



Teacher and Parental Mediation of Digital Media Use in Early Childhood Education: A Systematic Literature Review of Empirical Evidence on Children's Learning, Digital Literacy, and Identity Development

Hasmawaty^{1*}, Abriadi Muhara²

Makassar State University, Makassar, Indonesia

Corresponding Author: Hasmawaty hasmawaty@unm.ac.id

ARTICLE INFO

Keywords: Early Childhood Education; Digital Media; Parental Mediation; Teacher Mediation; Systematic Literature Review

Received: 28, July

Revised: 27, August

Accepted: 30, September

©2026 Hasmawaty, Muhara: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

Digital media use in early childhood education is increasing, yet empirical evidence on how teachers and parents mediate children's digital experiences remains fragmented. This study aims to synthesize forms of digital media use, teacher and parental mediation practices, and reported learning, digital literacy, media literacy, identity-related, and developmental outcomes. A systematic literature review design guided by PRISMA 2020 was employed. The search was conducted in Scopus using keywords related to early childhood education, digital media, parental/teacher mediation, and learning or developmental outcomes. From 112 records, 33 studies met inclusion criteria and were analyzed through narrative thematic synthesis. Findings show that screen-based media use and digital learning media were most frequently examined. Adult mediation included restriction, supervision, co-use, guided use, home-learning support, and pedagogical integration. Positive outcomes were commonly reported when digital media use was purposeful, interactive, and adult-supported. Future research should examine children's digital literacy, media literacy, and identity outcomes.

INTRODUCTION

The advancement of digital technology has significantly altered how young children interact, socialize, learn, and obtain information (Demeke et al., 2022; Kasmianti, 2025). Within early childhood education, digital media have evolved from mere supplementary tools into integral components of children's daily lives and learning experiences, both at home and in academic settings (Munzer et al., 2025; Nolan & Moore, 2024). A diverse range of digital media including screen-based interfaces, educational applications, digital storytelling, play platforms, and emerging technologies like augmented and virtual reality is increasingly incorporated into caregiving and instructional activities (Samuelsson et al., 2021; Soyoo et al., 2023). This trend presents early childhood education with both new challenges and unique opportunities to ensure that digital media usage is appropriately aligned with children's developmental requirements (Kontkanen et al., 2023; Portes et al., 2024).

While digital media hold the potential to enhance children's literacy, learning, engagement, and development, their use generates concerns particularly when engagement is passive, unguided, excessive, or lacks adult support (Barr et al., 2020; Qu et al., 2025). Consequently, the role of parents and teachers in mediating children's digital interactions is paramount (Furenes et al., 2021; Muthmainah & Kurniasari, 2025). Educators function not only as technology users in the classroom but also as learning designers, facilitators, and sources of scaffolding for digital activities (Masoumi & Bourbour, 2024; Szabó et al., 2024). Simultaneously, parents play a critical part in curating content, managing screen time, participating in shared use, supervising activities, and linking digital engagement to home-based learning and development (Moon, 2025; Zha et al., 2025). Thus, the fundamental challenge in early childhood education is not determining whether children should access digital media but rather ensuring that such use is effectively mediated by teachers and parents (Lindeman et al., 2021; Oró, 2021).

LITERATURE REVIEW

Nevertheless, empirical research on digital media usage in early childhood education exhibits significant variation in methodological approaches, terminology, focus, examined media types, and reported outcomes (Strouse et al., 2024; Vidal-Hall et al., 2020). Some studies prioritize developmental risks and screen time, while others emphasize the benefits of digital media as resources for play, literacy, and learning (Caballero-Juliá et al., 2024; Wang et al., 2023). Furthermore, outcomes such as media literacy, digital literacy, identity formation, learning, and child development have not consistently been examined in a balanced manner (Teichert et al., 2021; Vedeckina & Borgonovi, 2021). To address this gap, this article provides a systematic literature review to synthesize empirical evidence regarding the forms of digital media used in early childhood education, how teachers and parents mediate these uses across home and school environments, and the associated learning, literacy, identity-related, and developmental outcomes reported in the literature (Fuentealba & Chávez, 2026; Teichert & Salman, 2023).

