Parental Guidance on Children's Use of Gadgets for Learning Purpose: A Systematic Review

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ABSTRACT

Parents are increasingly recognised as pivotal mediators who balance the benefits of gadget use with concerns over screen time. Parental involvement is crucial in selecting educational content and setting boundaries for gadget use, ensuring that technology serves as a tool for learning rather than a distraction. Moreover, parents play a vital role in fostering digital literacy, providing technical assistance, and supporting safe online practices as children navigate the digital world. This comprehensive review synthesizes findings from 24 articles spanning the years 2012–2023 to elucidate the global trend towards an increased emphasis on parental guidance in children's engagement with educational technology. The United States has emerged as a focal point, contributing the highest number of studies, with the Netherlands following. The research underscores the multifaceted role of parental guidance in children's gadget use for educational purposes, highlighting key aspects such as content selection, setting boundaries, co-usage, technical controls, and active discussion. When these strategies are employed, they positively impact children's learning outcomes. The review also identifies gaps in current research, emphasising the need for further exploration of nuanced aspects across diverse age groups and educational contexts. The long-term effects of gadget use on child development and the varying impacts of parental guidance strategies within different demographics warrant deeper investigation. The implications of this study for practice are to advocate for educators and policymakers to maximise the educational benefits for children by providing vital support structures for parents, including academic resources and practice guidelines for effective mediation. Future research is warranted to examine the lasting developmental maximise associated with children's gadget use and the differential impacts of parental guidance strategies across varied family contexts.

Keywords: children's learning, educational technology, gadget use, parental guidance, systematic review

INTRODUCTION

The advent of digital technology has revolutionized educational methods, significantly influencing children's learning through gadgets. Gadgets have permeated everyday life across a wide demographic, including children. As the Cho and Lee (2017) study highlights, even young children ages 2 to 4 engage with smartphones extensively daily. The deep-seated use of gadgets for education among children presents a vital research query: What role do parents play in managing and impacting their children's learning via gadgets in the digital era? This emerging reality warrants an in-depth examination of the extent and nature of parental involvement as gadgets become increasingly integral to the learning environment. Despite the volume of studies, there is a conspicuous gap in systematic knowledge concerning the specific facets of parental engagement most commonly emphasized. There is a pressing need for a systematic analysis to synthesize and present current research on parental guidance in children's gadget use. This systematic review will contribute to existing knowledge.

BACKGROUND OF STUDY

The current landscape of children's gadgets used for learning under parental guidance is marked by the increasing integration of technology in education, especially highlighted during the recent pandemic. Drouin et al. (2020) observed a substantial rise in both parents' and children's technology usage, attributing the increase to parental anxiety and the consequent use of technology for connection and information-seeking. Nevski and Siibak (2020) highlighted the importance of parental mediation in children's digital play, which is critical in early developmental stages.

Furthermore, Vittrup et al. (2016) identified a tendency among parents to underestimate their children's digital proficiency, despite recognizing the significance of media for development purposes. These findings underscore the essentiality of parental guidance in striking a balance between the educational advantages of gadget use and the risks of excessive screen time. Similarly, Papadakis et al. (2019) discussed parents' positive attitudes toward mobile learning, although they highlight a knowledge gap in selecting educationally valuable apps. These studies collectively illuminate the intricate role of parental guidance in the digital era, advocating for informed mediation strategies that bolster children's educational experiences while navigating the complexities of the digital environment.

The significance of parental guidance for children's educational gadget use is increasingly recognized, yet research in this field remains incomplete. Furthermore, within the sphere of parental guidance in learning environments involving gadgets, a noticeable gap persists in our systematic understanding of the specific emphases commonly adopted by parents. While numerous studies have investigated the various dimensions of parental involvement, there is still a lack of comprehensive synthesis that coherently articulates the consistent themes and strategies parents utilize across different settings. Existing research often yields inconsistent findings across studies and settings, further exacerbating the challenge of establishing clear guidelines for effective parental guidance in this domain. Despite the growing body of literature, a fragmented landscape of findings impedes the formulation of cohesive recommendations for parents and educators alike. A pronounced deficiency is apparent in the limited scrutiny of research goals, methods, and outcomes within the corpus on parental advisory roles. Despite many studies, a systematic synthesis is requisite to delineate shared findings, divergences, and potential enhancements.

