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Digital Parenting in Early Childhood: A Systematic Review of Strategies, Risks, and Recommendations

Laila Agustina[1], Ernawulan Syaodih[2]

[1] Universitas Pendidikan Indonesia, Bandung, Indonesia; lailaagustina@upi.edu
[2] Universitas Pendidikan Indonesia, Bandung, Indonesia

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ABSTRACT

Digital parenting plays an increasingly important role in shaping young children's digital experiences. However, existing research remains fragmented across disciplines, with limited integration of parental mediation strategies, implementation challenges, and ecosystem-level recommendations. This study systematically synthesizes research trends, digital parenting strategies, associated risks, and implications for early childhood education. A systematic mixed-evidence review was conducted following PRISMA 2020 guidelines. Scopus-indexed publications from 2016 to 2026 were screened, yielding 41 eligible sources. Descriptive analysis, VOSviewer-based bibliometric mapping, and thematic synthesis were employed. Methodological quality was appraised using design-appropriate JBI tools, MMAT 2018, and COSMIN principles. Research activity increased substantially after 2020, with 53.7% of included sources published between 2024 and 2026. Seven digital parenting strategies were identified: restrictive mediation, active mediation, co-use, joint media engagement, monitoring, parental role-modeling, and digital parenting education. Major challenges included problematic media use, parental digital literacy limitations, socioeconomic inequalities, developmental concerns, and platform-related risks. The evidence predominantly supported descriptive and associational conclusions, while causal evidence remained limited. An integrative ecological model highlighted the interconnected roles of family circumstances, parental competencies, mediation practices, and children's digital experiences. Effective digital parenting requires more than screen-time restrictions. Developmentally appropriate guidance should integrate responsive parent–child interaction, digital literacy, equitable family support, educator collaboration, and platform accountability. These findings provide an evidence-informed framework for strengthening family–school partnerships and developing healthier digital ecosystems in early childhood education.

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Corresponding Author:
Laila Agustina
Universitas Pendidikan Indonesia, Bandung, Indonesia; lailaagustina@upi.edu

1. INTRODUCTION

Digital technologies are now embedded in young children's everyday experiences of play, communication, entertainment, and learning. Because most early digital encounters occur within family routines, parents do more than control access: they select content, set boundaries, interpret media messages, model technology habits, and protect children from privacy, commercial, and platform-related risks. Digital parenting has therefore developed as an interdisciplinary concern linking early childhood education, developmental psychology, family communication, digital literacy, and child protection (Choy et al., 2024; Mannell et al., 2024; Tan et al., 2024).

Digital parenting extends established parenting practices into technology-rich environments. It includes screen-time and routine management, active discussion, co-use, joint media engagement, technical supervision, privacy protection, and parental role-modeling. This broader conceptualization is important because a child's digital experience is shaped not only by duration but also by content, purpose, interactivity, social context, adult responsiveness, and its relationship with offline activities (Barr, 2019; Barr et al., 2020; Tan et al., 2024).

Early childhood is a particularly sensitive period because young children depend on responsive adults for language, emotional regulation, attention, and meaning-making. Sedentary screen use must be balanced with sleep, physical activity, direct social interaction, and active play (WHO, 2019). At the same time, digital media should not be framed as uniformly harmful or beneficial. Developmental associations vary according to what children use, how they use it, and whether adults provide contingent support, while excessive, passive, or poorly regulated use may displace interaction and be associated with weaker developmental outcomes (Madigan et al., 2019, 2020; Munzer et al., 2026; Pedrotti et al., 2024).

Adult involvement can alter the quality of digital experiences. A systematic review and meta-analysis found a small positive association between adult-child co-use and learning among children aged 0-6 years, although the primary evidence base was heterogeneous and frequently affected by risk-of-bias concerns (Taylor et al., 2024). Longitudinal evidence also suggests that restrictive mediation may be associated with later compliance with preschool screen-time recommendations, but such findings remain observational and context dependent (Fitzpatrick et al., 2023). These results support a shift from asking only how long children use screens toward examining the quality of mediation, communication, content, and family routines.

