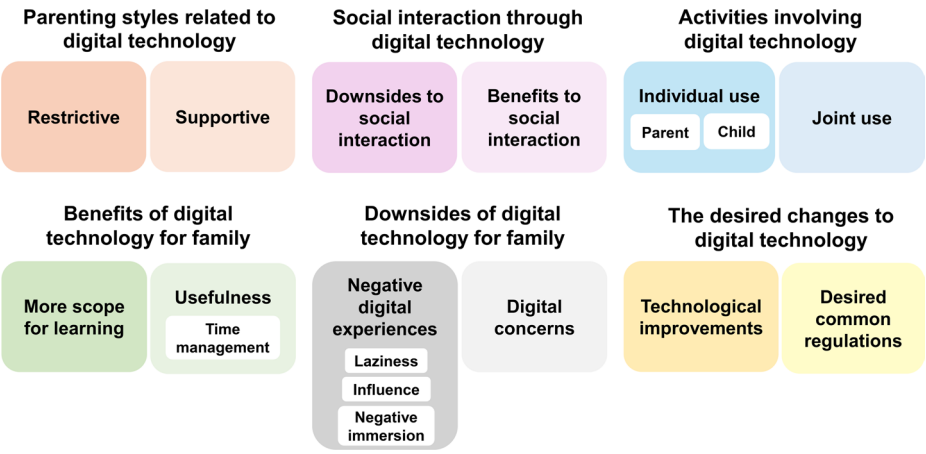

Fig. 4 The six main themes and 12 subthemes of digital parenting

Results

We identified six main themes and 12 subthemes of digital parenting through thematic analysis (Fig. 4). Next, we illustrate these main themes and the related background factors. The quotes in this section are excerpts from parent's written responses.

Parenting Styles Related to Digital Technology

When describing digital parenting, the parents highlighted the types of rules and agreements they use and how they try to control, support, and guide their children's digital technology use. Two subthemes were generated: "Restrictive" and "Supportive". In the "Restrictive" subtheme, the methods used to control or limit children's digital technology use were highlighted. This included limiting their screen time, using parental control tools, and setting restrictions on digital technologies based on location (for instance, not allowing phones during family meals or before bedtime). The parents often talked about trying to guide their children away from digital technology (for instance, by encouraging them to play outside) and monitoring and supervising their use. One father monitored his children's online activities and limited their time and access to certain sites to mitigate their exposure to potentially dangerous content.

"At my children's age I always have to be careful because most of what appears is dangerous. What I do is constantly check the equipment and limit sites and access times." (Father, 48).

In the "Supportive" subtheme, the ways in which parents try to support and encourage their children's digital technology use were highlighted. The parents mentioned that they mostly attempt to have discussions and open communication with their children about digital technology use and encourage their children to use it. Some parents highlighted that they do not have any rules or only a few rules regarding digital technology use. One father encouraged the use of digital technology by demonstrating its different uses to his child.

"As a parent, I try to show my child various aspects of technology. For example, the fact that in addition to games, which I do not consider to be anything bad, there are also educational applications, for example for learning languages, etc." (Father, 40).

Of the participants, 92% mentioned the different ways they try to restrict and control their children's digital technology use, and 47% mentioned the different ways they try to support it. We found a significant relationship between guardian type and whether the participants' responses related to the subtheme "Restrictive" ($\chi^2 = 6.4$, df = 1, $p < 0.05$, Cramer's V = 0.22, 90% CI = [0.09, 0.34]). Mothers were more likely to talk about restricting their children's digital technology use than fathers (Fig. 5).

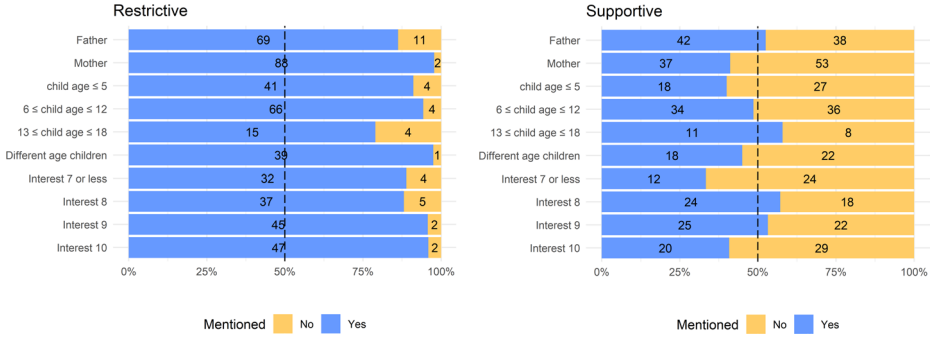

Fig. 5 Parents' background factors and percentages regarding whether or not they mentioned the "Restrictive" or "Supportive" subthemes

Social Interaction Through Digital Technology

In this theme the parents described how digital technology has shaped social interactions in the family. We generated two main subthemes: "Benefits to social interaction" and "Downsides to social interaction". How digital technology supports family relationships was mentioned in the "Benefits to social interaction" subtheme. Parents were largely emphasising that digital technologies help them to be in touch with their family—for instance, via text messages or video calls—and relatives who live far away. Moreover, by enabling family members to enjoy a game night or watch movies together, digital technology nurtures family relationships. According to one mother, digital technology helped her family stay in touch with each other effortlessly and thus easily nurture the family relationships.

"My wider family were not particularly communicative growing up and so having things like whatsapp groups has really encouraged us to keep in touch regularly and share information. I think it's broadly been really positive for us, as we don't all get together very often." (Mother, 34).

In the "Downsides to social interaction" subtheme, digital technologies negative impacts on family interactions were highlighted. Parents were often mentioning that digital technologies have reduced face-to-face interactions: family members were, for instance, more interested in engaging with their own phones than having conversations. Family relationships were also affected, with children, for example, mostly using their phones or any other digital technology instead of spending time with their families. Cyberbullying and online harassment and their negative effects on children were also highlighted as concerns. One mother observed that her conversations and face-to-face interactions with her child decreased due to her daughter spending most of her time with her phone.

"We do not have conversations as much as we used to, my daughter would send me a message on the phone while we are both in the same house, rather than come talk to me face to face. And the less eye contact." (Mother, 26).

Of the participants, 78% mentioned something related to the "Benefits to social interaction" subtheme, while half (49%) of them mentioned something related to the "Downsides to social interaction" subtheme. We found no statistically significant difference between the background factors in either of the subthemes (Fig. 6).