METHODOLOGY

To identify, assess, and synthesize empirical evidence concerning teacher and parental mediation of children's digital media usage in early childhood settings, this study utilized a Systematic Literature Review methodology. Adhering to the PRISMA 2020 framework, the review systematically addressed three core domains: the modalities of digital media use, mediation strategies employed by educators and caregivers, and the resulting impacts on learning, literacy (digital and media), identity formation, and child development. The review process encompassed research question formulation, the establishment of eligibility criteria, database searching, screening, quality assessment, data extraction, and narrative thematic synthesis.

Three primary research questions directed this inquiry: What forms of digital media use are documented within empirical studies on early childhood education? How do educators and parents mediate young children's digital media engagement across school and home environments? What is the reported learning, digital literacy, media literacy, identity-related, and developmental outcomes in studies examining mediated digital media use?

Eligible studies comprised peer-reviewed empirical journal articles reporting primary or secondary data via quantitative, qualitative, mixed-methods, or observational designs. Included research needed to focus on the early childhood period (e.g., preschool, kindergarten) and examine various forms of digital technology, screen time, or applications. Furthermore, studies were required to address the involvement of teachers, parents, or caregivers in mediating this technology, or report specific outcomes such as cognitive, social-emotional, or literacy development.

Conversely, exclusion criteria eliminated systematic or scoping reviews, meta-analyses, theoretical or conceptual papers, editorials, and non-empirical sources. Research that did not focus on early childhood, failed to address teacher or parental mediation, or lacked specific empirical relevance to children's digital media use was also disqualified.

The literature search utilized the Scopus database, selected for its comprehensive indexing of international peer-reviewed journals and structured bibliographic metadata. The final search string used in Scopus was: ("early childhood education" OR preschool* OR "pre-school*" OR kindergarten*) AND ("digital media" OR "digital technology" OR "digital learning" OR "digital play" OR "screen time" OR "digital literacy" OR "media literacy") AND ("parental mediation" OR "teacher mediation" OR "parental involvement" OR "teacher perception*" OR "parent* perspective*" OR "teacher* perspective*" OR "home learning" OR "co-use" OR "guided use") AND (learning OR literacy OR "digital literacy" OR "media literacy" OR identity OR development) AND NOT ("systematic review" OR "systematic literature review" OR "scoping review" OR "meta-analysis" OR bibliometric).

The study selection process followed a systematic procedure: initial exporting of records, duplicate removal, title and abstract screening against predefined criteria, and subsequent full-text assessment. Articles were excluded if they failed to provide empirical evidence relevant to the research questions,

with reasons for removal such as inappropriate population, missing mediation focus, or non-empirical methodology meticulously documented.

Methodological quality assessment employed JBI Critical Appraisal Tools, with the specific checklist tailored to each study's design (e.g., qualitative, cross-sectional, quasi-experimental). The MMAT 2018 was applied for mixed-methods studies. Rather than acting as a strict exclusionary mechanism, quality appraisal was utilized to evaluate the trustworthiness and limitations of the evidence during the synthesis phase.

Data extraction utilized a standardized form capturing study details, including research design, participant demographics, digital media modalities, mediation forms, and outcomes. A narrative thematic approach guided the synthesis: RQ1 results were mapped by media usage forms, RQ2 by mediation strategies, and RQ3 by outcome domains (e.g., learning, literacy, developmental). While no meta-analysis was performed, the review synthesized evidence patterns, variations, and contradictions across the included corpus.

Table 1. Data Extraction and Synthesis Framework

No	Data Extraction Component	Description of Data Extracted	Link to Research Question	Use in Synthesis
1.	Study Identity	Author(s), year, article title, journal, country or research context, and DOI if available	RQ1, RQ2, RQ3	Used to identify each study and organize evidence across the review
2.	Study Aim	Main objective or purpose of the study as stated by the authors	RQ1, RQ2, RQ3	Used to determine the focus and relevance of each study
3.	Research Design	Type of study, such as qualitative, quantitative, mixed-methods, cross-sectional, longitudinal, experimental, quasi-experimental, case study, or secondary data analysis	RQ2, RQ3	Used to interpret the strength and nature of evidence
4.	Population and Participants	Participant group, sample size, child age range, and whether the study involved children, teachers,	RQ1, RQ2, RQ3	Used to identify the population and actor of mediation