The issue is increasingly relevant in Indonesia. Government communication citing 2024 national statistics reported that 39.71% of young children had used a mobile phone and 35.57% had accessed the internet, indicating that digital exposure begins well before school age (Kementerian Komunikasi dan Digital, 2025). Government Regulation No. 17 of 2025 further establishes responsibilities for electronic-system governance, supervision, administrative sanctions, and participation by government institutions and society in protecting children online (Government of Indonesia, 2025). Digital parenting must therefore be understood as both a family practice and part of a broader early childhood, digital-literacy, and child-protection ecosystem.

Several gaps justify a systematic synthesis. Research remains dispersed across disciplines, many studies emphasize screen duration rather than content and context, and the evidence base is dominated by cross-sectional designs, parental self-report, convenience samples, and heterogeneous measurement instruments (Mannell et al., 2024; Tan et al., 2024). Existing syntheses also vary in age scope and methodological appraisal, while the roles of parents, educators, platforms, and policy are rarely integrated into one model (Choy et al., 2024; Taylor et al., 2024).

This review therefore aims to identify research trends, synthesize digital-parenting strategies, examine risks and implementation barriers, and derive recommendations for healthy, safe, and developmentally appropriate digital ecosystems. The review treats digital parenting as a relational and ecological process involving regulation, guidance, communication, role-modeling, digital competence, child characteristics, family resources, educational partnership, and platform governance.

The review was guided by four research questions:

RQ1. What research trends have emerged in studies of digital parenting in early childhood over the past decade?

RQ2. Which digital-parenting strategies have been most frequently examined in supporting young children's digital-media use?

RQ3. What risks, challenges, and barriers do families and early childhood institutions encounter when implementing digital-parenting practices?

RQ4. What recommendations does the literature provide for developing healthy, safe, and developmentally appropriate digital ecosystems for young children?

2. METHODS

2.1 Research Design

This study used a systematic mixed-evidence review design and followed PRISMA 2020 reporting guidance. PRISMA was used to document identification, screening, eligibility assessment, amendments to the eligibility criteria, and final inclusion (Page et al., 2021). The review combined descriptive mapping with thematic synthesis because the corpus included qualitative, quantitative, mixed-methods, measurement-property, evidence-synthesis, and textual sources.

2.2 Data Sources and Search Strategy

The search was conducted in Scopus using the Advanced Search interface. Scopus was selected for its multidisciplinary coverage of education, psychology, social sciences, communication, health, and technology. The final search was retrieved on 16 April 2026 and was limited to English-language records published from 2016 through 2026. The search combined terms for digital parenting and parental mediation, early childhood, and digital media. Table 1 presents the principal search structure.

Table 1. Data Source and Search Strategy

Element	Specification
Database	Scopus
Search period	2016-2026
Retrieval date	16 April 2026
Fields	Title, abstract, and keywords
Core concepts	Digital parenting/parental mediation AND early childhood AND digital media
Principal query	("digital parenting" OR "media parenting" OR "parental mediation" OR "parental monitoring" OR "active mediation" OR "restrictive mediation" OR "co-viewing" OR "co-use" OR "joint media engagement") AND ("early childhood" OR preschool OR kindergarten OR toddler OR infant OR "young children" OR "children aged 0-6") AND ("digital media" OR "screen time" OR smartphone OR tablet OR television OR video OR internet OR "digital technology")
Limits	English; publication year 2016-2026; Social Sciences or Psychology; exact-keyword filters applied in the original search

2.3 Eligibility Criteria and Full-Text Re-audit

The original protocol focused on peer-reviewed empirical articles concerning digital parenting, parental mediation, and young children's digital-media use. Before the final synthesis, a full-text audit identified that the corpus contained relevant methodological studies, evidence syntheses, and a narrative conceptual source. The eligibility criteria were therefore amended transparently to retain sources that contributed directly to the review questions, while primary, secondary, and textual evidence were classified and synthesized separately. Reporting this amendment is consistent with PRISMA 2020 requirements for documenting changes to eligibility criteria (Page et al., 2021).

