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BETWEEN SCREENS AND SUPERVISION: A SYSTEMATIC REVIEW OF PARENTAL AND TEACHER ROLES IN MANAGING TECHNOLOGY USE IN EARLY CHILDHOOD

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Abstract

The application of digital technology in early childhood poses challenges in balancing educational benefits and potential risks. This study aims to systematically review the role of parents and teachers in guiding the use of technology by children aged 0–6 years. Using the PRISMA guidelines, 22 empirical studies and literature reviews from 2017–2025 were analysed through a thematic approach. Three main themes were identified: (1) analysing parental mediation strategies; (2) identifying the forms and effectiveness of collaboration between parents and teachers; (3) examining gadget management and screentime; (4) exploring the relationship between mediation strategies, parent collaboration and screentime regulation. The review highlights the importance of aligned collaboration between teachers and parents to foster healthy digital habits from an early age. This study recommends the development of integrated policies, professional training for teachers, and digital education for parents as strategic steps toward building a supportive technological environment for children.

Keywords: Digital technology; early childhood; parental mediation; screen time

Abstrak

Penerapan teknologi digital pada anak usia dini memunculkan tantangan dalam menyeimbangkan manfaat edukatif dan risiko yang mungkin timbul. Studi ini bertujuan untuk meninjau secara sistematis peran orang tua dan guru dalam membimbing penggunaan teknologi oleh anak usia 0–6 tahun. Menggunakan pedoman PRISMA, 22 studi empiris dan tinjauan literatur dari tahun 2017–2025 dianalisis melalui pendekatan tematik. Tiga tema utama ditemukan: (1) strategi mediasi penggunaan teknologi digital pada anak usia dini; (2) kolaborasi antara orangtua dan guru dalam pendampingan penggunaan gadget; dan (3) penggunaan gadget dan pengelolaan screentime pada anak usia dini; (4) keterkaitan antara mediasi, strategi dan pengelolaan screentime. Hasil tinjauan menekankan pentingnya kolaborasi yang selaras antara guru dan orang tua untuk membentuk kebiasaan digital sehat sejak dini. Penelitian ini merekomendasikan pengembangan kebijakan terpadu, pelatihan profesional guru, dan edukasi digital bagi orang tua sebagai langkah strategis membangun lingkungan teknologi yang suportif bagi anak.

***Kata kunci**: Digital technology; early childhood; parental mediation; screen time*

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Introduction

Perkembangan In this rapidly developing digital age, young children are growing up surrounded by screens. Digital technology—whether in the form of educational games, interactive story apps, or video platforms—has become an integral part of modern childhood (Chaudron, S., Beutel, M. E., Černikova, M., Donoso Navarrete, V., Dreier, M., Fletcher-Watson, B., & Mascheroni, 2018). This intense exposure raises important questions about how technology affects children's development and who is responsible for guiding their digital behaviour. The role of parents and teachers as the closest and most influential figures in a child's life is crucial in shaping healthy digital experiences. As technology increasingly permeates children's daily lives, it is important to understand how the adults around them, particularly parents at home and teachers at school, can facilitate wise and educational media use (O'Keeffe, G. S., & Clarke-Pearson, 2011).

Parents, as children's first educators, often act as gatekeepers of digital experiences at home. They employ various strategies to manage screen time, such as setting limits, watching media together, or discussing content. However, not all approaches are equally effective, and much depends on parents' digital literacy, socio-economic conditions, and cultural values (Crescenzi, L., Grané, M., & Mena, 2019) . Some parents, for example, successfully enforce strict rules, while others rely on co-viewing without providing explanations, which may not foster critical understanding (Fitzpatrick, C., Cristini, E., Bernard, J. Y., & Garon-Carrier, 2023). This highlights that mere presence is not enough; intentional and guided interaction is crucial for children to understand the meaning behind their media use. Teachers, on the other hand, play an equally important role in the classroom. With the integration of technology into early learning curricula worldwide, educators are expected not only to use digital tools effectively but also to serve as role models for responsible use.(Plowman, L., & Stephen, 2007) This includes selecting age-appropriate applications, incorporating digital content into lesson plans, and reinforcing healthy screen-use habits. However, many teachers still lack access to adequate training and resources. When communication between home and school is limited, inconsistencies can arise, leaving children confused by conflicting messages about acceptable digital behaviour.