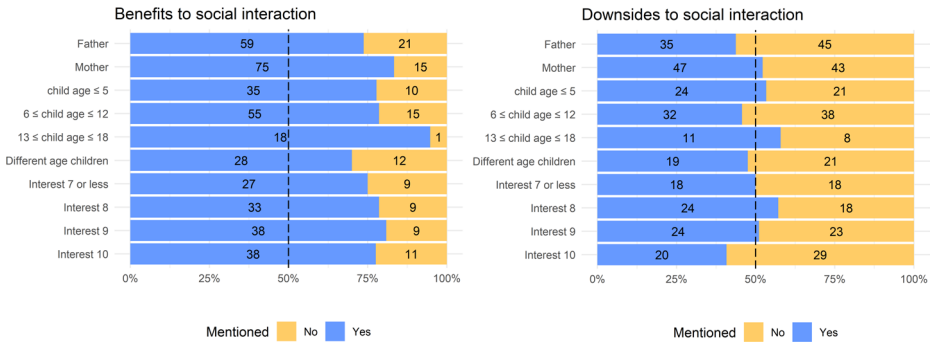

Fig. 6 Parents' background factors and percentages regarding whether or not they mentioned the "Benefits to social interaction" or "Downsides to social interaction" subthemes

Activities Involving Digital Technology

The parents described the types of activities they engage in using digital technology, either separately or as a family, and we divided these activities into two subthemes: "Individual use" and "Joint use". We divided the "Individual use" subtheme into two sub-subthemes: "Child's use" and "Parent's use". In the "Child's use" subtheme, the parents discussed their children's individual digital technology use The parents mainly mentioned that their children play games or watch something, such as YouTube videos, alone, and that they use digital technology to acquire information, for example, by watching educational videos. According to one mother, her child plays online games alone and creates digital art and animated videos.

"Alone he [the child] plays Roblox, *Minecraft*, *and games like that. He also animates videos and draws cartoons."* (Mother, 30).

In the "Parent's use" subtheme, parents discussed their own individual digital technology use. The parents largely discussed using digital technology to ensure their children's safety by tracking them or to acquire information, for instance, they use it to obtain information that benefits their children's education or their work. One father installed tracking devices on his children's phones to track and be in touch with them, and to know who they are with.

"Trying to contact children when they have gone out and also having a tracking device on their phones to see where they are and sometimes who they are with." (Father, 46).

In the "Joint use" subtheme, the activities a family engages in together were mentioned. Parents were highlighting that they, for example, watch movies on streaming services, play online games, acquire information (e.g., using educational apps), make videos, take pictures, and help their children with online schoolwork.

"We've explored virtual tours of museums and cultural sites from around the world." (Father, 37).

"We have regular movie nights where we choose a family-friendly film or documentary to watch together." (Mother, 24).

Of the parents, 80% mentioned individual digital technology use, while 87% mentioned the activities their families do together. In the "Joint use" subtheme, parents' technological interest did differ. Those who rated their interest and competence in digital technology use with a value of 7 or less (0 (not at all) to 10 (extremely)) were less likely to mention joint digital technology use than those who rated their interest with a value of 8 or 10 (Fisher's exact $p < .05$; Cramer's V = 0.23; 90% CI = [0.06,0.33]) (Fig. 7).

Benefits of Digital Technology for Family

The parents mentioned that digital technology has made their families' lives easier and that it offers several benefits. We generated two key subthemes: "More scope for learning" and "Usefulness". In the "More scope for learning" subtheme, how digital technology has made learning and developing new skills easier and more engaging was highlighted. Many parents brought up that digital technology aids in skill development and supports schoolwork. Moreover, it offers a wide range of accessible learning materials and can make learning more engaging (for instance, children can learn English through video games). One mother learned musical instruments online with her children by watching weekly instructional videos (see Mother, 41). Another child quickly learnt the alphabet and basic numeracy

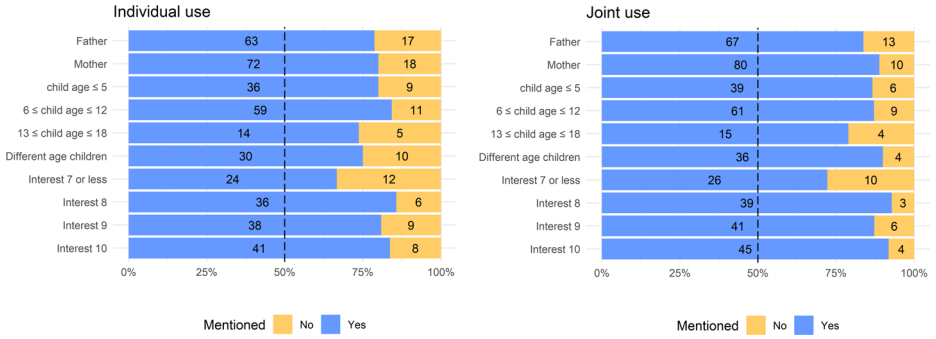

Fig. 7 Parents' background factors and percentages regarding whether or not they mentioned the "Individual use" and "Joint use" subthemes

by watching educational programmes on platforms such as YouTube and using educational apps (see Mother, 47).

"My kids learn musical instruments online. So we do this together. Each week, we will watch videos that teach us how to use musical instruments such as the violin, cello, flute and the piano." (Mother, 41).

"My children learnt alphabet and basic numeracy faster, thanks to watching educational programs on Youtube, BBCiPlayer and using educational apps on the smartphone." (Mother, 47).

In the "Usefulness" subtheme, the parents highlighted how digital technology has simplified their family's everyday life, offering benefits related to time management and generally improving their lives due to its overall convenience. Moreover, digital technology offers a variety of entertainment options, creates more time for parents to do other things (for example, children can watch TV shows on streaming services while their parents complete household chores or relax). One mother shared how her son, who loves reading, used a Kindle to access books online or listen to audiobooks, highlighting how digital technology has made it easier for him to enjoy books that would be difficult to find or access otherwise.

"My son loves reading and it's hard to go to the library all the time or try to find the books he wants. He's started using the kindle to read books online or even listen through audio books. It's helped him get access to books he otherwise wouldn't have." (Mother, 37).

Of the parents, 73% mentioned something related to the "More scope for learning" subtheme, while 63% mentioned something related to the "Usefulness" subtheme. No association was found between the background factors on either subtheme (Fig. 8).