Additionally, current scholarship has not satisfactorily examined the specific elements that parents prioritize when overseeing their offspring's gadget-oriented educational activities. This study seeks to consolidate existing research, uncovering common strategies and highlighting research areas needing further exploration. The aim is to enhance our understanding of effective parental guidance, shaping informed practices for integrating technology into children's education responsibly. Overall, the answers to the following two research objectives would help contribute to a comprehensive understanding of parental guidance regarding children's use of gadgets for educational purposes. (1) What were the major research purposes and outcomes in the studies of parental guidance on children's educational gadget use? (2) What are the commonly used aspects to guide children in learning settings for parents when it comes to the use of gadgets?

METHOD

The literature search for this study involved the utilisation of three databases: Web of Science, Scopus, and EBSCO. The search strategy employed a specific string, which comprised terms related to parental guidance ("parental guide*," "parental guidance*," "parental support*") in conjunction with keywords associated with technological devices ("gadgets," "device*," "tablet*," "information technology*," "iPad*," "screen touch*", "smartphone*") and terms related to the developmental stage of early childhood ("childhood," "children*," "preschooler*", "primary student*", "secondary school student*"). The articles were retrieved in March 2024. Initially, this review incorporated a total of 198 articles sourced from diverse repositories. Eligibility criteria dictated that only studies written in English were included in the analysis.

The Inclusion and Exclusion Criteria of Research Studies

This study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021; Ahsan et al., 2021). Inclusion and exclusion criteria were set to further refine the 192 results obtained. Only those studies that satisfied the following criteria were considered for the analyses: (1) only empirical research papers were eligible for inclusion in the studies; (2) whose focus was parental guidance in children using gadgets-related topics; and (3) whose focus was children's settings. In conducting the analysis, exclusive consideration was given to empirical research papers concentrating on parental guidance regarding children's use of electronic devices. Among the 192 articles retrieved, 127 were excluded after evaluating their titles and abstracts, while 32 were identified as duplicates. A meticulous scrutiny of the full-text materials led to the exclusion of 6 non-research papers, 2 studies deemed irrelevant to the specified topic, and 7 studies not conducted within high-education settings. In conclusion, the study incorporated a total of 24 peer-reviewed journal

articles, and Figure 1 in the article furnishes a comprehensive depiction of the search methodology. Significantly, our emphasis was placed on peer-reviewed journal articles, given their customary exposure to a stringent review process and adherence to elevated quality standards.
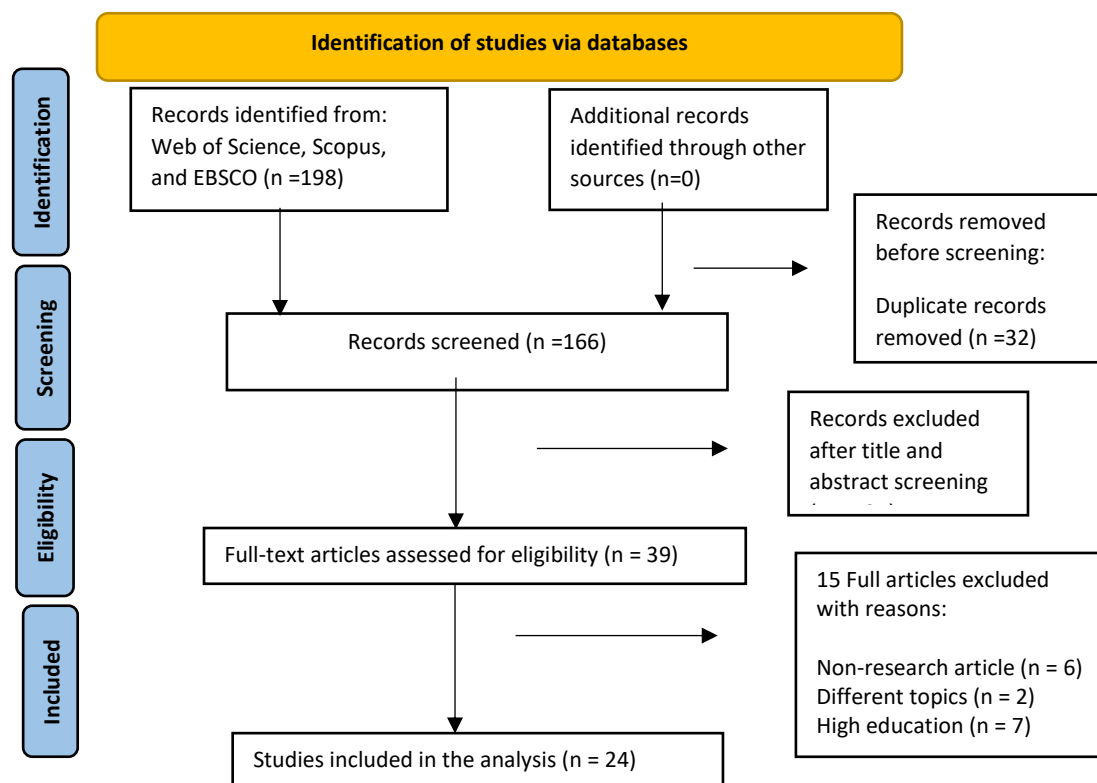
Identification of studies via databases