Table 2. Inclusion and Exclusion Criteria

Aspect	Inclusion criteria	Exclusion criteria
Database and publication type	Peer-reviewed journal articles indexed in Scopus. Eligible evidence included primary empirical research, methodological or instrument-development studies, systematic or scoping evidence syntheses, and narrative analyses directly relevant to the review questions.	Books, book chapters, conference papers, editorials, notes, letters, and non-peer-reviewed publications.
Publication period and language	Published in English from 2016 to 2026.	Published outside the period or in languages other than English.
Population	Children aged 0-6 years, or studies reporting identifiable early-childhood findings. Broader-age methodological, secondary, or conceptual sources were retained only when directly relevant and were interpreted with scope cautions.	Studies focused exclusively on school-aged children, adolescents, university students, or adults without separable early-childhood evidence.
Concept	Digital parenting, parental or family mediation, active or restrictive mediation, monitoring, co-use, co-viewing, joint media engagement, parental role-modeling, digital literacy, or family media ecology.	Educational technology without parental/family involvement; general parenting interventions delivered digitally but unrelated to children's media use.
Media context	Digital media, mobile devices, tablets, smartphones, television/video, games, internet platforms, and other networked technologies used by young children.	Non-digital media or technologies unrelated to parenting children's digital experiences.
Evidence handling	Primary, methodological, secondary, and textual evidence were categorized and synthesized according to their evidentiary roles.	Evidence was not pooled across incompatible source types, and participants were not double counted through evidence syntheses or linked samples.

2.4 Study Selection

The study-selection records were reconstructed and verified against the available Scopus search results, screening records, and full-text archive. The Scopus search identified 396 records. Before screening, 69 records were removed for other verified reasons, leaving 327 records for title and abstract screening. Of these, 121 records were excluded because they did not meet the population, concept, or media-context criteria, and 206 reports were subsequently sought for retrieval. The full texts of 120 reports could not be retrieved, leaving 86 reports for eligibility assessment.

Following full-text assessment, 45 reports were excluded: book chapters (n = 19), review articles that did not meet the final eligibility scope (n = 14), conference papers (n = 4), books (n = 2), reports involving an ineligible population or age range identified during the full-text re-audit (n = 4), and reports addressing an ineligible concept or topic (n = 2). The final corpus therefore comprised 41 sources, including 37 primary or methodological sources, three evidence syntheses, and one narrative textual source. The complete study-selection process is presented in Figure 1.

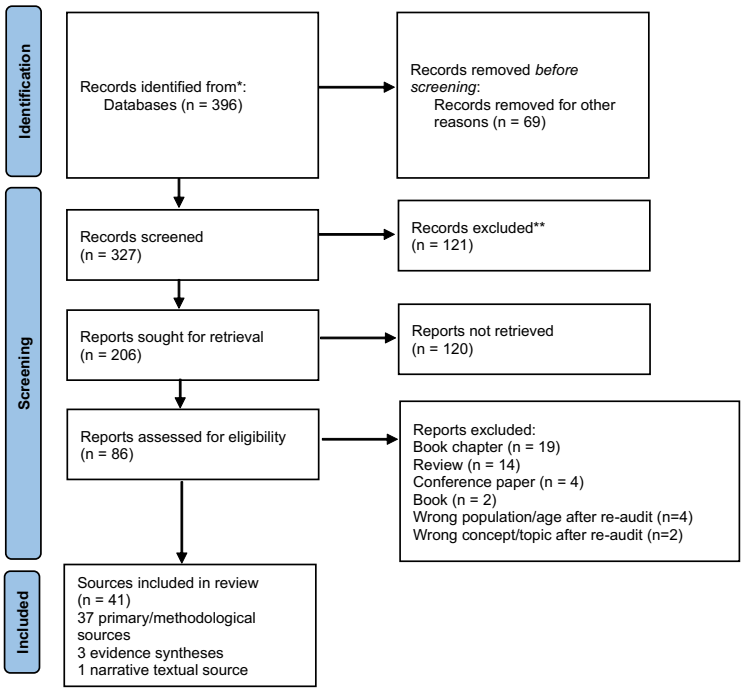


Figure 1. PRISMA flowchart for the Study Selection Process

2.5 Data Extraction and Synthesis

Data extraction covered publication year, source title, country or context, study design, participant characteristics, child age, media type, digital-parenting strategy, outcomes, risks, recommendations, and evidentiary role. Descriptive analysis addressed publication trends and author-keyword frequencies. Thematic synthesis addressed RQ2-RQ4 through iterative coding, descriptive-theme development, and higher-order analytical interpretation, following the progression proposed by Thomas & Harden (2008). Primary or methodological sources, evidence syntheses, and textual evidence were analyzed separately to prevent double counting. The two articles by Savadova and colleagues arose from a linked project and were not treated as independent participant samples.