Downsides of Digital Technology for Family

Digital technology's downsides on families were highlighted, and we divided the theme into two subthemes: "Digital concerns" and "Negative digital experiences". The "Digital concerns" subtheme highlights parents' concerns regarding digital technology's potential negative impacts on their family. Parents were largely concerned about digital technology harming their children's mental and physical health (for instance, they were worried that their children will develop poor eyesight or stop engaging in physical activities) and distracting them from real-life activities (for instance, they were concerned that their children

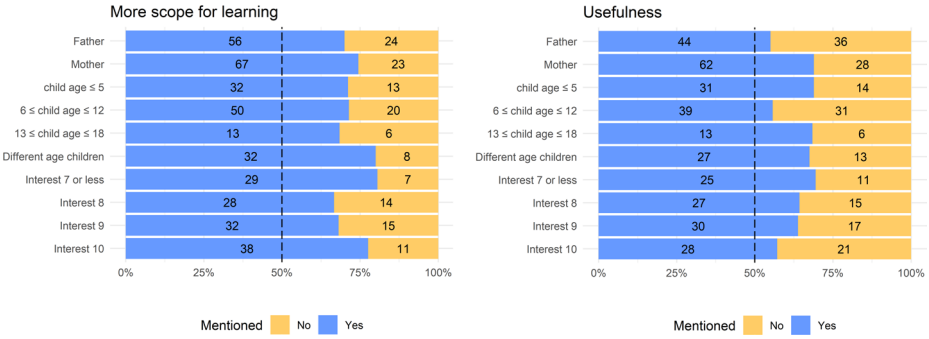

Fig. 8 Parents' background factors and percentages regarding whether or not they mentioned the "More scope for learning" and "Usefulness" subthemes

will find playing indoors with their tablets more tempting than going outside). Concerns about social media's negative effects and the access to inappropriate content online were also highlighted. One father mentioned their concern about how easy it is for children to access pornographic material online.

"Furthermore, there is always access to pornographic material, which is very easy to obtain from a computer. This worries me." (Father, 46).

In the "Negative digital experiences" subtheme, parents were emphasising the negative experiences of digital technology in their family. In this subtheme the parents were reporting in a more concrete way, than in the "Digital concerns" subtheme, the negative impacts of digital technology to the family, i.e. what they saw that was happening to their children and how digital technologies were influencing them. We divided the "Negative digital experiences" subtheme into three sub-subthemes: "Negative immersion", "Laziness", and "Influence". The parents mostly discussed excessive digital technology use and how it distracts them and lowers their focus (for instance, they often check their phones during conversations). Moreover, the negative immersion in the digital world was highlighted (for instance, a family member was so immersed in their phone that they were unaware of what was going on around them). A father mentioned that, despite the limitations he had set, his children quickly became addicted to digital technology, which influenced their behaviour (see Father, 41). Digital technology can also make people less active—for instance, a parent reported that a family member chose to send them a text message instead of coming to the room where they were. A mother mentioned that family's daily activities have become more oriented towards passive digital engagement (see Mother, 26). That digital technology can negatively influence their children—for instance, children imitating the bad behaviour they see online—was also emphasised.

"In our family, there was a problem that children quickly became addicted to digital "tools" such as tablets or consoles because, despite our prohibitions, they still wanted to use them, which affected their behavior." (Father, 41).

"The kind of negative things that has been brought by digitalization in my life and my children and family as a whole, is laziness. Digitalization has brought laziness in our lives, instead of working, doing chore or reading a book, we are busy glued to our screen, streaming or scrolling on social media." (Mother, 26).

Of the parents, around half (51%) mentioned something related to the "Digital concerns" subtheme, while 65% mentioned something related to the "Negative digital experiences" subtheme. In the "Negative digital experiences" subtheme, the guardian type and the children's age did differ. Mothers were more likely to discuss digital technology's negative impacts on their families than fathers ($\chi^2 = 5.5$, df = 1, $p < .05$, Cramer's V = 0.19, 90% CI = [0.07,0.32]). Parents with children between the ages of 6 and 12 were more likely to mention the negative impacts than those only with children under 6 years ($\chi^2 = 5.7$, df = 1, $p < .05$, Cramer's V = 0.28, 90% CI = [0.11,0.46]) (Fig. 9).

The Desired Changes to Digital Technology

In this theme, parents were reporting what they would like to change in digital technology if they had the power to do so. From the parents' responses regarding the changes they desired to see in digital technology, we generated two subthemes: "Technological improvements" and "Desired common regulations". In the "Technological improvements" subtheme, the parents reported the improvements they would like to see in digital technology, largely emphasising the need for better digital privacy and more training for children to ensure digital technology's responsible use. According to one father, it is important to improve digital literacy and cybersecurity awareness to ensure that individuals can safely navigate the digital world (see Father, 50). The need to improve digital security for children's safety and the need to include more educative content, accessible parental guides, and technological designs that prioritise ethical practices were also highlighted. One father desired more educational content that caters to different age groups (see Father, 41).

"Improving digital literacy and cybersecurity awareness is crucial to empower individuals to navigate the digital world safely, make informed choices, and protect their privacy and security." (Father, 50).

"I would like more producers of such tools to focus on educational values and adapting the tests to specific age groups, because honestly, it varies." (Father, 41).

In the "Desired common regulations" subtheme, the parents highlighted the digital technology issues for which they desired regulations. Parents were highlighting the need for more child access controls (for example, the ability to restrict websites that are inappropriate for children or the availability of more tools to monitor when a child is online). According to one father, more monitoring tools are needed to ensure that an underage child can safely

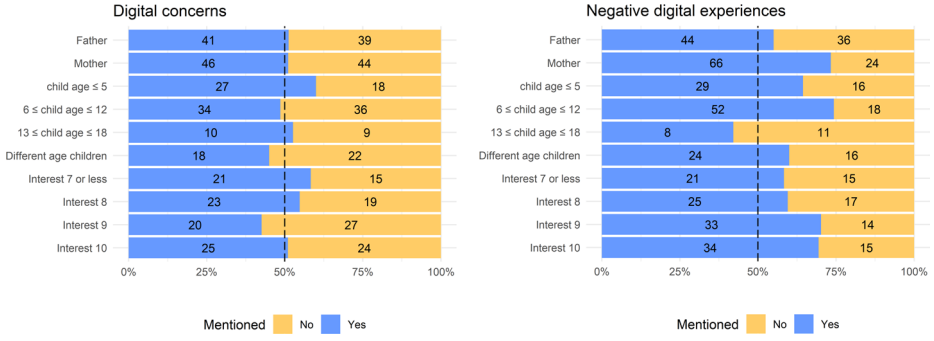

Fig. 9 Parents' background factors and percentages regarding whether or not they mentioned the "Digital concerns" and "Negative digital experiences" subthemes