Identification

Records identified from: Web of Science, Scopus, and EBSCO (n =198)

Additional records identified through other sources (n=0)

Records removed before screening:

Duplicate records removed (n =32)

Screening

Records screened (n =166)

Records excluded after title and abstract screening

Eligibility

Full-text articles assessed for eligibility (n = 39)

15 Full articles excluded with reasons:

Non-research article (n = 6)
Different topics (n = 2)
High education (n = 7)

Included

Studies included in the analysis (n = 24)

Figure 1: The Search Flow in this Systematic Review

Data Coding and Analysis
The coding scheme employed in this study underwent modification, drawing inspiration from the method delineated by Hwang and Wu (2014). The coding structure of Hwang and Wu (2014) encompasses variables such as authors, year and country. The aim is to understand which countries most frequently published studies on parental guidance or support for children's using gadgets in learning settings. To answer the two research questions, a coding scheme was developed, including three elements: (1) gadgets in learning purpose defined; (2) the aspects commonly used to guide children's using gadgets in learning settings; (3) the research purposes, research methods, and research outcomes are included in the studies.

Two researchers undertook the coding of the included articles, employing Microsoft Excel for data encoding. To assess coding reliability, an initial phase involved the independent coding of 9 randomly selected articles, constituting half of the included corpus. Subsequently, overarching interrater reliability was computed, yielding a coefficient of 0.90 through Cohen's kappa analysis. Following the coding reliability establishment, the two authors coded the remaining articles independently. When differences in the coding surfaced, such cases were discussed after the coding process was finished.

Data charting and collation
The encompassed articles' comprehensive summaries delineate essential information such as authorship and publication year, geographic origin, gadgets in learning purpose definitions, characteristics of sample groups, research objectives, employed research methodologies, and resultant outcomes are presented in Appendix 1.

RESULT AND DISCUSSION
This review incorporates a total of 24 articles distributed across different years as follows: 2012 (n=1), 2014 (n=3), 2015 (n=4), 2016 (n=3), 2017 (n=1), 2018 (n=2), 2019 (n=3), 2020 (n=3), 2021 (n=2), 2022 (n=1), and 2023 (n=1). The findings illuminate a global trend indicating an increasing emphasis by various countries on parental guidance within the context of children's engagement with educational technology. Notably, the United States

emerged as a focal point in the research landscape, contributing the highest number of studies on this subject (n=4), trailed by the Netherlands with three studies. The following discusses the answers to the two research questions in this review

Research question 1: What were the major research purposes and outcomes in the studies of parental guidance on children's educational gadget use?

The major research purposes

The results of the studies on the purpose of parental guidance in children's educational gadget use have unveiled complex layers of influence that these digital tools exert on the learning landscape. The primary findings underscore that gadgets can serve as both a catalyst for educational enrichment and a barrier to traditional learning paradigms. Notably, research by Papadakis et al. (2015) and Goh et al. (2015) has provided insights into how gadgets potentially reshape the learning space, facilitating a continuum of educational opportunities that stretch beyond the physical confines of classrooms. The investigations have delved into parents' decision-making processes when selecting educational applications. Aram and Bar-Am (2016) reveal the nuanced motivations that drive parents' choices towards content that serves educational ends or mere entertainment. This selection is crucial as it significantly influences cognitive and behavioural development in children. Moreover, the studies have highlighted the pivotal role of parental intervention, examining the fine line parents tread in leveraging technology's potential while shielding their children from its inherent pitfalls (Tyastiti, 2020; Tsurkan, 2016).