When parents' and teachers' values and practices align, children gain a consistent and reinforced understanding of how to interact with technology. However, misalignment can have the opposite effect. (Gjelaj, M., Buza, K., Shatri, K., & Zabeli, 2020) highlight that parents may encourage early technology exposure, while teachers prefer traditional games, which can lead to conflicting rules. These differences can create friction—not only between adults but also in children's routines and expectations. Clear and respectful communication between families and educators is necessary to bridge this gap and ensure that guidance at home complements learning in the classroom.

Although previous literature has extensively discussed parental mediation strategies in managing children's screen time (Nikken, P., & Schols, 2015; Crescenzi, L., Grané, M., & Mena, 2019) as well as teachers' roles in technology use in the classroom

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environment (Donohue, C., & Schomburg, 2017), most of these studies tend to analyse them separately. However, children form their understanding of digital media from complementary experiences between home and school. Inconsistencies in approaches between parents and teachers, as demonstrated by Gjelaj et al. (2020), has the potential to cause confusion and inconsistency in children's behaviour towards media. Additionally, the socio-cultural and economic context in developing countries like Indonesia presents additional challenges, such as low digital literacy, technology access gaps, and parenting values rooted in tradition and religiosity (Najmudin, M. F., Sardin, R., & Sulistiono, 2023). Unfortunately, there have not been many studies that explicitly examine the active collaboration between parents and teachers in guiding children in facing this digital reality, especially in complex and dynamic local contexts.

Therefore, this study aims to fill the gap in the literature by examining the collaboration between parents and teachers in guiding the use of digital technology by early childhood. Specifically, this study has four main objectives: (1)Analysing parental mediation strategies in the use of digital technology in early childhood, including active, restrictive, and co-use forms of mediation, as well as their implications for children's behaviour and development; (2)Identifying the forms and effectiveness of collaboration between parents and teachers in guiding early childhood in the wise and responsible use of digital media; (3)Examining gadget management and screen time in early childhood, as well as its impact on language, social-emotional, and cognitive development (4) Exploring the relationship between mediation strategies, parent-teacher collaboration, and screen time regulation as an integrated holistic approach to fostering healthy digital literacy in early childhood.

By adopting a contextual approach that considers Indonesia's cultural and social background, this study aims to bridge the gap between theory and practice and contribute to the development of relevant, inclusive, and sustainable digital education models for young children in an ever-changing technological era.

Method

This study employs a systematic literature review as its research design. The target population across the reviewed studies consists of early childhood-aged children (2–6 years) and their parents. A total of 1,324 respondents were identified from 22 selected articles. The primary objective of this research is to examine scientific literature that explores the effects of screen time on the well-being of young children. The review process followed three main stages:

(1) identification of relevant articles,
(2) thematic mapping, and
(3) in-depth analysis.

The article selection process was guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, as illustrated in the following flow diagram. Additionally, to ensure a systematic and rigorous analysis, NVivo software was used to code and filter the content of the selected articles, enabling

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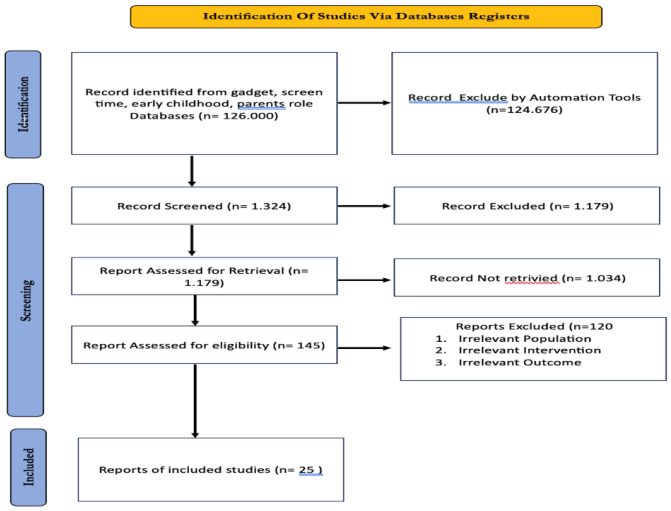
the identification of recurring themes and categories related to screen time and its impact.