		parents, caregivers, or families		
5.	Educational Context	Setting of the study, such as preschool, kindergarten, early childhood centre, home, family setting, home-learning environment, remote learning, or school-home context	RQ1, RQ2, RQ3	Used to compare digital media use across school, home, and home-learning contexts
6.	Type of Digital Media Use	Forms of digital media examined, such as screen time, electronic devices, smartphones, tablets, educational apps, digital storytelling, digital play, digital literacy activities, media literacy activities, augmented reality, or artificial intelligence	RQ1, RQ2, RQ3	Used to map categories of digital media use and relate them to mediation and outcomes
7.	Teacher/Parental Mediation Form	Forms of adult mediation, such as restrictive mediation, active mediation, co-use, guided use, supervision, monitoring, parental involvement, teacher guidance, home-learning support, or pedagogical integration	RQ2, RQ3	Used to synthesize how teachers and parents mediate children's digital media use
8.	Outcome Domain	Reported outcomes, such as learning, early literacy, digital literacy, media literacy, identity development, cognitive development, social-emotional	RQ3	Used to group findings into outcome domains

		development, behavior, engagement, school readiness, or well-being		
9.	Key Findings Relevant to RQ	Main findings directly related to digital media use, mediation, and reported outcomes	RQ1, RQ2, RQ3	Used as the main evidence for narrative thematic synthesis
10.	Quality Appraisal Result	Result of methodological quality assessment using JBI or MMAT, including quality level or key methodological limitations	RQ3	Used to weigh the strength of evidence and support cautious interpretation

RESULTS AND DISCUSSION

The study selection process followed the PRISMA 2020 flow structure, consisting of identification, screening, eligibility assessment, and inclusion (Page et al., 2021). A total of 112 records were identified through Scopus. No duplicate records were removed before screening; therefore, all 112 records proceeded to title and abstract screening. During the initial screening stage, 10 records were excluded because they were outside the publication-year limit of the last ten years, leaving 102 records for further screening. Of these, 47 records were excluded because they did not match the scope of the review, particularly in relation to early childhood education, digital media use, teacher or parental mediation, or relevant learning and developmental outcomes.

Following title and abstract screening, 55 reports were sought for full-text retrieval. Of these, 17 reports were excluded because they met the exclusion criteria or did not sufficiently meet the inclusion criteria. As a result, 38 full-text reports were assessed for eligibility. During the full-text eligibility stage, 5 additional reports were excluded because the full texts could not be downloaded or accessed. Finally, 33 studies were included in the systematic literature review.