2.6 Methodological Quality Appraisal

Methodological quality was assessed using design-specific tools. Qualitative studies were evaluated with the JBI qualitative checklist; analytical cross-sectional, cohort, randomized, quasi-experimental, case-control, systematic-review, and textual-evidence sources were evaluated with the corresponding JBI tools (Joanna Briggs Institute, 2026). Mixed-methods studies were assessed using MMAT 2018 (Hong et al., 2018). Measurement-property studies were evaluated at the level of individual properties using COSMIN principles adapted transparently to parent- and proxy-report instruments (Mokkink et al., 2024).

The first author completed the initial item-level appraisal and recorded supporting full-text evidence. The second author subsequently reviewed the full texts, evidence notes, and all appraisal decisions. Consensus was reached for all 41 sources, and a third reviewer was not required. Appraisal findings informed the level of caution applied in synthesis and interpretation; they were not used as an automatic exclusion criterion. No single total-quality score or cut-off was imposed across different appraisal tools.

2.7 Data Analysis and Bibliometric Mapping

To complement the descriptive and thematic synthesis, a term co-occurrence analysis was conducted using VOSviewer. Terms were extracted from the titles and abstracts of the 41 included sources. Binary counting was applied, with a minimum occurrence threshold of two, and 80% of the most relevant terms

were retained. A thesaurus file was used to reduce redundant and non-substantive terms, and the network was normalized using the association-strength method (Van Eck & Waltman, 2010).

3. FINDINGS AND DISCUSSION

3.1 Study Selection and Evidence Profile

The final review included 41 sources published from 2017 to 2026. The corpus consisted of 37 primary or methodological sources, three evidence syntheses, and one narrative textual source. By design, there were 13 qualitative studies, eight analytical cross-sectional studies, five cohort or longitudinal studies, four mixed-methods studies, four measurement-property studies, three evidence syntheses, one randomized experiment, one quasi-experimental study, one case-control study, and one narrative conceptual analysis. Supplementary Table S1 provides the article-level characteristics and appraisal summary.

Table 3. Evidence profile of the 41 included sources

Evidence group	N	Role in review	Primary interpretive caution
Qualitative studies	13	Practices, experiences, family negotiation, cultural meanings	Not used for prevalence or causal estimation
Analytical cross-sectional studies	8	Associations among parenting, exposure, and child/family outcomes	Temporality and residual confounding
Cohort/longitudinal studies	5	Temporal patterns and prospective associations	Attrition, self-report, residual confounding
Mixed-methods studies	4	Integration of patterns and family experiences	Overall inference limited by weaker component
Measurement-property studies	4	Development and validation of digital-parenting instruments	Evidence varies by property and subscale
Evidence syntheses	3	Secondary synthesis and field mapping	Analyzed separately to prevent double counting
Randomized experiment	1	Experimental live-versus-video-chat contrast	Concealment, blinding, and exclusions
Quasi-experimental study	1	Pre-post change after parent education	No control group; preliminary evidence
Case-control study	1	Association with suspected developmental delay	No matching and limited confounder control
Narrative textual source	1	Family media ecology conceptual framing	Not used for effect or prevalence claims

3.2 Methodological Quality of the Included Evidence

The appraisal indicated that the evidence base is methodologically heterogeneous. Qualitative studies generally aligned their questions, data collection, analysis, and interpretations, but researcher positionality and reflexivity were often underreported. Cross-sectional evidence frequently relied on parental self-report, convenience sampling, custom media-exposure measures, and incomplete confounder control. Cohort studies improved temporal ordering, but attrition, missing baseline outcomes, and residual confounding limited causal inference. Mixed-methods studies generally articulated why quantitative and qualitative data were combined, although explicit treatment of divergent findings was uncommon. Measurement-property evidence was uneven: PADTS had the strongest overall psychometric support, while test-retest reliability, measurement error, and responsiveness were generally absent across the instruments (McLaughlin et al., 2026; Mokkink et al., 2024).