Table 1. Inclusion and exclusion criteria

No.	Aspects	Inclusion	Exclusion
1	Population	Study focuses on early childhood	Study was not conducted in early childhood
2	Intervention	Research that discusses screen time in early childhood	Research that does not address screen time in early childhood
3	Comparator	There is no comparison class	Literature review research
4	Outcome	Research that discusses screentime and gadget use in childhood	Research that does not discuss screentime and gadget use in children after early childhood
5	Study Design	Research with experimental, correlational, comparative R&D, quantitative and qualitative designs	Literature review research
6	Document Type	Research Article	In addition to research journals
7	Publication Years	2017-2025	Before 2017
8	Language	English and Indonesian	Besides English and Bahasa Indonesia

The article search process starts from entering keywords into 3 databases (Google Scholar, Elsivier, and Research Gate) and then searching with keywords 126,000 articles. Then the selection process was carried out through automation tools so that 1,324 articles remained. A total of 1,179 articles did not meet the inclusion criteria because they did not match the title, abstract, design and research design so that 145 articles remained. From 145 articles, 120 articles were excluded, leaving 22 articles that were suitable and relevant to the research topic for further analysis.

Results and Discussion



Picture 1. PRISMA Flow Diagram

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Table 2. Journal Analysis

No.	Title	Author	Year	Country of Origin	Short Resume
1	Digital literacy for parents in the age of screens: An action research project	Crescenzi, L., Grané, M., & Mena, J.	2019	Spain	Explores action research on digital literacy for parents in screen-dominated environments.
2	Digital parenting and its impact on early childhood development: A scoping review	Choy, Y. N., Lau, E. Y. H., & Wu, D.	2024	Hong Kong	Reviews the literature on digital parenting and child development outcomes.
3	Teachers' semiotic mediation in early childhood education and care	Danby, S., et al.	2024	Australia	Analyses teacher roles in semiotic mediation in ECE settings.
4	Meeting preschool screen time recommendations: which parental strategies matter?	Fitzpatrick, C., Cristini, E., Bernard, J. Y., & Garon-Carrier, G.	2023	Canada	Identifies parental strategies that help meet screen time recommendations.
5	Digital technologies in early childhood: Attitudes and practices of parents and teachers in Kosovo	Gjelaj, M., Buza, K., Shatri, K., & Zabeli, N.	2020	Kosovo	Examines Kosovo parents' and teachers' attitudes towards early digital tech.
6	Parenting use of digital technology in preschool children by middle-class digital immigrant parents: A case study	Najmudin, M. F., Sardin, R., & Sulistiono, E.	2023	Indonesia	Case study of digital immigrant parents in Indonesia using gadgets in parenting.
7	Role of parents on screen time of young children in Pokhara metropolitan, Nepal	Koirala, S., et al.	2021	Nepal	Investigates parental influence on screen time regulation in young children.
8	The role of parents in preventing gadget addiction in early childhood	Masfufah, M., & Darmawan, D.	2023	Indonesia	Analyses parental roles in preventing digital addiction among preschoolers.
9	Investigating parental involvement in Alpha Generation's digital activities	Rahim, M., et al.	2024	Pakistan	Examines how parents engage with young children's digital behaviours.
10	Parental mediation of children's internet use	Livingstone, S., & Helsper, E. J.	2018	UK	Evaluates how parents guide internet use among children.
11	Guided interaction in pre-school settings	Plowman, L., & Stephen, C.	2017	UK	Explores adult-child interaction patterns in tech-mediated settings.
11	Early childhood education in the twenty-first	Souza, A. P. de, et al.	2024	Brazil	Emphasises teacher roles in digital mediation in early childhood.