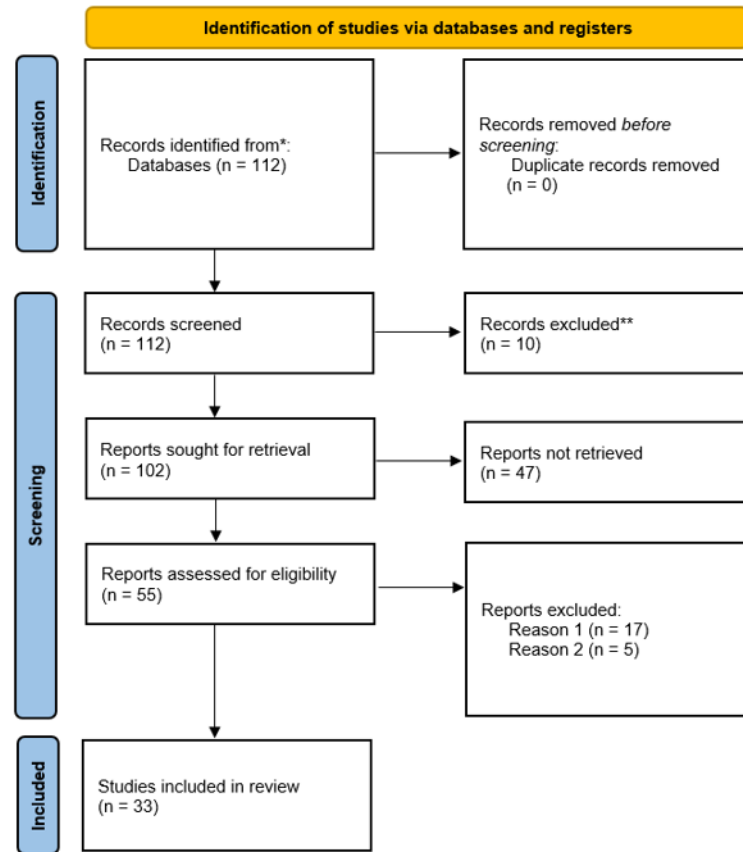


Figure 1. PRISMA 2020 Flow Diagram for New Systematic Reviews

The publications included in this review covered the period from 2023 to 2026. This publication range indicates that teacher and parental mediation of young children's digital media use in early childhood education is a relatively recent and developing research area. The methodological approaches used in the reviewed studies were diverse, including quantitative studies, qualitative studies, mixed-methods research, cross-sectional surveys, longitudinal studies, observational studies, design-based research, secondary data analysis, and perception-based studies involving teachers and parents. This methodological diversity shows that digital media use in early childhood education has been examined not only through statistical relationships among variables, but also through experiences, perceptions, mediation practices, and contextual uses of digital media at home and in school settings.

The participant populations in the reviewed studies included young children, preschool children, kindergarten children, parents, caregivers, early childhood teachers, educators, and families within home-learning environments. The subjects were generally examined in relation to various forms of digital media use, such as screen time, smartphones, tablets, television, educational applications, digital storytelling, digital play, digital learning platforms, augmented reality, and other digital technologies. The study contexts included home environments, schools, preschools, kindergartens, early childhood education settings, remote-learning situations, and specific social conditions,

such as low-income families, refugee children, and families from different socio-economic backgrounds. Overall, the included studies provide a broad picture of how teachers and parents mediate children’s digital experiences across learning, development, literacy, and school-readiness contexts.

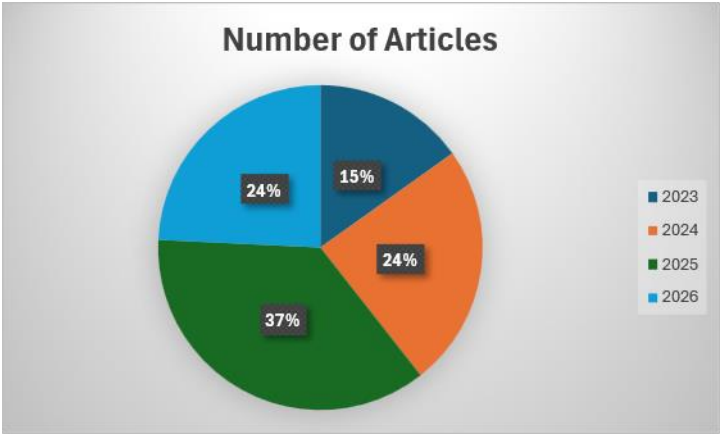


Figure 2. Article and Year of Publication

The synthesis regarding RQ1 reveals that empirical research in early childhood education encompasses a broad array of digital media applications. The primary focus was on screen-based media, such as televisions, mobile devices, computers, and general screen exposure. Digital learning media emerged as a secondary thematic category, covering resources like e-books, educational platforms, applications, digital storytelling, and multimedia content. Furthermore, scholars investigated interactive digital play—including gamification and both augmented and virtual reality—while a smaller subset of studies concentrated on digital and media literacy practices or nascent technologies like artificial intelligence.