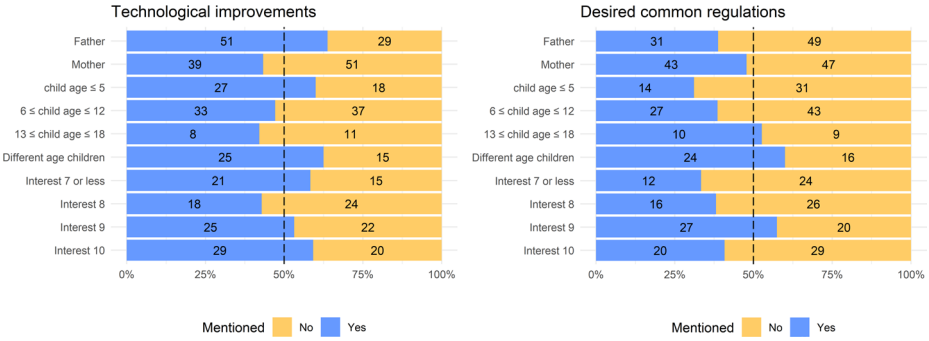

Fig. 10 Parents' background factors and percentages regarding whether or not they mentioned the "Technological improvements" and "Desired common regulations" subthemes

use digital technologies (see Father, 34). Moreover, the parents emphasised the need for age-restricting websites, regulating social media platforms, mitigating the addictive side of digital technologies, and having stricter time regulations for apps and other digital technologies. Regarding the importance of blocking inappropriate content, a mother highlighted the need to manage communication on social media (see Mother, 39).

"In this digital age, I would like to see a lot more monitoring tools employed to secure searches done on devices that have been registered under underage people. I am also of the opinion that only verified websites should appear on searches done on devices registered for underage kids." (Father, 34).

"I would limit social media and put blocks on how young people can communicate on it - blocks on unpleasant messaging and on the material that can be sent (pornography, violence etc)." (Mother, 39).

Of the parents, 53% mentioned something related to the "Technological improvements" subtheme, while 43% mentioned something related to the "Desired common regulations" subtheme. The guardian type did differ in the subtheme "Technological improvements". Fathers were more likely to mention the ways in which they would like to improve digital technologies than mothers ($\chi^2 = 6.3$, df = 1, $p < .05$, Cramer's V = 0.20, 90% CI = [0.08,0.33]). In the "Desired common regulations" subtheme, an association was found between children's ages. Parents with children of different ages were more likely to mention the ways in which they would like to regulate digital technology than those with children under 6 years ($\chi^2 = 6.0$, df = 1, $p < 0.05$, Cramer's V = 0.29, 90% CI = [0.11,0.47]) or those with children between the ages of 6 and 12 years ($\chi^2 = 3.9$, df = 1, $p = 0.05$, Cramer's V = 0.21, 90% CI = [0.05,0.36]) (Fig. 10).

Discussion

We examined parents' views of digital parenting using mixed-method analysis. First, we used a thematic analysis to construct key themes from the participants' responses. Second, we examined whether background factors (i.e., guardian type, children's age, and parents' interest and competence in using digital technology) are related to the created themes and which theme they were more likely to mention.

Our results revealed six main themes with 12 subthemes. The most frequently discussed subtheme was the restrictive approach to digital technology. Overall, parents focused more in their responses on limiting their children's digital use than on supporting or encouraging it. Our findings suggest that parents lean more towards restrictive parental mediation than supportive parental mediation. Some of them emphasised that they limit their children's screen time because of their young age or because they fear its potential risks to children. Others highlighted the need to limit screen time because children would otherwise use digital technology excessively. Evidently, the parents revealed different perspectives on why they restrict their children's screen time. Mothers, more than fathers, were found to impose restrictions and emphasise digital technology's negative impacts on their family life. Generally, mothers seem to be more aware and involved in their children's activities online (e.g., Dedkova & Smahel, 2020) as well as offline (Crouter & Head, 2002; Waizenhofer et al., 2004). Fathers seem to receive information about their children's activities from mothers, whereas mothers seem to acquire this information from supervising their children (Crouter & Head, 2002; Waizenhofer et al., 2004). This could result in mothers being more perceptive of digital technology's negative impacts on their family—that, for instance, it fully occupies their child's attention—thus prompting them to impose more restrictions than fathers. Fathers, on the other hand, are more likely to suggest improvements to digital technology, perhaps because they are less focused on restrictions. Overall, digital technology's effects on children remain somewhat ambiguous, with many parents adopting restrictive measures as a cautious approach. Parents seem to be adopting more restrictive parental mediation than supportive parental mediation. Balancing digital benefits and risks can be challenging, and for many parents, reducing risks feels easier and safer than actively fostering opportunities. However, it is important to recognise that excessive restrictions could limit a child's social networks and learning opportunities.

The second most mentioned subtheme concerned joint activities involving digital technologies. Many parents watch streaming services or play video games with their family members, seeing these activities as easy ways to bond and strengthen family cohesion. Co-use behaviour has been suggested to potentially nurture family life and parent–child interactions (Coyne et al., 2016; Padilla-Walker et al., 2012). While parents might worry that their family members are isolating themselves with their devices, many parents have found a variety of digital activities they can do with their family and thus nurture their family relationships (e.g., Beyens & Beullens, 2017; Festl & Gniewosz, 2019). Since digital technologies are becoming more prevalent in our everyday lives, integrating them into family life and rituals and engaging in more joint activities can benefit children's interaction skills and nurture family cohesion. Regarding background factors, the parents with the least interest and competence in using digital technology were less likely to mention joint use of digital technology in the family than those who showed more interest and competence. The former, possibly feeling more negatively or ambiguously towards digital technologies, did not mention or possibly even use digital technologies as much as the latter. This indicates that digital agency (e.g., Passey et al., 2018) could potentially influence digital parenting. These results are also in line with the findings of Rodafinos et al. (2024) who found that a student's digital competence is positively associated with their intent to use digital technology for learning. Moreover, if children or other family members use digital technologies more than parents, this could mean less togetherness and reduced family interactions. It is thus important to further study parents' digital agency and its possible connection to family cohesion.

The third most commonly recurring subtheme concerned the individual use of digital technologies by both parents and children, such as playing games alone. While independent digital technology use can provide personal entertainment and help develop one's skills, such as problem solving, it may also reduce opportunities for meaningful family interactions, potentially leading to feelings of isolation. For parents, finding the right balance between when gaming can become excessive and when it can bring joy and benefits can be challenging. Some studies have emphasised gaming's negative impacts, such as gaming addiction and insufficient sleep (Chan et al., 2022), while others have highlighted its clear benefits—if it is mentally stimulating and done in moderation, that is (Boyle et al., 2016). More longitudinal studies focused on the effects of digital activities are needed to help parents determine the optimal duration for children and adolescents to engage in these activities. Specifically, we need to understand for whom and under what circumstances different digital activities might be harmful or beneficial.