Further exploration has broadened the scope to include the general context of children's gadget use. Coyne et al. (2013) and Livingstone et al. (2018) have illuminated the importance of digital literacy and safe internet practices, highlighting a need to examine the patterns of gadget utilization, the effects of parental mediation, and the socio-cultural dynamics that shape technology's educational role. These investigations illuminate aspects such as the digital divide, gender-based preferences in gadget usage, and the development of children's autonomy over their digital interactions as they grow.

A significant contribution to the field has been the formulation of evidence-based strategies to aid parents in effectively steering their children's educational gadget use. Zimmer et al. (2019) and Nuhla et al. (2018) have advocated for establishing structured, technology-free zones while also capturing a spectrum of parental attitudes toward technology, ranging from enthusiastic adoption to cautious skepticism. These attitudes invariably affect the children's educational encounters with digital devices. These studies enrich the comprehension of the intricate role of gadgets in children's education. Effective mediation of gadget use extends beyond merely limiting screen time, it also involves enriching the quality of technological interactions. This nuanced understanding propels the discourse on digital parenting, suggesting that the real impact of gadgets on learning is mediated by the quality of parental guidance and the educational strategies employed.

The major research outcomes

The research focusing on the interplay between children's educational gadget use and parental guidance has led to important insights with significant implications for the evolving educational paradigm. A critical finding, as evidenced by Vittrup et al. (2016), is the ubiquitous nature of electronic devices in children's lives and the broad spectrum of their usage. Acknowledging the duality of gadgetry as educational tools and entertainment portals, parents increasingly recognise the necessity of moderating device usage, fostering harmony between digital interaction and traditional learning modalities. The nuanced analyses offered by studies like those of Aram and Bar-Am (2016) and Xie et al. (2019) underscore the multifaceted developmental advantages that stem from structured gadget use. These include heightened student engagement, the ability to accommodate various learning styles, and the development of digital fluency—skills that are becoming indispensable in the 21st-century digital landscape.

Moreover, the research outcomes shed light on the pivotal role of parental participation. Active parental engagement correlates with enhanced academic achievements and social acclimatisation, as Tsurkan (2016) and Sapungan (2014) noted, but it also acts as a buffer against the pitfalls of excessive gadget use. Such overuse, as cautioned by Neumann (2018), can lead to adverse developmental and psychological effects, highlighting the need for a prudent and measured integration of technology in education.

The proposition for comprehensive parental education initiatives is at the core of these studies. These programs aim to equip parents with strategies to effectively oversee their children's digital engagement, addressing challenges like dependency and exposure to unsuitable content (Nikken & De Haan, 2015). As digital literacy becomes a cornerstone of modern education, the research by Aslan and Turgut (2023) and Wu et al. (2014) advocates for robust support systems to aid parents in navigating the complex digital terrain. These support

systems are envisioned not only to inform parents but also to empower them to harness gadgets' instructive potential and protect against the risks of digital saturation. They call for a proactive, informed approach to parental mediation that embraces gadgets' instructional capacity while guarding against their overuse. Such an approach is integral to cultivating an educationally rich and balanced developmental milieu for children. The call for future research remains, particularly in developing and assessing targeted interventions that can further empower parents and educators in crafting a tech-inclusive learning environment that is conducive, safe, and balanced.

Research question 2: What are the commonly used aspects to guide children in learning settings for parents when it comes to the use of gadgets?

Existing Models of Parental Guidance for Gadget Use
There is growing recognition of the role of parental mediation in improving digital literacy and guiding children through the complexities of the online world, ensuring their safety and maximising the educational benefits of technology (Vinter & Siibak, 2012). Research has emphasised the development of nuanced parental guidance models that promote a proactive and dynamic approach to children's gadget use. Direct scaffolding is characterised by interactive partnerships where parents engage with their children using gadgets, facilitating immediate assistance and enhancing learning through direct intervention (Neumann, 2018).

In contrast, active scaffolding focuses on the explanatory role played by parents, discussing the content and context of digital media to promote critical thinking and understanding. The reviewed studies suggest models where parents are actively involved in content selection and management, emphasising the educational value of apps and digital content while being mindful of the need for balance and moderation (Aram & Bar-Am, 2016; Goh et al., 2015). These models emphasise the importance of setting time limits and rules to effectively manage screen time whilst establishing technology-free zones and times to ensure gadgets do not overshadow physical and social activities (Zimmer et al., 2019; Whitehead, 2020). In addition, these studies emphasise the importance of shared use and parental involvement in digital activities, fostering shared learning experiences that enhance connection and education (Nuhla et al., 2018).