Table 2. Mapping of Digital Media Use in Included Studies

Category	Examples of Digital Media Use	Main Contexts
Screen-based media use	Screen time, television, smartphone, tablet, computer, electronic devices	Home, family setting, home-learning environment
Digital learning media	Educational apps, digital platforms, e-books, digital storytelling, online videos	Preschool, kindergarten, home learning, remote learning
Digital play and interactive media	Digital games, interactive apps, gamification, virtual reality, augmented reality	Home, classroom, play-based learning
Digital/media literacy activities	Digital literacy, media literacy, digital engagement, digital competence	Classroom, home learning, teacher-mediated settings

Emerging digital technologies	Artificial intelligence, augmented reality, virtual reality, gamified tools	Preschool classroom, digital learning environment
-------------------------------	---	---

Regarding RQ2, findings reveal that both parents and educators employed varied approaches to mediate children's digital media engagement. Parental mediation predominantly occurred in home environments, utilizing techniques such as limiting screen time, monitoring content, restricting device access, and engaging in collaborative media use. Conversely, teacher mediation was most prominent in structured or classroom learning environments, characterized by scaffolding, pedagogical integration, and the selection of suitable digital learning resources. In contexts of home-based or remote education, responsibility was often shared, with teachers offering instructional guidance while parents facilitated the child's participation.

Table 3. Thematic Matrix of Mediation Practices

Mediation Theme	Main Actor	Context	Function
Restrictive mediation	Parents/caregivers	Home	Limiting time, access, and content
Monitoring and supervision	Parents/caregivers/teachers	Home and school	Ensuring safe and appropriate use
Co-use/joint media engagement	Parents and children	Home	Supporting interaction and shared meaning-making
Active/guided mediation	Parents/teachers	Home, school, home learning	Explaining, guiding, and scaffolding use
Home-learning support	Parents/teachers	Home-learning environment	Supporting digital learning tasks
Pedagogical integration	Teachers	Preschool and kindergarten	Integrating digital tools into teaching

In synthesizing the findings for RQ3, it was observed that developmental and learning-related metrics were the most cited outcomes. Developmental impacts encompassed cognitive growth, executive functioning, attention, prosocial conduct, social-emotional development, self-regulation, child well-

being, and behavioral issues. Learning outcomes focused on engagement, motivation, academic and school readiness, early literacy, vocabulary, oral language skills, and active participation. In contrast, digital literacy outcomes were less prevalent, often limited to basic tool familiarity. Outcomes concerning identity and media literacy were the least documented. Synthetically, the findings suggest that pedagogically integrated, structured, and guided digital media use is typically linked to positive outcomes, whereas unguided, excessive, or problematic usage often correlates with negative or mixed results.

Table 4. Outcome Synthesis of Included Studies

Outcome Domain	Reported Outcomes	General Pattern
Learning outcomes	Engagement, motivation, school readiness, academic readiness, early learning skills	More positive when digital use was guided and structured
Early literacy/language	Vocabulary, oral expression, emergent literacy, language development	Mixed; stronger when supported by adult scaffolding
Digital literacy	Digital engagement, familiarity with digital tools, digital competence	Less frequently measured as child-level outcome
Media literacy	Understanding content, guided media awareness, responsible use	Rarely measured directly
Identity-related outcomes	Cultural relevance, self-expression, identity-related engagement	Limited and emerging
Developmental outcomes	Cognitive, social-emotional, behavioral, well-being outcomes	Mixed; influenced by duration, content, and mediation quality

The evidence indicates that digital media usage in early childhood settings is a multifaceted construct, not a singular, uniform practice. Because the reviewed literature varied in its conceptualization of "digital media"—encompassing everything from passive screen time and educational software to interactive technologies and digital play—broad generalizations regarding its impact are problematic. Instead, research outcomes must be evaluated by accounting for the unique characteristics of the media, the intended goals, the setting, and the degree of adult oversight. Consequently, distinct forms of digital engagement, such as augmented reality applications, digital storytelling, and guided home-learning activities, require nuanced, separate analysis.

Furthermore, the review underscores the pivotal influence of educators and caregivers in facilitating children's digital interactions. Parental involvement predominantly surfaced in research concerning household media habits, supervision, content regulation, and restrictive or collaborative use. Conversely, teacher engagement was more prominent in investigations of formal classroom integration, including digital storytelling, augmented reality, and intentional

pedagogical application. This disparity underscores the context-specific nature of mediation: while home-based efforts typically emphasize oversight and control, school-based interventions are generally characterized by instructional design, scaffolding, and curricular integration.