Compared to digital technology's negative impacts on social interactions, most of the parents mentioned its positive impacts. The most prevalent way in which digital technologies have benefitted social interactions is by making it easier to stay in touch with family members. While people might feel that digital technologies reduce live face-to-face interactions, at the same time they connect and bring distant family members together. To nurture family interactions, finding digital activities every family member can enjoy together, such as playing videogames, can potentially narrow the social gap between family members, reduce their feelings of isolation, and balance family cohesion.

The fifth most commonly mentioned subtheme concerned learning (the "More scope for learning" subtheme), where the parents highlighted the utility value of digital technologies for learning. Though parents do recognise and perceive that digital technology benefits their children's learning, even after school, most of them talked about restricting instead of encouraging digital technology use. In a study on Greek children's mobile usage, Papadakis et al. (2019) also found similar results. Parents seem to struggle to find the balance between restricting and supporting children's digital technology use, but parent's overall have a positive view of digital technologies and want to support their children's learning both online and offline. Evidently, it is important from the perspective of children's learning to understand digital parenting and how it might impact children's academic outcomes, as there is also evidence for "classical" parenting influencing children's academic outcomes (e.g., Carlo et al., 2018; Kaniušonytė & Laursen, 2021). Schools have also been increasingly integrating digital technologies into their curricula (for instance, by assigning homework that needs to be digitally completed). It is thus important to further explore how parents can help their children study and learn using digital technology and how this might impact children's learning outcomes, especially those of children with learning problems, such as dyslexia or dyscalculia.

Families with children under six years of age were less likely to mention digital technology's negative impacts on families than those with children aged between six and 12 years. Children under the age of six are too young to use digital technologies independently, so the impact of these digital technologies, whether positive or negative, is possibly less apparent. Typically, children start using digital technologies, including phones, when they enter school, which is also when parents must regulate their digital technology use, as the children in this age group do not have developed self-regulation skills. In contrast, families with older children are more likely to express a desire for more common and stricter digital

technology regulations. As children grow more independent, parents have less control over their online activities. The lack of control may increase parents' concerns and motivate their desire for more external regulations, such as age restrictions on websites, apps or digital technologies.

As digital technology continuously evolves and changes, related parenting practices must also constantly adapt. Some of the perspectives described by this study's parents are related to factors they could influence themselves, while others are related to issues that are beyond most parents' control, such as the development of technology. The most common topics of the main theme "The desired changes to digital technologies" were all related to children's safety when using digital technologies and the need for more child access controls. That these topics were the most frequently mentioned ones indicates that digital technologies' safety seems to be the parents' main concern, which can potentially influence their motivation to restrict rather than support and encourage digital technology use.

Our findings illustrate that parents struggle to find ways to guide their children in areas where they themselves may not have full control, especially as children grow older and use various software and applications more independently. Social media platforms in particular do not prioritize the well-being and health of children or young people. Usually, the logic is the opposite. Algorithms are designed to be highly addictive and to keep the user engaged (e.g., Costello et al., 2023). Many parents might not have enough understanding of this, but they might be able to feel and see the negative effects it has on their children. This makes controlling digital technologies even more stressful for parents. Parents may wish it was a shared problem, and that they are not alone with it. Parents may therefore highlight the need for more common constraints and ways to regulate and limit children's use of digital technologies—a wish to externalize constraints so that the responsibility does not solely lie with parents.

Our study suggests that this type of collective parenting, where parents share common rules, could become more prevalent due to digital technology. Also, since most of the connection to peers nowadays happens through digital technology, parents may be concerned that if other families have different rules regarding digital technology use, this could affect their children's relationship with others. Children might be excluded from friendship circles thereby limiting their social networks. More common and shared rules could potentially mitigate this.

Limitations and Future Research

Our international respondents came from diverse cultural and societal contexts, and the concentration of responses from certain contexts might have influenced the themes that were created. For instance, the perceptions of societal safety might have shaped how online accessibility was emphasised in the responses, with variations likely between regions such as the Nordic countries and the USA. On the other hand, this diversity enriches and adds depth to our data by introducing different perspectives—this can be considered a strength in light of thematic analysis and the qualitative approach. Western countries were strongly represented in this study. Also, in the statistical analyses, we were not able to consider the country of our respondents. As such, future research should study digital parenting in other cultures and countries to explore whether there are cultural differences that might influence digital parenting.

Participants were asked many open-ended questions, and to avoid overwhelming participants, we used a single-item response to measure parents' interest and competence in using digital technology, i.e. the Net promoter score (Reichheld, 2003). In each open-ended question, participants had a minimum character count. This might have shaped the depth of the responses. Also, in this study we used only parents' responses. Future studies should examine digital parenting more thoroughly through observations and interviews. Moreover, children's perspective should be considered.

We did not consider the socioeconomic status, employment, or educational level of our respondents. These factors should be considered in future studies. Future studies should also represent parents with lower competence and interest in using digital technologies, as our participants had overall high competence and interest. Furthermore, future studies should also examine whether there are any other hitherto undiscovered concepts regarding parenting strategies in the context of digital technology. Longitudinal studies should also explore digital parenting's role in overall parenting during children's developmental phases. Moreover, more knowledge is needed on the impact of digital parenting on children's long-term development and well-being. There is strong evidence in the literature that parenting is a crucial indicator of several children's future academic and socio-emotional outcomes (e.g., Carlo et al., 2018; Kaniušonytė & Laursen, 2021).

Effect sizes in our study regarding statistical analyses were small. This suggests that also other background factors are likely to influence digital parenting. Future studies are also needed to examine other contributing factors, such as parenting style and child's difficulties in learning. How the parents perceived their interest and competence in using digital technologies was associated with being more likely to mention their family's joint digital technology use. Their attitude towards digital technology and digital agency should be further explored, as it could indicate how parents raise their children with and for digital technology. Further, the parenting styles of mothers and fathers regarding digital technology use should be studied, as mothers were more likely to mention restricting digital technology than fathers. Lastly, future studies should explore digital technologies' negative impact on families, especially with children between 6 and 12 years, and how to mitigate it.

Conclusion

The digital world entails many risks, such as exposure to violence or sexual content and the addictive aspects of technology, as well as opportunities for learning, social connection, and digital literacy. In this study, restricting digital technologies (by, for instance, limiting screen time) was largely emphasised by the parents—they are inclined towards mitigating risks rather than supporting digital technology use. Nevertheless, they have devised several ways to implement digital technologies in their family life and use them with family members. Using digital technology alone could potentially lead to isolation and less interaction between family members, but it also offers opportunities for personal entertainment and developing skills, such as problem-solving. Additionally, digital technology was highlighted as being more beneficial than harmful to family interactions, thereby nurturing family relationships.