These models integrate the need for direct engagement in content management, advocating for educational applications aligned with children's learning stages and individual needs (Papadakis et al., 2015; Goh et al., 2015). At the heart of these models is a dual focus on fostering opportunities for educational enrichment while setting pragmatic boundaries to guard against the dangers of too much screen time and advocating for a healthy balance between digital and non-digital activities (Neumann, 2018; Aram & Bar-Am, 2016). In addition, these models recognise the critical influence of demographic factors such as socio-economic status and geographic location on gadget use, prompting parents to adopt a differentiated approach to guidance that considers these variables (Livingstone & Helsper, 2007). Parental strategies are also recognised as evolving with the child, adapting the level and type of mediation as the child ages and becomes more independent in digital interactions (Coyne et al., 2013; Livingstone et al., 2018).

Furthermore, research suggests that parental guidance models should be malleable and able to adapt to the rapidly changing technological landscape and new forms of digital content that are constantly emerging (Vittrup et al., 2016). It requires ongoing parent education and support to ensure that mentoring strategies remain relevant and effective in promoting children's cognitive, social, and emotional development in technology-immersive environments. The implication is clear: Parental guidance models are not static. However, they must evolve into dynamic frameworks that respond to the changing dynamics of digital technology use and its impact on children's education. These models reflect a holistic approach to digital parenting that aims to empower children through technology while protecting them from potential risks.

Aspects of Parental Guidance on Children Using Gadgets for Learning
Within the scholarly discourse on digital parenting, the critical facets of parental guidance in the context of children's gadget use for learning include vigilant monitoring and the establishment of boundaries to foster a balanced digital diet (Livingstone & Helsper, 2008). This involves scrupulous content curation tailored to educational objectives and developmental readiness (Goh et al., 2015), alongside active co-engagement to foster meaningful learning interactions (Nuhla et al., 2018). A pronounced emphasis on educational utility over passive entertainment is advocated, guiding children toward constructive and enriching digital experiences (Papadakis et al., 2015).

Establishing tech-free zones is another recommended practice, reinforcing the importance of diversified experiences beyond the digital realm (Zimmer et al., 2019). Concurrently, parents engage in ongoing dialogues about online safety to arm children with the acumen to navigate cyberspace securely (Vinter & Siibak, 2012).

Additionally, parents serve as role models in their digital habits, showcasing judicious screen use (Whitehead, 2020) and adopting adaptive strategies that evolve in response to their children's developmental stages and growing autonomy (Coyne et al., 2013). This multifaceted approach to parental guidance aims to exploit the instructive potential of gadgets while counteracting the risks associated with their use.

Moreover, the research underscores the dynamic nature of parental guidance, which is not merely about setting rules but also about understanding and interacting with the digital content alongside the child. This engagement is crucial in helping children critically evaluate digital information and develop digital literacy skills (Nikken & Schols, 2015). As children grow, the parental role shifts from direct oversight to advisory capacity, promoting self-regulation and responsible use of technology (Livingstone et al., 2018). Additionally, parents' approaches are often influenced by their perceptions of the risks and benefits of gadget use, reflecting a nuanced strategy that balances encouragement with caution (Vittrup et al., 2016). This balance is essential for children to leverage technology for learning and development without succumbing to its potential pitfalls, such as screen addiction or exposure to inappropriate content (Neumann, 2018; Aram & Bar-Am, 2016). By implementing these informed and flexible strategies, parents can cultivate a nurturing environment that encourages children to explore, assimilate knowledge, and grow in the digital age.

CONCLUSION and IMPLICATIONS

In conclusion, this article has shed light on the multifaceted role of parental guidance in children's utilization of gadgets for educational purposes. Parents are pivotal in mediating gadget use, ensuring the appropriateness of educational content, and establishing essential boundaries. It underscores the critical importance of boundary setting, content curation, shared device usage, technical controls, and open communication as integral components of parental involvement. These proactive strategies have demonstrated positive impacts on children's educational achievements. The systematic literature review findings suggest that gadgets offer significant educational potential but necessitate parental oversight to optimize benefits and mitigate risks. However, further exploration is required to delve into the intricate dynamics of these aspects and their differential effects across various age groups and educational environments. Additionally, it highlights areas necessitating further investigation, such as the enduring repercussions of gadget usage on child development and the efficacy of parental strategies in diverse demographic contexts.