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	century: The role of teachers in mediating the use of technology by children				
13	How does 'talking about the Internet with others' affect teenagers' experience of online risks?	Shin, W., & Lwin, M. O.	2017	Singapore	Examines how peer and parent discussions shape online risk experiences in teens.
14	How does 'talking about the Internet with others' affect teenagers' experience of online risks? The role of active mediation by parents and peers	Shin, W., & Lwin, M. O.	2017	Singapore	Highlights the influence of parental and peer mediation on online safety.
15	Parental mediation of children's internet use	Livingstone, S., & Helsper, E. J.	2018	English	Explores various parental mediation strategies for safe internet use.
16	How and why parents guide the media use of young children	Nikken, P., & Schols, M.	2018	Netherlands	Details the motivations and techniques behind parental guidance of children's media.
17	Digital technologies in early childhood: Attitudes and practices of parents and teachers in Kosovo	Gjelaj, M., Buza, K., Shatri, K., & Zabeli, N.	2020	Kosovo	Surveys how parents and teachers view and use digital tech in early childhood.
18	Young children (0-8) and digital technology: A qualitative study across Europe	Chaudron, S., Beutel, M. E., Černikova, M., Donoso Navarrete, V., Dreier, M., et al.	2018	Europe	Presents qualitative data on children's digital interaction in various countries.
19	How does 'talking about the Internet with others' affect teenagers' experience of online risks?	Shin, W., & Lwin, M. O.	2017	Singapore	Examines how peer and parent discussions shape online risk experiences in teens.
20	How does 'talking about the Internet with others' affect teenagers' experience of online risks? The role of active mediation by parents and peers	Shin, W., & Lwin, M. O.	2017	Singapore	Highlights the influence of parental and peer mediation on online safety.
21	Parental mediation of children's internet use	Livingstone, S., & Helsper, E. J.	2018	English	Explores various parental mediation strategies for safe internet use.
22	Teachers' semiotic mediation in early childhood	Granone, F., & Pollarolo, E.	2024	Italy	Analyse teacher communication strategies using signs and symbols in ECE.

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education and care

1.1 Mediation Strategies for Digital Technology Use in Early Childhood

A review of various sources indicates that parental mediation strategies for digital media use in early childhood are highly diverse, including active mediation (guidance and discussion), restrictive mediation (limiting duration or content), joint mediation (co-use), and technical monitoring. (Nikken, P., & Schols, 2015) identified five main types of parental strategies: co-use (using together with the child), direct supervision, active mediation (explaining content/activities), restrictive mediation (limiting time or access), and post-use monitoring. Parents often combine these approaches; research shows that parents who model positive digital behaviour and involve their children in setting boundaries tend to have children who are better able to take advantage of digital opportunities while managing their challenges (Livingstone, S., & Helsper, 2008)

In other words, a balanced combination of active and restrictive approaches yields the best outcomes for children. However, studies also highlight that not all parents have adequate digital skills, leading some to rely solely on strict screen time controls without active guidance. An approach that is overly focused on screen time alone is considered ineffective. (Livingstone, S., & Helsper, 2008) argue that a singular focus on screen duration is misleading, as context, content, and connection during media use are equally important.

In practice, many parents face the dilemma of using gadgets as 'electronic babysitters.' Some parents admit to giving gadgets to keep their children calm at home or believe that gadgets can make children smarter. However, unsupervised gadget use can have negative effects. Research by Yulsyofriend et al. (2019) found that excessive gadget use can hinder language development in young children and make them less responsive to direct interaction. Children addicted to gadgets tend to ignore their surroundings and find it difficult to communicate.(Masfufah, M., & Darmawan, 2023) Observations show that children can spend ~100 minutes/day staring at screens, and when engrossed in gadgets, they remain indifferent when called. This aligns with the findings of Eva Yunita et al. (2021) that unmonitored gadget use negatively impacts children's receptive and expressive language skills.(Eva Yunita, Tutut Handayani, Fahmi, Fitri Oviyanti, 2023)

To address this issue, mediation strategies emphasise the role of parental guidance and supervision. Parents are advised to monitor their children when they use gadgets, for example by placing devices in family areas and accompanying their children while discussing what they are seeing or playing.(Rahim, M., Ahmed, S., Tobawal, M. U., & Wazir, 2024) This approach is in line with the concept of active mediation, where parents are actively involved in explaining and participating. (Shin, W., & Lwin, 2017) Additionally, establishing screen time rules is recommended, such as limiting daily maximum duration (e.g., 1 hour per day for preschoolers in several sessions) and ensuring the remaining time is used for other activities. These restrictions constitute restrictive mediation, which is necessary to prevent addiction.