As described by the parents, digital parenting seems to involve balancing knowledge, trust, and setting safe boundaries while helping children learn to use digital technolo-

gies safely and responsibly. Finally, the various aspects of digital interactions in families and social interactions among peers make digital parenting a complex and multifaceted challenge.

Research Ethics

The study follows the principles of the Declaration of Helsinki (World Medical Association [WMA], 2013) and the guidelines of the Finnish National Board on Research Integrity (TENK, 2019). The participants were informed about the details of the study, and they were assured that participation is voluntary. Written electronic informed consent was acquired from the participants prior to the commencement of the study. All participants were informed that they are allowed to withdraw from the study at any time. Participants were also compensated via Prolific.co for their participation into study.

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Data Availability The dataset supporting our results can be obtained from the corresponding author upon request.

Declarations

Competing Interests The authors declare no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

References

Allaby, M., & Shannon, C. S. (2020). I just want to keep in touch: Adolescents' experiences with leisure-related smartphone use. *Journal of Leisure Research*, *51*(3), 245–263. https://doi.org/10.1080/00222216.2019.1672506

Baer, J. (2002). Is family cohesion a risk or protective factor during adolescent development? *Journal of Marriage and the Family*, *64*(3), 668–675. https://doi.org/10.1111/j.1741-3737.2002.00668.x

Balleys, C. (2022). Familial digital mediation as a gendered issue between parents. *Media Culture & Society, 44*(8), 1559–1575. https://doi.org/10.1177/01634437221119020

Benedetto, L., & Ingrassia, M. (2021). Digital parenting: Raising and protecting children in media world. In L. Benedetto & M. Ingrassia (Eds.), *Parenting: Studies by an ecocultural and transactional perspective* (pp. 127–148). IntechOpen. https://doi.org/10.5772/intechopen.92579

Beyens, I., & Beullens, K. (2017). Parent–child conflict about children's tablet use: The role of parental mediation. *New Media & Society*, *19*(12), 2075–2093. https://doi.org/10.1177/1461444816655099

Bian, Y., Jin, K., & Zhang, Y. (2024). The association between family cohesion and depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, *355*, 220–230. https://doi.org/10.1016/j.jad.2024.03.138

Boyle, E. A., Hainey, T., Connolly, T. M., Gray, G., Earp, J., Ott, M., Lim, T., Ninaus, M., Ribeiro, C., & Pereira, J. (2016). An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games. *Computers & Education, 94*, 178–192. https://doi.org/10.1016/j.compedu.2015.11.003

Bozzola, E., Spina, G., Agostiniani, R., Barni, S., Russo, R., Scarpato, E., Di Mauro, A., Di Stefano, A. V., Caruso, C., Corsello, G., & Staiano, A. (2022). The use of social media in children and adolescents: Scoping review on the potential risks. *International Journal of Environmental Research and Public Health, 19*(16), Article 9960. https://doi.org/10.3390/ijerph19169960

Bradley, R. H. (2019). Environment and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting volume 2: Biology and ecology of parenting* (pp. 474–518). Routledge.

Brannigan, R., Gil-Hernández, C. J., McEvoy, O., Cronin, F., Stanistreet, D., & Layte, R. (2022). Digital engagement and its association with adverse psychiatric symptoms: A longitudinal cohort study utilizing latent class analysis. *Computers in Human Behavior, 133*, Article 107290. https://doi.org/10.1016/j.chb.2022.107290

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Carlo, G., White, R. M. B., Streit, C., Knight, G. P., & Zeiders, K. H. (2018). Longitudinal relations among parenting styles, prosocial behaviors, and academic outcomes in U.S. Mexican adolescents. *Child Development*, *89*(2), 577–592. https://doi.org/10.1111/cdev.12761

Chan, G., Huo, Y., Kelly, S., Leung, J., Tisdale, C., & Gullo, M. (2022). The impact of esports and online video gaming on lifestyle behaviours in youth: A systematic review. *Computers in Human Behavior, 126*, Article 106974. https://doi.org/10.1016/j.chb.2021.106974

Chase, G. E., Brown, M. T., & Jensen, M. (2022). Emerging adults' digital technology engagement and mental health during the COVID-19 pandemic. *Frontiers in Psychology, 13*, Article 1023514. https://doi.org/10.3389/fpsyg.2022.1023514

Chen, L., & Shi, J. (2019). Reducing harm from media: A meta-analysis of parental mediation. *Journalism & Mass Communication Quarterly, 96*(1), 173–193. https://doi.org/10.1177/1077699018754908

Choroszewicz, M. (2024). Addressing youths' digital agency with internet technologies: Discourses and practices that produce inequalities. *Journal of Youth Studies*. https://doi.org/10.1080/13676261.2024.2343698

Choy, Y. N., Lau, E. Y. H., & Wu, D. (2024). Digital parenting and its impact on early childhood development: A scoping review. *Education and Information Technologies, 29*(16), 22147–22187. https://doi.org/10.1007/s10639-024-12643-w

Clark, L. S. (2011). Parental mediation theory for the digital age. *Communication Theory, 21*(4), 323–343. https://doi.org/10.1111/j.1468-2885.2011.01391.x

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge.

Costello, N., Sutton, R., Jones, M., Almassian, M., Raffoul, A., Ojumu, O., Salvia, M., Santoso, M., Kavanaugh, J. R., & Austin, S. B. (2023). ALGORITHMS, ADDICTION, and ADOLESCENT MENTAL HEALTH: An interdisciplinary study to inform state-level policy action to protect youth from the dangers of social media. *American Journal of Law & Medicine, 49*(2–3), 135–172. https://doi.org/10.1017/amj.2023.25

Coyne, S. M., Jensen, A. C., Smith, N. J., & Erickson, D. H. (2016). Super Mario brothers and sisters: Associations between coplaying video games and sibling conflict and affection. *Journal of Adolescence, 47*(1), 48–59. https://doi.org/10.1016/j.adolescence.2015.12.001

Coyne, S. M., Padilla-Walker, L. M., Stockdale, L., & Day, R. D. (2011). Game on… girls: Associations between co-playing video games and adolescent behavioral and family outcomes. *Journal of Adolescent Health, 49*(2), 160–165. https://doi.org/10.1016/j.jadohealth.2010.11.249

Crouter, A. C., & Head, M. R. (2002). Parental monitoring and knowledge of children. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 3. Being and becoming a parent* (2nd ed., pp. 461–483). Lawrence Erlbaum Associates.