Practical implications suggest educators and policymakers should offer support mechanisms for parents, including educational materials and guidelines on effective mediation techniques to enhance educational outcomes for children. In detail, educators and policymakers may develop and disseminate educational materials tailored to parents. These resources could include guidelines, best practices, and tips for effectively managing children's gadgets used for educational purposes. The guidance can encompass setting limits on screen time, selecting age-appropriate educational content, and promoting balanced usage that incorporates offline activities. By equipping parents with actionable strategies, they can better navigate the complexities of gadget use in their children's educational journey. Schools, community organizations, and other stakeholders can also collaborate to establish parental support networks focused on children's gadget use. These networks can allow parents to share experiences, seek advice, and access additional resources. By fostering a supportive community environment, parents can receive encouragement and guidance in effectively managing their children's gadget use for educational purposes.

Beyond its practical implications, the research findings contribute to the academic understanding of the interplay between parental guidance and children's educational gadget use. By synthesizing existing literature, the study illuminates key themes and patterns in parental involvement, shedding light on the multifaceted nature. The research advances knowledge by emphasizing the importance of parental mediation in children's gadget use for educational purposes. It highlights how parents serve as gatekeepers, curating content and establishing boundaries to ensure a productive and safe digital learning environment for their children. The research provides potential theoretical insights into how parental guidance influences children's learning with gadgets, warranting further research. Specifically, the Ecological Systems Theory (Bronfenbrenner & Morris, 2007) emphasizes the interplay between individuals and their environments in shaping development. Within the microsystem of the family, parental involvement in children's gadget use influences the quality of their learning. By setting boundaries, curating content, and facilitating open communication, parents create an ecosystem conducive to children's educational exploration with gadgets. Lastly, further research is imperative to delve into the enduring developmental consequences linked with children's gadget use and the differing impacts of parental guidance strategies within diverse familial settings.

AUTHOR CONTRIBUTION

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DECLARATION OF STATEMENT

The authors reported no potential conflict of interest.

STATEMENT OF CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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Appendix 1: Coding of the included articles

Authors	Title	Partici-pants	Methodology	Outcome
Michelle M. Neumann Australia (2018)	Parent scaffolding of young children's use of touch screen tablets	Fifty-five parent–child dyads (M child age = 3.49 years)	Mixed	Parental utterances were categorized into cognitive, affective, and technical scaffolding (CATs). While cognitive scaffolding was most frequently used, technical scaffolding was employed less often. SES showed no correlation with the number of tablets at home. The negative association between technical scaffolding and child age suggests younger children require more parental support.
Nikken, P., & Schols, M. Netherlands (2015)	How and why parents guide the media use of young children	896 parents with young children (0–7 years	Quantitative	Parents consistently employed co-use, supervision, active mediation, restrictive mediation, and monitoring, guided by their positive or negative attitudes towards media. Notably, the child's media skills and activities exhibited a more pronounced correlation with parental mediation styles, while age showed no significant association.
Aram, D., & Bar-Am, O. C. Israel (2016)	Mothers helping their preschool children to spell words: A comparison between interactions using the computer vs. pencil and paper	49 preschoolers and their mothers	Quantitative	Mothers changed their help based on the writing tool used. With a computer, they encouraged deeper thinking in spelling and allowed more freedom. With a pencil, they were more lenient with mistakes and got more involved. Still, mothers showed a similar approach with both tools.
Vinter, Kristi, and Andra Siibak Estonia	The Role of Parents in Guiding Pre-	eighteen children aged four to seven in two	Qualitative	These findings substantiate the idea that children function as secondary mediators, disseminating both their personal experiences and the