Table 4. Design-specific methodological appraisal summary

Evidence group	Main strengths	Recurring limitations	Implication for synthesis
Qualitative	Coherent designs; rich interviews, observations, or triangulation	Limited reflexivity; occasional unclear ethics or wider age scope	Used to explain practices and mechanisms
Cross-sectional	Validated outcomes in several studies; appropriate regression in stronger studies	Self-report exposure; convenience sampling; inconsistent confounder control	Associations only
Cohort/longitudinal	Temporal sequencing; baseline adjustment or advanced missing-data methods in some studies	Attrition; self-report; unavailable baseline outcomes	Stronger temporal evidence, not causal proof
Mixed methods	Clear questions and complementary components	Limited integration procedures and divergence analysis	Interpretation constrained by weakest component
Measurement properties	Strong factor-analytic evidence for selected instruments/subscales	Incomplete content validity and little stability/change evidence	Interpret by property, not a total score
Evidence syntheses	Broad field mapping; one rigorous multilevel meta-analysis	Scoping reviews lacked formal appraisal; small high-risk primary base	Secondary corroboration only
RCT/quasi/case-control	Direct experimental or comparative evidence	Blinding, exclusions, no control, matching, or confounding limitations	Cautious design-specific claims
Narrative evidence	Coherent ecological conceptualization	No systematic search or appraisal	Conceptual framing only

3.3 RQ1. Research Trends

Publication activity accelerated during the latter part of the review period. Two sources were published in 2017, one in 2018, two in 2019, four in 2020, three each in 2021 and 2022, four in 2023, eight in 2024, nine in 2025, and five by the search date in 2026. Thus, 22 of 41 sources (53.7%) were published from 2024 to 2026. The Journal of Children and Media contributed four sources, Frontiers in Psychology contributed three, and several education and developmental journals contributed two each, reflecting the field's interdisciplinary character.

Table 5. Publication trends in the final 41-source corpus

Year	N	Indicative focus
2017	2	Parental mediation and cross-national family practices
2018	1	Socioeconomic differences in mediation competence
2019	2	Family media ecology and supported video interaction
2020	4	Family media assessment, privacy, public advice, and parent education
2021	3	Rules, home media use, and language development
2022	3	Pandemic adaptation, bilingual media assessment, and family mediation
2023	4	Digital overuse, co-engagement intervention, social-emotional outcomes, and screen-time strategies
2024	8	Scoping reviews, instrument validation, cognition, video chat, and mediation
2025	9	Digital literacy, gaming, YouTube, inequality, vulnerable contexts, and qualitative family practices
2026	5	Parent attitudes, multilingual mediation, disadvantaged infants, and parenting education

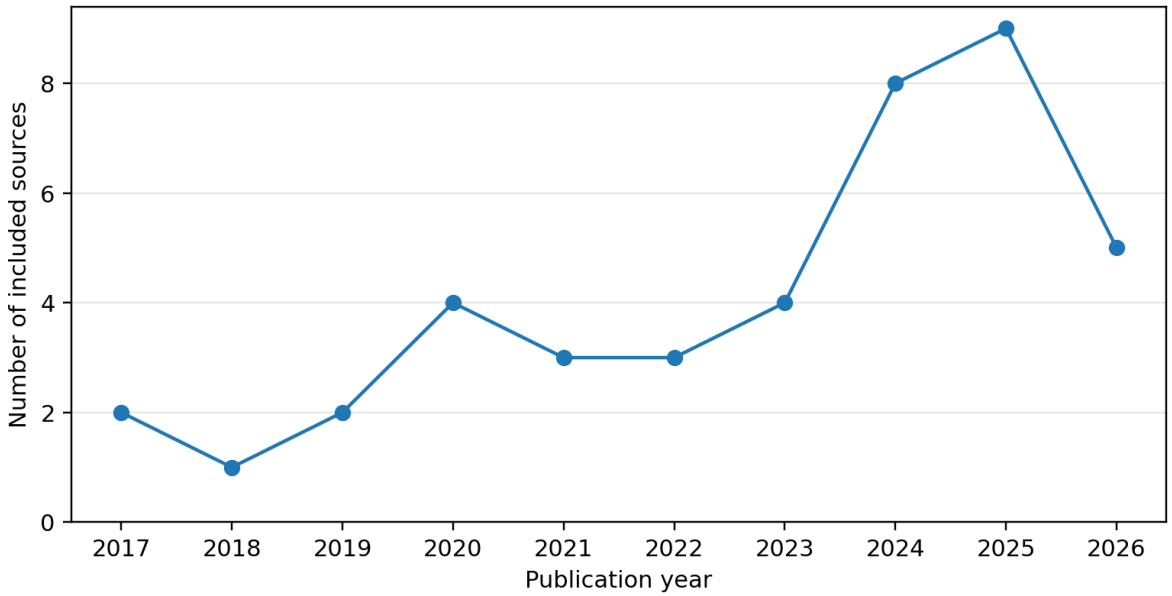
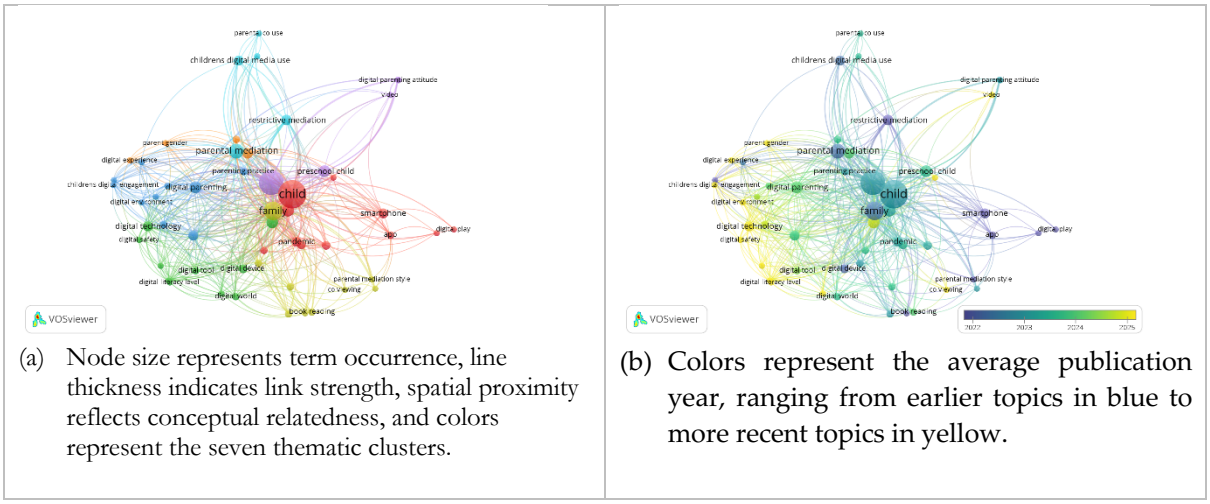