Table 5. Interpretation of Adult Mediation Roles

Adult Role	Main Function	Typical Context
Gatekeeper	Regulates access, time, and content	Home
Supervisor	Monitors safety and appropriateness	Home and school
Co-user	Engages with children during media use	Home
Facilitator	Supports understanding and interaction	Home and classroom
Pedagogical designer	Integrates digital media into learning	Preschool/kindergarten
Home-learning supporter	Assists digital learning outside school	Home-learning environment

The results indicate that the consequences of digital media engagement are largely contingent upon the nature of its application and the level of adult support. Structured, interactive, and guided digital experiences are typically linked to favorable developmental, literacy, and learning outcomes. Conversely, passive or unmonitored screen time is more frequently associated with mixed or detrimental effects, particularly regarding attention, executive function, and behavioral regulation. Consequently, the core issue is not simply the existence of digital media in children's lives, but rather ensuring that such use is intentional, developmentally aligned, and scaffolded by adults.

The review identifies critical shortcomings in existing evidence. Specifically, learning and developmental outcomes are documented more extensively than those pertaining to media literacy, digital literacy, or identity development. This trend suggests that current literature predominantly views digital media either as a pedagogical tool or a developmental concern, often neglecting the ways young children cultivate creative, critical, and ethical engagements with technology. Additionally, many studies rely on broad metrics, such as device frequency or screen duration, which fail to capture the qualitative nuances of interaction. Future research should prioritize investigating interaction quality, content characteristics, and the social contexts of media usage.

These findings carry significant implications for early childhood education and ongoing research. Educators should integrate digital media as a deliberate pedagogical asset rather than a substitute for direct interaction or play. For parents, mediation should shift from mere restriction to a more inclusive approach encompassing co-use, dialogue, and guidance. Researchers ought to delineate between different modalities of media use to clarify how various forms of mediation impact literacy and developmental growth. Ultimately, this review

promotes a balanced view: while digital media can provide valuable learning opportunities when appropriately mediated, it may also present developmental challenges when excessive or poorly supported.

CONCLUSIONS AND RECOMMENDATIONS

This systematic review compiled empirical research regarding how teachers and parents mediate children's digital media engagement in early childhood settings. The findings reveal that digital media use within this demographic is multifaceted rather than monolithic. It encompasses a wide array of activities, including screen-based media, educational apps, digital platforms, virtual reality, augmented reality, digital storytelling, and play-based tools. Analysis shows that research predominantly focuses on screen-based media and digital learning tools, whereas topics like identity-focused digital experiences and digital or media literacy receive comparatively less attention.

Both parents and teachers are pivotal in shaping how children interact with digital media. Parental mediation often centers on regulating screen time, overseeing content, establishing rules, participating in media use, and fostering learning at home. In contrast, teachers tend to focus on integrating digital tools into pedagogy, providing structured guidance, and utilizing digital storytelling within the classroom. Ultimately, these results imply that adult mediation encompasses more than just restrictive or supervisory actions; it extends to pedagogical design, scaffolding, content selection, and active co-participation.

Regarding outcomes, the literature primarily highlights developmental and educational impacts, such as motivation, engagement, school readiness, language, cognitive abilities, executive functions, social-emotional growth, and general well-being. Positive results are frequently linked to digital media use that is purposeful, interactive, well-guided, and educationally integrated. Conversely, passive, excessive, or unguided screen engagement is more likely to yield neutral or adverse results. Consequently, the influence of digital media in early childhood environments is contingent upon factors such as content quality, the nature of adult mediation, the surrounding interactional context, and the intended educational objectives, rather than solely on usage duration or access.

These findings carry significant practical implications. Early childhood educators are encouraged to incorporate digital media into their practice in ways that are purposeful, developmentally suitable, and aligned with play-based pedagogy. Teachers should operate as facilitators, guiding children's interaction with digital tools rather than utilizing technology to replace hands-on learning, play, or direct interpersonal engagement. Similarly, parental mediation should extend beyond screen-time restrictions. Parents are advised to participate in co-use, facilitate discussions about digital content, choose age-appropriate materials, and bridge digital activities with broader developmental and daily learning experiences.