(2012)	school Children's Use of Computers and the Internet: Analyzing Perceptions of Estonian Children and Parents	kinder-gartens		knowledge imparted by their parents concerning television to their peers.
Flynn, R. M., and Richert, R. A. USA (2015)	Parents Support Preschoolers' Use of a Novel Inter-active Device	Forty-six preschool children and their parents	Qualitative	Parents employed a diverse array of strategies during the interaction. While specific parental support for using the device did not lead to heightened device skills, those parents who directed their support toward content witnessed improved performance from their children on content assessments.
Peter Nikken & Jeroen Jansz Netherlands (2014)	Developing scales to measure parental mediation of young children's internet use, Learning	7792 parents of children aged between 2 and 12 years	Quantitative	Parents use strategies for the internet that they also use for TV and video games. These include 'co-use,' 'active mediation,' and 'setting restrictions.' They also use new methods like 'supervision' and teaching about 'technical safety.' What guides these strategies is often the child's age, what they do online like gaming or social networking, the number of computers at home, and the parents' gender, education, and computer/internet skills.
Nikken, P., & de Haan, J. Netherlands (2015)	Guiding young children's internet use at home: Problems that parents expe-	785 parents (children 0-7 years)	Quantitative	Parents' perceived competence is augmented by favorable perspectives on media impacts, the presence of older children in the household, and the engagement of the young child in educational games, coupled with their proficiency in media skills.

	rience in their parental mediation and the need for parenting support			
Perone, S., Anderson, A. J., & Zelazo, P. D. USA (2021)	The influence of parental guidance on video game performance, exploration, and cortical activity in 5-year-old children	parent-guided (n = 25) and self-directed (n = 25) groups, relative to a control group (n = 27).	Quantitative	Children within the parent-guided cohort demonstrated a higher degree of exploration within the learning space compared to their counterparts in the self-directed group. Furthermore, those in the parent-guided group exhibited a superior ability to acquire proficiency in playing a new song in comparison to the control group.
Zimmer, F., Scheibe, K., & Henkel, M. Germany (2019)	How parents' guide the digital media usage of kindergarten children in early childhood	59 parents	Mixed	Parents actively seek to restrict media exposure and vigilantly monitor its usage. The consensus among nearly all parents is that kindergarten settings should be devoid of technology.
Aslan, A., & Turgut, Y. E. Turkey (2023)	Parental mediation in Turkey: The use of mobile devices in early childhood	parents of 4–7-year-old children	Qualitative	Children under the guidance of parental supervision exhibited a lower incidence of problematic behaviors in media use and encountered fewer online risks. Conversely, children whose parents employed a general restrictive mediation approach were more prone to displaying problematic media use behaviors. Additionally, children with parents practicing active mediation were also more susceptible to encountering risks on the Internet.

Galia Meoded Karabanov, Merav Asaf, Margalit Ziv & Dorit Aram Israel, Jewish and Arab (2021)	Parental Behaviors and Involvement in Children's Digital Activities among Israeli Jewish and Arab Families during the COVID-19 Lock-down	487 parents (290 Jewish and 197 Arab – Muslims and Christians) of young children (2-to-8-years-old)	Quantitative	During the lockdown, showing love was the most common parent behaviour, followed by leadership. However, parents were less likely to encourage independence, following rules, or partnership. Parents who showed more positive behaviour in daily life were also more involved in their kids' digital lives. It was true even considering the child's age, parent's education, and family size.
Wu, C.S.T., Fowler, C., Lam, W.Y.Y. et al. Hong Kong, China (2024)	Parenting approaches and digital technology use of preschool age children in a Chinese commu-nity.	202 parents or guardians of preschool children between the ages of 3 and 6	Quantitative	Preschoolers' brains and skills are growing, making it important for parents to help them use digital technology (DT) safely and wisely. Parents should mix rules, teaching, and using DT together, but not just set strict limits. This helps kids grow well. Future studies should look into how parents and kids interact and how confident parents are in guiding their kids' DT use. The goal is to create ways to promote healthy DT habits for kids.
Drouin, M., McDaniel, B. T., Pater, J., & Toscos, T. USA (2020)	How parents and their children used social media and technology at the beginning of the COVID-19 pandemic and associations with anxiety	260 parents	Quantitative	Since social distancing began, parents and kids have used more technology and social media. Studies show that parents who are more anxious tend to use technology more, especially social media and phones to connect with others. Parents with higher anxiety also often use social media to find support and information.