(Souza, A. P. de, 2024) Mediation strategies also include providing alternative non-digital activities. Experts recommend that parents give their children opportunities

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to play outside or engage in physical activities so that they are not fixated on screens and avoid digital overexposure. In this case, teachers can also play a role in educating parents. For example, Wiryany et al., 2022 reported a 'gadget monitoring' socialisation programme for parents, in which educators and the community provided an understanding of how to effectively monitor children's gadget use. Such programmes help parents develop technology mediation skills at home. (Wiryany et al., 2022)

The core finding of the mediation strategy category is that young children need direct guidance when interacting with digital technology. Parents should not hand over gadgets completely to children without control. Irwansyah (2018) emphasises the importance of parental guidance when children use digital technology, so that its use is directed and safe. Through active mediation such as dialogue and playing together, parents can minimise risks (e.g. inappropriate content, addiction) while maximising the educational benefits of digital media.(Alia & Irwansyah, 2018)

1.2 Collaboration Between Parents and Teachers in Digital Guidance

The theme of parent-teacher collaboration emerges strongly in almost all articles, emphasising that close cooperation between home and school is key to guiding children in using technology wisely. Various studies conclude that effective collaboration between parents and teachers improves children's development outcomes, both academically, socially, and behaviourally (Latif et al., 2023). Consistency in approaches at home and school will reinforce positive behaviour in children and send consistent messages about technology use. Conversely, without collaboration, guidance efforts can be uneven. (Wolf, 2020) in the context of Ghana found that some parents felt they never discussed with teachers, indicating a lack of communication and negatively impacting shared understanding of children's needs.

Some key collaborative strategies identified in the study include parenting programmes in early childhood education centres, regular two-way communication, alignment of curriculum rules, and parental involvement in school activities. For example, during the learning-from-home period, schools in Bandung organized parenting programs to enhance parents' capacity as learning companions and motivators for their children. Teachers provided parents with tips on creating study schedules, how to accompany their children while using gadgets for learning, and strategies to help children stay focused. Intensive communication was conducted through media such as WhatsApp groups and communication books.

In addition, (Koirala, S., Banstola, S., Shrestha, N., & Gurung, 2021) emphasised that parental involvement requires good relationships and close communication with educators. Collaboration includes discussions on children's development, joint learning plan formulation, and joint evaluation. (Siregar, 2020) also showed that cooperation between teachers and parents during the pandemic successfully maintained the effectiveness of children's learning at home. This collaboration resulted in the implementation of structured and consistent technology use strategies.

Latif et al. (2023) outline the concept of 'strategic collaboration' where early childhood education institutions and parents work together to bridge the curriculum

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and parenting patterns (Latif et al., 2023). Through monthly parenting sessions, schools provide guidance on technology use, moral parenting, and health and nutrition. (Qadafi, 2019) adds that this collaboration strengthens the integrated development of children's character and morality.

Parental involvement is also evident in their participation in school activities and decision-making, such as volunteering in the classroom and establishing rules for gadget use. However, challenges to collaboration persist. Differences in parenting beliefs, cultural backgrounds, and socio-economic limitations can hinder cooperation (Suharyat et al., 2023). Some parents also lack digital literacy, making them reluctant to get actively involved. Therefore, parent training is necessary. (Nurhayati & Rosita, 2020) showed that Positive Parenting Training programmes can improve parents' emotional skills and knowledge, including in the healthy use of technology. Blum-Ross and Livingstone also emphasised the need for multi-stakeholder support (teachers, doctors, and the technology industry) in guiding parents. Close collaboration can increase parents' confidence in accompanying their children while making it easier for teachers to manage technology use in the classroom.

1.3 Gadget Use and Screen Time Management in Early Childhood

This category focuses on how digital devices and their duration of use are regulated for early childhood. All literature agrees that gadget use needs to be controlled so that it does not have a negative impact on children's growth and development. On the one hand, technology can be an interactive learning tool; however, on the other hand, excessive use poses risks of developmental delays, health issues, and social-emotional (Eva Yunita, Tutut Handayani, Fahmi, Fitri Oviyanti, 2023). Excessive gadget use is associated with attention disorders, speech delays, and a tendency for children to become less communicative. Studies show that children who spend hours playing gadgets tend to experience a decline in their ability to listen and understand simple verbal instructions.

Based on recommendations from the American Academy of Pediatrics and other research findings, young children should not spend more than one hour per day looking at screens. This duration should ideally be divided into several short sessions, interspersed with physical activities. Screen time rules also need to be consistent: no gadgets during meals, before bedtime, or without adult supervision. Teachers and parents can agree on these rules through joint guidelines, learning contracts, or school circulars.

The importance of supervision while children use gadgets is emphasised in various studies. (Livingstone, S., & Helsper, 2008) argue that active co-viewing – where parents accompany their children while engaging in dialogue – has been shown to improve children's understanding and reduce negative risks. Parents can ask their children about their favourite characters or connect digital content to the real world to reinforce learning.