This review also suggests directions for future inquiry. There is a need for more empirical investigation into media literacy, digital literacy, and identity-related outcomes, as these areas are currently underrepresented in existing literature. Future research should look past general screen-time metrics to explore

specific variables like the type of content, the quality of adult-child interactions, the nature of mediation, usage purposes, and socio-cultural contexts. Specifically, conducting longitudinal, quasi-experimental, and mixed-methods research would enhance the evidence regarding how teacher and parental mediation impacts young children's development and learning within digital contexts.

In summary, this review advocates for a balanced viewpoint regarding digital media use in early childhood education. When properly mediated by teachers and parents, digital tools can provide significant opportunities for literacy, engagement, development, and learning. Conversely, inadequate mediation—especially when usage is passive, excessive, or lacks educational focus—may introduce risks. Thus, the pivotal question is not whether young children should interact with digital media, but rather how parents and teachers can effectively mediate this usage to foster holistic development.

REFERENCES

- Barr, R., Kirkorian, H. L., Radesky, J., Coyne, S. M., Nichols, D. L., Blanchfield, O., Rusnak, S. N., Stockdale, L., Ribner, A., Durnez, J., Epstein, M., Heimann, M., Koch, F., Sundqvist, A., Thornberg, U. B., Konrad, C., Slussareff, M., Bus, A. G., Bellagamba, F., & Fitzpatrick, C. (2020). Beyond Screen Time: A Synergistic Approach to a More Comprehensive Assessment of Family Media Exposure During Early Childhood. *Frontiers in Psychology, 11*. <https://doi.org/10.3389/fpsyg.2020.01283>
- Caballero-Juliá, D., Lucas, J. M., & Silva, L. E. A. (2024). Unpacking the relationship between screen use and educational outcomes in childhood: A systematic literature review. *Gredos (University of Salamanca), 215*, 105049. <https://doi.org/10.1016/j.compedu.2024.105049>
- Demeke, M. M., Gebremedhin, Z. A., & Yohannes, T. K. (2022). The Role of Technology in Early Childhood Education: Enhancing Learning Experiences. *Proceeding of The International Conference of Inovation Science Technology Education Children and Health, 2*(1), 278–282. <https://doi.org/10.62951/icistech.v2i1.146>
- Fuentealba, V., & Chávez, C. F. (2026). Digital technologies as a mediator between personal and social development in early education: A systematic review. In *OSF Preprints (OSF Preprints)*. Center for Open Science. <https://osf.io/xgptk>
- Furenes, M. I., Kucirkova, N., & Bus, A. G. (2021). A Comparison of Children's Reading on Paper Versus Screen: A Meta-Analysis. *Review of Educational Research, 91*(4), 483–517. <https://doi.org/10.3102/0034654321998074>

- Kasmiati, K. (2025). Digital Literacy Integration in Early Childhood Education: Challenges and Opportunities in the 21st Century. *World Journal of Advanced Research and Reviews*, 27(1), 387–391. <https://doi.org/10.30574/wjarr.2025.27.1.2032>
- Kontkanen, S., Pöntinen, S., Kewalramani, S., Veresov, N., & Havu-Nuutinen, S. (2023). Children's digital competence in early childhood education: A comparative analysis of curricula. *Eurasia Journal of Mathematics Science and Technology Education*, 19(1). <https://doi.org/10.29333/ejmste/12798>
- Lindeman, S., Svensson, M., & Enochsson, A.-B. (2021). Digitalisation in early childhood education: a domestication theoretical perspective on teachers' experiences. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-021-10501-7>
- Masoumi, D., & Bourbour, M. (2024). Framing adequate digital competence in early childhood education. *Education and Information Technologies*, 29(15), 20613–20631. <https://doi.org/10.1007/s10639-024-12646-7>
- Moon, Y. K. (2025). Beyond devices: preschoolers' learning behaviors as moderators of the link between home digital resources and their digital literacy. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1613793>
- Munzer, T., Barr, R., & Nielsen, M. (2025). Early media exposure. In *Frontiers in Developmental Psychology* (Vol. 3, p. 1574111). Frontiers Media SA.
- Muthmainah, M., & Kurniasari, M. (2025). Exploring Maladaptive Coping in Young Children Using Smartphones: A Qualitative Study. *International Journal of Interactive Mobile Technologies (IJIM)*, 19(20), 132–150. <https://doi.org/10.3991/ijim.v19i20.56465>
- Nolan, A., & Moore, D. (2024). Broadening the Notion of Peer-To-Peer Interactions When Young Children Engage With Digital Technology. *Early Childhood Education Journal*. <https://doi.org/10.1007/s10643-024-01662-4>
- Oró, M. G. i. (2021). Mediación digital parental. ¿Es necesaria una educación digital en la primera infancia? *EduTec Revista Electrónica de Tecnología Educativa*, (76), 7–21. <https://doi.org/10.21556/edutec.2021.76.2037>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Bmj*, 372.