Palaiologou, I. England, Greece, Malta and Luxemburg (2016)	Children under five and digital technologies: implications for early years pedagogy	540 families	Mixed	People need to rethink teaching methods and classroom settings for young kids, as those under five use digital technologies at home for play and learning. Early childhood education must recognize this tech use. Also, educators should update how they teach and arrange learning spaces, considering today's digital world's role.
Papadakis, S., Zaranis, N., & Kalogiannakis, M. Greece (2019)	Parental involve-ment and attitudes towards young Greek children's mobile usage	293 families	Quantitative	Most parents feel good about using these technologies to help with their children's learning and to create a good learning environment at home. Parental attitudes vary based on things like income, age, and education level. Older parents and those with less education may find it hard to keep up with fast tech changes. This can limit how well they can use mobile learning technologies for their children's benefit.
Nevski, E., & Siibak, A. Estonia (2020).	The role of parents and parental mediation on 0–3-year olds' digital play with smart devices: Estonian parents' attitudes and practices	198 parents	Quantitative	Parents offer three primary justifications when explaining their child's engagement with touch screens, citing educational, entertainment, and behavior-regulation purposes. While parental mediation strategies are contingent upon the child's age and gender, a prevailing trend among the majority of parents involves the integration of various mediation approaches to effectively fulfill their role as mediators in facilitating young children's digital play.
Kucirkova, N., Littleton, K., & Kyparissiadis, A. UK (2018)	The influence of children's gender and age on children's	709 parents	Mixed	After analyzing parents' feedback, three key themes emerged: control, child development, and varied experiences. Stats showed that parents of boys, especially toddlers, worry more about digital media's

	use of digital media at home			health effects. On the other hand, parents of 6 to 8-year-olds believe their kids' excessive screen time is due to technology's appeal.
Vittrup, B., Snider, S., Rose, K. K., & Rippy, J. USA (2016)	Parental perceptions of the role of media and techno-logy in their young children's lives	101 parents of young children (ages 2–7 years) and 39 children (ages 3–6 years)	Quantitative	Substantial media consumption was evident among both parents and children, with a considerable proportion of children, including those in the youngest age group, having private access. In general, parents exhibited affirmative attitudes towards media, emphasizing its perceived importance in the developmental process of children. Notably, a significant number of parents expressed disagreement with expert recommendations regarding age-appropriate screen time.
Sergi, K., et al. USA (2017)	Parental perspec-tives on children's use of portable digital devices	The five parents and five children (4-7 years old) were from a total of four families	Qualitative	The children demonstrated adeptness and flexibility in navigating apps, both for entertainment and educational objectives. They autonomously and effectively tackled tasks, enhancing their involvement. Parents unknowingly transferred cognitive and social responsibilities to Personal Digital Devices (PDDs), akin to the concept of "othermothering." Meanwhile, parents expressed apprehension regarding children's excessive and unregulated PDD usage.
Genc, Z. Turkey (2014)	Parents' perceptions about the mobile technology use of preschool aged children	85 parents from three preschools (3-6 years old)	Quantitative	The widespread utilization of smartphones among preschoolers, primarily for recreational gaming rather than educational pursuits, has raised parental concerns.

Chen, W., Teo, M. H., & Nguyen, D. Singapore (2019)	Singapore parents' use of digital devices with young children: Motivations and uses	11 parents with their toddlers and preschoolers (age range: 1–5-year-old children)	Qualitative	Parents use digital devices to help their kids learn, relax, and create special moments together. How well these goals are met and understanding the risks influence their choices about using devices. They also see that careful use of devices can enrich learning and help kids discover more about the world, thanks to educational content and interactive options.
Papadakis, S., Alexandraki, F., & Zaranis, N. Greece (2022)	Mobile device use among preschool-aged children in Greece	325 parents of kindergarten children	Quantitative	Parents endeavor to foster their children's learning at home through the utilization of mobile devices. Moreover, parents exhibit a deficiency in understanding the developmental appropriateness of apps and require additional guidance in this regard.
Goh, W. W., Bay, S., & Chen, V. H. H. Singapore (2015)	Young school children's use of digital devices and parental rules. Telematics and Informatics	116 primary school students	Mixed	Children primarily use personal computers for gaming and e-learning. Most children seek parental permission before using these devices. Parental rules are more prevalent for computer use compared to mobile and tablet devices, often centered around completing homework before gaming and health considerations such as adequate rest and eye strain prevention.
Sivrikova, N. V., et al. Russia (2020)	Parental reports on digital devices use in infancy and early childhood	93 parents of 113 children aged 0–8 years old	Quantitative	As children grow older, there's a notable rise in the use of digital devices for educational purposes. Touchscreen devices, in particular, are highly favored among children for activities like video viewing, self-improvement, and gaming. Parents maintain strict oversight over the content accessed and time spent on digital devices by their

children, emphasizing the need for vigilant monitoring and regulation.