Figure 2. Annual publication trend in the final included corpus

Author-keyword frequencies also demonstrate the conceptual center of the field. The most frequent terms were digital media (n = 23), parental mediation (n = 17), early childhood (n = 14), young children (n = 11), digital parenting (n = 9), preschool (n = 8), screen time (n = 7), and joint media engagement (n = 6). This distribution indicates that screen duration remains prominent, but research increasingly incorporates relational, educational, ecological, and competence-based concepts (Barr, 2019; Choy et al., 2024; Mannell et al., 2024).

Conceptually, three overlapping phases can be identified. Early work emphasized mediation practices, family rules, and socioeconomic differences (Brito et al., 2017; Nikken & Opree, 2018; Van Kruistum & Van Steensel, 2017). Research from 2020 to 2022 broadened toward family media ecology, privacy, public advice, technoference, and pandemic adaptation (Barr et al., 2020; Dias & Brito, 2020; Pratiwi et al., 2022; Zaman et al., 2020). From 2023 onward, the literature diversified into joint engagement interventions, psychometric instruments, vulnerable and multilingual contexts, problematic use, platform-specific practices, and prospective developmental studies (Alhajji, 2025; Koch et al., 2025; Lavigne et al., 2023; McLaughlin et al., 2026; Savadova & Gillen, 2025; Willard et al., 2026).

The term co-occurrence analysis conducted using VOSviewer identified 54 items grouped into seven clusters, with 472 links and a total link strength of 822. The terms *child*, *family*, and *parental mediation* occupied central positions, indicating that research in this field is primarily structured around children's digital experiences, parental regulation, and family contexts. The network and temporal distribution of the terms are presented in Figure 3.



(a) Node size represents term occurrence, line thickness indicates link strength, spatial proximity reflects conceptual relatedness, and colors represent the seven thematic clusters.

(b) Colors represent the average publication year, ranging from earlier topics in blue to more recent topics in yellow.

Figure 3. Term co-occurrence analysis of digital-parenting research in early childhood: (a) network visualization and (b) overlay visualization.