In addition to duration, the quality of content and the context of its use are equally important. The use of ICT-based drawing applications at RA Al Hikmah

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enhances children's learning engagement. However, the success of these applications heavily depends on parental supervision at home. This highlights that the selection of content and interactions during screen time are more important than simply counting screen time. Early childhood education also plays an active role in assisting parents. Several institutions have held workshops on the dangers of gadget addiction or implemented a daily communication system to monitor children's screen behaviour. This is part of a collaborative effort between home and school to guide children towards healthy and educational use of technology.

1.4 Relationship between Themes and Conclusions

From the analysis of the three categories above, it is evident that mediation strategies, parent-teacher collaboration, and gadget/screen time management are closely interrelated. Effective mediation strategies require collaboration: teachers can guide parents on appropriate accompaniment techniques, and conversely, parents can provide feedback on their children's digital habits at home (Livingstone, S., & Helsper, 2008 ; (Latif et al., 2023). For example, teachers who notice a child obsessed with a particular character can discuss this with parents to control access to such content.

Without collaboration, mediation strategies can be inconsistent: parents may ban screen time entirely at home, while at school children are given unrestricted access. Consistency across various contexts is essential, as it underscores that alignment between the home and school environments supports the holistic development of children.

Managing gadgets and screen time also requires strong mediation strategies and collaboration. Screen time limits are only effective when enforced together. For example, a 'screen-free day' policy at school should be supported at home on the same day so that children understand that the rules are consistent. This was demonstrated by (Latif et al., 2023), who found that children were more structured in their gadget use when teachers and parents coordinated during the pandemic.

These three categories do not stand alone but form an ecosystem for healthy child development in the digital age. Collaboration provides the foundation for communication; mediation strategies offer concrete techniques; and screen time management becomes the daily implementation. The synergy of these three elements enables young children to benefit from technology without getting trapped in its risks. With this holistic approach, children's digital experiences can be designed to be safe, educational, and character-building during their golden years of development.

Discussion

This review has highlighted how parents and teachers play distinct but interconnected roles in managing technology use among young children. We identified three thematic areas-Parental Roles, Teacher Roles, and Shared Challenges-and now consider their interrelationships and implications in a broader context. The integration of these themes reveals a complex, yet promising, dynamic where both home and school environments can work synergistically to shape children's digital habits. A coherent and aligned approach from both sides may provide the consistency children need to develop

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healthy and productive relationships with technology.

The first two themes naturally complement each other. Parents and teachers both aim to harness technology's educational potential while limiting its risks, albeit from different vantage points. While parents influence when and what children access at home, teachers guide how technology is used during structured learning. As noted by (Fitzpatrick et al., 2023), children benefit most when educational apps are consistently used across settings, allowing practice at home to reinforce learning at school. However, when approaches diverge-such as when unrestricted access at home contradicts classroom limits-children may experience confusion and frustration. Studies such as underscore the importance of school-family communication, suggesting that user-friendly digital tools and mutual understanding are prerequisites for coordinated strategies. Although Peete, offers a practitioner viewpoint, it supports the notion that dialogue on classroom tech rules can promote coherence. Shared frameworks, such as parent-teacher tech agreements or collaborative media plans, may bridge the home-school divide effectively.

Globally, the issues we explored are universal, yet their expression varies depending on local context. In high-income countries, device abundance may raise concerns of overuse, while in lower-income settings, challenges often centre around access and literacy. For example, (Asmayawati, 2023) showed that Indonesian children's digital literacy improved with active parental involvement-provided that families had access to devices. Similarly, (Najmudin et al., 2023) describe how digital immigrant parents in Indonesia are enthusiastic about educational tech but face hurdles in content supervision. These findings suggest that while the role of parents remains pivotal, support systems must account for socioeconomic and cultural conditions. (Choy, Y. N., Lau, E. Y. H., & Wu, 2024) further emphasises the influence of SES, noting that digital parenting styles vary according to education and resources. For teachers, disparities in school funding directly affect their capacity to meaningfully integrate technology. Therefore, interventions should be tailored-ranging from providing basic digital skills training in under-resourced areas to managing screen time abundance in digitally saturated homes.