- Portes, C. S. V., Vaz, F. A. J., Cazeli, G. G., Ferreira, H., Mota, M. F. A., Maciel, R. C. A., Freitas, T. S., & Silva, W. L. da. (2024). *O PAPEL DAS TECNOLOGIAS DIGITAIS NA FORMAÇÃO DE PROFESSORES OPORTUNIDADES E DESAFIOS DOS AMBIENTES VIRTUAIS DE APRENDIZAGEM* (pp. 100–126). <https://doi.org/10.51891/rease.978-65-6054-111-5-4>
- Qu, F., He, S., Yu, F., & Gu, C. (2025). The impact of electronic device use on learning quality in young children: the mediating role of executive function and the moderating role of parental mediation. *Frontiers in Public Health*, 13. <https://doi.org/10.3389/fpubh.2025.1609878>
- Samuelsson, R., Price, S., & Jewitt, C. (2021). How pedagogical relations in early years settings are reconfigured by interactive touchscreens. *British Journal of Educational Technology*, 53(1), 58–76. <https://doi.org/10.1111/bjet.13152>
- Soyoof, A., Reynolds, B. L., Neumann, M. M., Scull, J., Tour, E., & McLay, K. (2023). The impact of parent mediation on young children's home digital literacy practices and learning: A narrative review. *Journal of Computer Assisted Learning*, 40(1), 65–88. <https://doi.org/10.1111/jcal.12866>
- Strouse, G. A., Opoku, A., Mourlam, D., Newland, L. A., Chesnut, S. R., & Williams, J. M. (2024). Educators' enacted beliefs about the use of print and digital media in early and middle childhood classrooms. *Discover Education*, 3(1). <https://doi.org/10.1007/s44217-024-00329-x>
- Szabó, D., Győri, K., Lajos, P., & Pusztai, G. (2024). Systematic literature review on parental involvement in digital education. *Journal of Media Literacy Education*, 16(2), 98–107. <https://doi.org/10.23860/jmle-2024-16-2-8>
- Teichert, L., Anderson, J., Anderson, A., Hare, J. L., & McTavish, M. (2021). Access and Use of Digital Technologies in Early Childhood: A Review of Mixed Messages in Popular Media. *Language and Literacy*, 23(3), 106–129. <https://doi.org/10.20360/langandlit29546>
- Teichert, L., & Salman, M. (2023). Digital technology in the early years: A reflection of the literature. *McGill Journal of Education / Revue Des Sciences de l'Éducation de McGill*, 56, 292–313. <https://doi.org/10.7202/1096456ar>
- Vedechkina, M., & Borgonovi, F. (2021). A Review of Evidence on the Role of Digital Technology in Shaping Attention and Cognitive Control in Children. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.611155>

- Vidal-Hall, C., Flewitt, R., & Wyse, D. (2020). Early childhood practitioner beliefs about digital media: integrating technology into a child-centred classroom environment. *European Early Childhood Education Research Journal*, 28(2), 167–181. <https://doi.org/10.1080/1350293x.2020.1735727>
- Wang, C., Qian, H., Li, H., & Wu, D. (2023). The status quo, contributors, consequences and models of digital overuse/problematic use in preschoolers: A scoping review. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1049102>
- Zha, S., Tang, Y., Gong, J., & Xu, Y. (2025). COLP: Scaffolding Children's Online Long-Term Collaborative Learning. *International Journal of Human-Computer Interaction*, 1–23. <https://doi.org/10.1080/10447318.2025.2498492>