Cluster 1 concerned children's everyday digital-media exposure through screen time, smartphones, applications, digital play, and caregiver involvement, including changes associated with the COVID-19 pandemic (Mallawaarachchi et al., 2025; Pratiwi et al., 2022). Cluster 2 represented digital literacy, parenting awareness, technological competence, and digital safety (Tosun & Mihci, 2020; Türen & Bağçeli Kahraman, 2025). Cluster 3 highlighted contextual determinants of digital parenting, including family composition, gender, socioeconomic status, digital environments, and parenting practices (Nikken & Opree, 2018; Wilson et al., 2025). Cluster 4 focused on family-based learning through co-viewing, joint media engagement, shared reading, and language development (Sundqvist et al., 2021; Taylor et al., 2024). Cluster 5 reflected parental attitudes and the emerging role of digital-parenting education (McLaughlin et al., 2026; Tozduman Yaralı & Kavruk, 2026). Cluster 6 addressed parental mediation strategies, particularly restrictive mediation and parental co-use among preschool children (Fitzpatrick et al., 2023; Scott, 2022). Finally, Cluster 7 connected child temperament, toddler development, parent gender, and children's digital experiences, suggesting that mediation practices are shaped by the characteristics of both children and parents (Mallawaarachchi et al., 2025; Reich et al., 2024).

The overlay visualization indicates a gradual shift from earlier concerns with media exposure, smartphones, applications, and restrictive mediation toward more recent themes involving digital-parenting attitudes, parental education, digital safety, family characteristics, and context-sensitive parental strategies. This pattern suggests that the field is moving from a predominantly device- and restriction-oriented perspective toward a more relational, ecological, and competence-based understanding of digital parenting (Choy et al., 2024; Mannell et al., 2024).

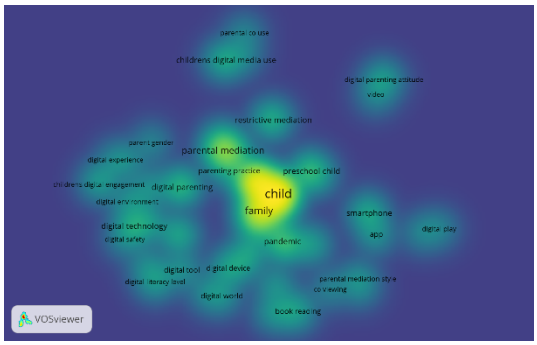


Figure 4. Density visualization of terms in digital-parenting research in early childhood.

The density visualization presented in Figure 4 showed the highest concentration around child, family, parental mediation, digital parenting, and parenting practice. Brighter areas indicate terms with higher occurrence and stronger connections with surrounding terms. Less dense terms, including digital-parenting education, digital safety, parent gender, child temperament, co-viewing, and children's digital engagement, may indicate less frequently examined areas for future research.

Overall, the interconnected clusters and density patterns demonstrate that digital parenting extends beyond screen-time control to include parental competence, mediation strategies, family context, children's characteristics, and the quality of digital engagement.

3.4 RQ2. Digital Parenting Strategies

The synthesis identified seven recurring strategies: restrictive mediation, active or instructive mediation, co-use and co-viewing, joint media engagement, monitoring and supervision, parental role-modeling, and digital-parenting education. These strategies operate along two complementary orientations. A protective-regulatory orientation seeks to manage time, content, access, privacy, and risk, whereas an educational-relational orientation uses explanation, shared attention, communication, and modeling to help children make meaning from digital experiences (Barr, 2019; Scott, 2022; Wilson et al., 2025).

Table 6. Digital Parenting Strategies for Early Childhood

Strategy	Practice focus	Representative evidence
Restrictive mediation	Rules for time, timing, content, devices, and media-use situations	Eichen et al. (2021); Fitzpatrick et al. (2023); Lundtofte (2021); Wilson et al. (2025)
Active/instructive mediation	Explanation, discussion, questioning, and linking media to offline experience	Scott (2022); Savadova and Gillen (2026); Van Kruistum and Van Steensel (2017); Wilson et al. (2025)
Co-use/co-viewing	Adults and children use media together	Myers et al. (2019, 2024); Taylor et al. (2024)
Joint media engagement	Responsive scaffolding, shared attention, and collaborative learning	Koch et al. (2025); Lavigne et al. (2023); Taylor et al. (2024)
Monitoring/supervision	Awareness of activities, safety risks, privacy, and platform use	Alhajji et al. (2025); Aslan & Turgut (2024); Dias and Brito (2020); Zaman et al. (2020)
Role-modeling	Parents demonstrate balanced and responsible technology habits	Brito et al. (2017); Tosun and Mihci (2020); Türen and Bağçeli Kahraman (2025)
Digital-parenting education	Development of knowledge, attitudes, digital literacy, and practical competencies	McLaughlin et al. (2026); Pratiwi et al. (2022); Tosun and Mihci (2020); Tozduman Yaralı and Kavruk (2026)