The combined analysis of parental and teacher perspectives contributes to a broader understanding of early childhood education (ECE). While prior research has often explored these domains separately, our synthesis bridges the gap, revealing a holistic view of children's digital ecology. By framing roles and challenges within a shared ecosystem, we highlight the need for cooperative strategies across both home and institutional settings. This synthesis may inform the development of new models of digital education that centre around co-responsibility and shared engagement. As emphasised (Danby, 2024), digital competence is increasingly embedded in ECE curricula worldwide. Teachers are expected to not only deliver content but also guide students in responsible digital practices. Likewise, parents cannot abdicate responsibility to schools; both actors are vital to a balanced digital upbringing. The alignment of early childhood policies on screen time, app usage, and digital literacy-across both settings-would provide a consistent framework for children's development. (Neumann, 2018)

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Despite encouraging findings, it is important to recognise the limitations in current research. Most studies included in this review were cross-sectional or qualitative, limiting their ability to establish causal links between mediation strategies and child outcomes. Notable exceptions, such as (Fitzpatrick et al., 2023), provide valuable longitudinal insights but remain rare. Many context-specific studies-like those by Asmayawati and Najmudin-highlight local relevance but may lack generalizability to other cultural or economic contexts. Moreover, most research focuses on adult perspectives, leaving children's voices underrepresented. As young digital users, children's experiences, preferences, and coping strategies warrant direct exploration. This gap represents a critical avenue for future qualitative and participatory research in digital childhood studies.

Based on our findings, several practical recommendations emerge. First, preschool programs should include joint parent-teacher workshops to harmonise strategies and expectations. Orientation sessions can include collaborative planning on family media practices and digital classroom use. Second, teacher professional development should extend beyond digital tools to include skills for engaging and educating families about technology. It is essential to equip teachers so they can also support parents in digital learning. Third, policymakers need to address the digital divide by investing in equitable access to child-appropriate devices and content, particularly in underserved communities. Initiatives such as technology subsidies or community-based lending libraries can help reduce the structural barriers identified by Asmayawati (Asmayawati, 2023). Lastly, future research should prioritise intervention studies that evaluate the long-term impact of coordinated parent-teacher efforts on children's development. Experimental designs could assess the effectiveness of digital literacy curricula, family co-use programmes, or peer mentoring models. There is also room to explore the influence of extended family members-such as grandparents-and emerging technologies like augmented or virtual reality.

Conclusions

This systematic review has explored how parents and teachers, each from their unique perspectives, play key roles in shaping the way young children engage with technology. At home, parents guide digital habits by setting rules, watching content together, and opening conversations about what their children see on screen. These strategies often reflect personal beliefs, familiarity with technology, and cultural values. In contrast, teachers approach technology from an educational angle, weaving it into lessons and supervising its use to support learning. Their efforts are influenced by school policies, training, and access to tools.

Although their environments differ, parents and teachers share a common goal: to help children gain the benefits of digital media while protecting them from its risks. Yet in practice, mismatches often occur-whether in screen-time rules or expectations about content-which can lead to confusion for the child. Shared challenges such as limited access to devices, uneven levels of adult digital literacy, and constantly evolving media trends further complicate matters. That's why collaboration between home and school is

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so crucial. When adults coordinate their efforts, children receive clearer, more consistent guidance.

Bringing this collaboration to life calls for concrete initiatives. Joint workshops where parents and teachers learn together, resources that help adults build digital confidence, and shared policies that bridge the home-school divide are all practical steps forward. Schools can take the lead by becoming spaces where families feel supported in their digital journeys, and where inclusive policies consider the varying realities of each household. Moreover, early education standards must keep pace with the digital world-acknowledging that media education is no longer just a school concern but a shared family responsibility.

Looking ahead, more research is needed to deepen our understanding. Many current studies offer valuable insights, but few track long-term effects or directly measure how parent-teacher collaboration influences children's digital development. Future research could include longitudinal studies that follow children over time, or intervention-based studies that test what happens when schools and families work hand-in-hand. It's also time to hear more from the children themselves. Exploring their voices, especially across different cultures and communities, will provide a fuller picture. There's also room to explore how grandparents, siblings, or even emerging technologies like virtual reality shape the digital lives of children.

Ultimately, this review emphasises that guiding children through today's digital landscape isn't something parents or teachers can do alone. It's a joint journey-one where both sides bring unique insights and strengths. When those efforts are coordinated and supportive, children are far more likely to develop smart, healthy relationships with technology. As the digital world continues to grow and change, so too must our approach to early childhood education-rooted in collaboration, equity, and shared responsibility.

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