Dedkova, L., & Smahel, D. (2020). Online parental mediation: Associations of family members' characteristics to individual engagement in active mediation and monitoring. *Journal of Family Issues*, *41*(8), 1112–1136. https://doi.org/10.1177/0192513X19888255

Duffy, S., & Derevensky, J. (2022). Helping parents understand the content of video games: Updating the ESRB rating system. *Journal of Children and Media, 16*(4), 606–612. https://doi.org/10.1080/17482798.2022.2124696

Fang, C. Y., Egleston, B. L., Brown, K. M., Lavigne, J. V., Stevens, V. J., Barton, B. A., & Dorgan, J. F. (2009). Family cohesion moderates the relation between free testosterone and delinquent behaviors in adolescent boys and girls. *Journal of Adolescent Health, 44*(6), 590–597. https://doi.org/10.1016/j.jadohealth.2008.11.018

Festl, R., & Gniewosz, G. (2019). Role of mothers' and fathers' internet parenting for family climate. *Journal of Social and Personal Relationships*, *36*(6), 1764–1784. https://doi.org/10.1177/0265407518771753

Fidan, N. K., & Olur, B. (2023). Examining the relationship between parents' digital parenting self-efficacy and digital parenting attitudes. *Education and Information Technologies, 28*(11), 15189–15204. https://doi.org/10.1007/s10639-023-11841-2

Finnish National Board on Research Integrity [TENK]. (2019). The ethical principles of research with human participants and ethical review in the human sciences in Finland. Finnish National Board on Research Integrity TENK guidelines 2019. Retrieved February 6, 2026, from https://tenk.fi/en/advice-and-materials/guidelines-ethical-review-human-sciences

Grüne, B., & Willems, D. (2024). Help-seeking for bullying victimization among adolescents in Germany. *Child & Youth Care Forum, 53*(6), 1379–1397. https://doi.org/10.1007/s10566-024-09799-4

Guest, G. (2012). Describing mixed methods research: An alternative to typologies. *Journal of Mixed Methods Research, 7*(2), 141–151. https://doi.org/10.1177/1558689812461179

Heilala, V., Jääskelä, P., Saarela, M., & Kärkkäinen, T. (2024). Adapting teaching and learning in higher education using explainable student agency analytics. In Z. Lv (Ed.), *Principles and applications of adaptive artificial intelligence* (pp. 20–51). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-0230-9.ch002

Järvinen, J., Maksniemi, E., Hietajärvi, L., Gale, J., Bossens, E., & Salmela-Aro, K. (2023). *Situational and daily technology use and wellbeing among adolescents. A report on the findings from an ESM study conducted in Belgium and Finland*. Zenodo. https://doi.org/10.5281/zenodo.8304936

Jordan, A., & Natarajan, N. (2024). From tv to social media to ambient AI: Insights from 30 years of children's media policy in the United States. *Journal of Children and Media, 18*(3), 378–385. https://doi.org/10.1080/17482798.2024.2345530

Kaniušonytė, G., & Laursen, B. (2021). Parenting styles revisited: A longitudinal person- oriented assessment of perceived parent behavior. *Journal of Social and Personal Relationships*, *38*(1), 210–231. https://doi.org/10.1177/0265407520960818

Kardefelt-Winther, D., Rees, G., & Livingstone, S. (2020). Contextualising the link between adolescents' use of digital technology and their mental health: A multi-country study of time spent online and life satisfaction. *Journal of Child Psychology and Psychiatry*, *61*(8), 875–889. https://doi.org/10.1111/jcpp.13280

Lafton, T., Wilhelmsen, J. E. B., & Holmarsdottir, H. B. (2024). Parental mediation and children's digital well-being in family life in Norway. *Journal of Children and Media, 18*(2), 198–215. https://doi.org/10.1080/17482798.2023.2299956

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159–174. https://doi.org/10.2307/2529310

Laws, R., Walsh, A. D., Hesketh, K. D., Downing, K. L., Kuswara, K., & Campbell, K. J. (2019). Differences between mothers and fathers of young children in their use of the internet to support healthy family lifestyle behaviors: Cross-sectional study. *Journal of Medical Internet Research, 21*(1), Article e11454. https://doi.org/10.2196/11454

Livingstone, S., & Helsper, E. J. (2008). Parental mediation of children's internet use. *Journal of Broadcasting & Electronic Media*, *52*(4), 581–599. https://doi.org/10.1080/08838150802437396

Livingstone, S., Mascheroni, G., & Staksrud, E. (2018). European research on children's internet use: Assessing the past and anticipating the future. *New Media & Society*, *20*(3), 1103–1122. https://doi.org/10.1177/1461444816685930

McNamee, P., Mendolia, S., & Yerokhin, O. (2021). Social media use and emotional and behavioural outcomes in adolescence: Evidence from British longitudinal data. *Economics & Human Biology, 41*, Article 100992. https://doi.org/10.1016/j.ehb.2021.100992

McNeal, R. B., Jr. (1999). Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social Forces, 78*(1), 117–144. https://doi.org/10.1093/sf/78.1.117

Nielsen, P., Favez, N., Liddle, H. A., & Rigter, H. (2019). Linking parental mediation practices to adolescents' problematic online screen use: A systematic literature review. *Journal of Behavioral Addictions, 8*(4), 649–663. https://doi.org/10.1556/2006.8.2019.61

Olson, D. H., Waldvogel, L., & Schlieff, M. (2019). Circumplex model of marital and family systems: An update. *Journal of Family Theory and Review, 11*(2), 199–211. https://doi.org/10.1111/jftr.12331

Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing*, *16*(1), 105–114. https://doi.org/10.1007/s00779-011-0412-2

Padilla-Walker, L. M., Coyne, S. M., & Fraser, A. M. (2012). Getting a high-speed family connection: Associations between family media use and family connection. *Family Relations, 61*(3), 426–440. https://doi.org/10.1111/j.1741-3729.2012.00710.x

Page Jeffery, C. (2020). Parenting in the digital age: Between socio-biological and socio-technological development. *New Media & Society, 23*(5), 1045–1062. https://doi.org/10.1177/1461444820908606

Page Jeffery, C. (2024). Trust us! We know what we are doing!' Parent-adolescent digital conflict in Australian families. *Journal of Children and Media, 18*(4), 472–488. https://doi.org/10.1080/17482798.2024.2358947

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

Passey, D., Shonfeld, M., Appleby, L., Judge, M., Saito, T., & Smits, A. (2018). Digital agency: Empowering equity in and through education. *Technology, Knowledge and Learning, 23*(3), 425–439. https://doi.org/10.1007/s10758-018-9384-x

Peng, Y. (2022). Gendered division of digital labor in parenting: A qualitative study in urban China. *Sex Roles*, *86*(5–6), 283–304. https://doi.org/10.1007/s11199-021-01267-w

Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the goldilocks hypothesis: Quantifying the relations between digital-screen use and the mental well-being of adolescents. *Psychological Science, 28*(2), 204–215. https://doi.org/10.1177/0956797616678438

Rahali, M., Kidron, B., & Livingstone, S. (2024). *Smartphone policies in schools what does the evidence say?* The London School of Economics and Political Science. Retrieved February 3, 2026, from https://researchonline.lse.ac.uk/id/eprint/125554

Rahimi, S., & Khatooni, M. (2024). Saturation in qualitative research: An evolutionary concept analysis. *International Journal of Nursing Studies Advances, 6*, Article 100174. https://doi.org/10.1016/j.ijnsa.2024.100174

Rapp, A. M., Lau, A., & Chavira, D. A. (2017). Differential associations between social anxiety disorder, family cohesion, and suicidality across racial/ethnic groups: Findings from the National Comorbidity Survey-Adolescent (NCS-A). *Journal of Anxiety Disorders, 48*, 13–21. https://doi.org/10.1016/j.janxdis.2016.09.009

Reichheld, F. F. (2003). The one number you need to grow. *Harvard Business Review, 81*(12), 46–124.

Rodafinos, A., Barkoukis, V., Tzafilkou, K., Ourda, D., Economides, A., & Perifanou, M. (2024). Exploring the impact of digital competence and technology acceptance on academic performance in physical education and sports science students. *Journal of Information Technology Education: Research*. https://doi.org/10.28945/5309

Sanders, T., Parker, P. D., del Pozo-Cruz, B., Noetel, M., & Lonsdale, C. (2019). Type of screen time moderates effects on outcomes in 4013 children: Evidence from the Longitudinal Study of Australian Children. *International Journal of Behavioral Nutrition and Physical Activity, 16*, Article 117. https://doi.org/10.1186/s12966-019-0881-7

Schlosser, M. E. (2015). *Agency*. Stanford Encyclopaedia of Philosophy. Retrieved February 11, 2026, from https://plato.stanford.edu/entries/agency/

Sciacca, B., Laffan, D. A., O'Higgins Norman, J., & Milosevic, T. (2022). Parental mediation in pandemic: Predictors and relationship with children's digital skills and time spent online in Ireland. *Computers in Human Behavior, 127*, Article 107081. https://doi.org/10.1016/j.chb.2021.107081

Shin, T. S., Hwang, H., Park, J., Teng, J. X., & Dang, T. (2019). *Digital kids Asia-Pacific: Insights into children's digital citizenship*. UNESCO. Retrieved February 3, 2026, from https://unesdoc.unesco.org/ark:/48223/pf0000367985

Skaug, S., Englund, K. T., Saksvik-Lehouillier, I., Lydersen, S., & Wichstrøm, L. (2018). Parent-child interactions during traditional and interactive media settings: A pilot randomized control study. *Scandinavian Journal of Psychology, 59*(2), 135–145. https://doi.org/10.1111/sjop.12420

Smahel, D., Machackova, H., Mascheroni, G., Dedkova, L., Staksrud, E., Ólafsson, K., Livingstone, S., & Hasebrink, U. (2020). EU kids online 2020: Survey results from 19 countries. *LSE Research Online*. https://doi.org/10.21953/lse.47fdeqj01ofo

Soyoof, A., Neumann, M. M., Reynolds, B. L., Rezai, A., & Gözüm, A. İC. (2024). Investigating the relationship between Iranian parents' demographic factors and their mediation of children's digital gameplay at home. *Education and Information Technologies*. https://doi.org/10.1007/s10639-024-13194-w

Subaşı, S., Korkmaz, Ö., & Kukul, V. (2024). Social media parenting scale: Validity and reliability study. *Education and Information Technologies*. https://doi.org/10.1007/s10639-024-12833-6

Tan, C. Y., Pan, Q., Tao, S., Liang, Q., Lan, M., Feng, S., Cheung, H. S., & Liu, D. (2024). Conceptualization, measurement, predictors, outcomes, and interventions in digital parenting research: A comprehensive umbrella review. *Educational Research Review, 45*, Article 100647. https://doi.org/10.1016/j.edurev.2024.100647

Tkaczyk, M., Tancoš, M., Smahel, D., Elavsky, S., & Plhák, J. (2024). (In)accuracy and convergent validity of daily end-of-day and single-time self-reported estimations of smartphone use among adolescents. *Computers in Human Behavior, 158*, Article 108281. https://doi.org/10.1016/j.chb.2024.108281

Toth-Kiraly, I., Morin, A. J. S., Hietajärvi, L., & Salmela-Aro, K. (2021). Longitudinal trajectories, social and individual antecedents, and outcomes of problematic internet use among late adolescents. *Child Development*, *92*(4), E653–E673. https://doi.org/10.1111/cdev.13525

Valkenburg, P. M., Krcmar, M., Peeters, A. L., & Marseille, N. M. (1999). Developing a scale to assess three styles of television mediation: "Instructive mediation," "restrictive mediation," and "social coviewing." *Journal of Broadcasting & Electronic Media, 43*(1), 52–66. https://doi.org/10.1080/08838159909364474

Vedel, I., Kaur, N., Hong, Q. N., El Sherif, R., Khanassov, V., Godard-Sebillotte, C., Sourial, N., Yang, X. Q., & Pluye, P. (2019). Why and how to use mixed methods in primary health care research. *Family Practice, 36*(3), 365–368. https://doi.org/10.1093/fampra/cmy127

Wade-Bohleber, L. M., Braune-Krickau, K., Schneebeli, L., Gemperle, M., Haechler, R., Pehlke-Milde, J., & von Wyl, A. (2024). Smartphone use during the perinatal period: Findings from a longitudinal study with first-time parents. *Computers in Human Behavior, 154*, Article 108127. https://doi.org/10.1016/j.chb.2023.108127

Waizenhofer, R. N., Buchanan, C. M., & Jackson-Newsom, J. (2004). Mothers' and fathers' knowledge of adolescents' daily activities: Its sources and its links with adolescent adjustment. *Journal of Family Psychology, 18*(2), 348–360. https://doi.org/10.1037/0893-3200.18.2.348

Wang, B., Taylor, L., & Sun, Q. (2018). Families that play together stay together: Investigating family bonding through video games. *New Media & Society*, *20*(4), 4074–4094. https://doi.org/10.1177/1461444818767667

World Medical Association [WMA]. (2013). *Declaration of Helsinki—Ethical Principles for Medical Research Involving Human Subjects.* World Medical Association. Retrieved February 6, 2026, from https://www.wma.net//policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/

Young, K. S., & Florian, L. (2012). Researching teacher education for inclusion: Using a methodological memo. *International Journal of Research & Method in Education, 36*(4), 355–371. https://doi.org/10.1080/1743727X.2012.731391

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