Restrictive mediation was commonly associated with family rules and lower or more regulated use. In a prospective study, restrictive mediation at age 3.5 years predicted a greater likelihood of meeting the one-hour screen-time recommendation one year later after adjustment for baseline use and family factors, although both exposure and outcome were parent reported (Fitzpatrick et al., 2023). Qualitative studies show that restrictions are negotiated within household routines, parental workloads, child resistance, and family values, meaning that restriction is unlikely to function as a universal standalone strategy (Attavar & Rani, 2025; Lundtofte, 2021; Wilson et al., 2025).

Active mediation and joint engagement place greater emphasis on explanation and responsive interaction. Parents may extend children's media interests into conversation and offline play, embed mediation within tacit family values, or adapt practices to multilingual goals (Savadova & Gillen, 2025; Scott, 2022; Van Kruistum & Van Steensel, 2017). Co-use can support participation and learning, but shared presence is not sufficient by itself. The strongest secondary evidence indicates a small positive

average association, while the quality of adult responsiveness and the methodological limitations of primary studies remain important (Myers et al., 2019, 2024; Taylor et al., 2024).

Digital-parenting education and assessment are emerging areas. A small single-group study reported improved parental attitudes after online education, but the absence of a comparison group prevents attributing the change solely to the intervention (Tozduman Yaralı & Kavruk, 2026). PADTS, QQ-MediaSEED, the PMU Measure, and JMES provide increasingly differentiated ways to assess attitudes, home media ecology, problematic use, and shared engagement, although their evidence varies by measurement property and population (Emond et al., 2024; Koch et al., 2025; McLaughlin et al., 2026; Sun et al., 2022).

3.5 RQ3. Risks, Challenges, and Barriers

Risks and barriers were distributed across child, parent, family, structural, and technological levels. Excessive or dysregulated use, negative reactions to limits, and reduced emotional self-regulation were frequently discussed, but screen duration alone did not explain developmental variation (Emond et al., 2024; Işıkoğlu et al., 2023; Mallawaarachchi et al., 2025). Cognitive, language, and social-emotional outcomes were associated with content, simultaneous exposure, parent use, conversational interaction, co-viewing, and household resources, while most evidence remained observational (Gou & Perceval, 2023; Pedrotti et al., 2024; Sundqvist et al., 2021; Willard et al., 2026).

Table 7. Risks, Challenges, and Barriers in Digital Parenting in Early Childhood

Category	Key issue	Representative evidence
Problematic or excessive use	High exposure, distress when limits are imposed, habitual calming or routine use	Emond et al. (2024); Işıkoğlu et al. (2023); Mallawaarachchi et al. (2025)
Developmental uncertainty	Associations with cognition, language, social-emotional functioning, and suspected delay	Gou and Perceval (2023); Maneekunwong et al. (2025); Pedrotti et al. (2024); Sundqvist et al. (2021)
Interaction displacement and technoference	Devices interrupt conversation, shared attention, play, and family routines	Barr et al. (2020); Reich et al. (2024); Willard et al. (2026)
Parental literacy, stress, and confidence	Unequal knowledge, low confidence, conflicting beliefs, mental-health and workload pressures	McLaughlin et al. (2026); Nikken and Opree (2018); Pedrotti et al. (2024); Türen and Bağçeli Kahraman (2025)
Socioeconomic and contextual inequality	Resources, education, rurality, family structure, multilingual contexts, and special needs	Altındağ Kumaş et al. (2026); Maneekunwong et al. (2025); Savadova and Gillen (2026); Willard et al. (2026)
Platform, privacy, and commercial risk	Algorithmic recommendations, advertising, data privacy, unsuitable content, and contradictory public advice	Alhajji et al. (2025); Dias and Brito (2020); Zaman et al. (2020)
Measurement limitations	Parent-report exposure, inconsistent definitions, and limited validation across cultures or ages	Barr et al. (2020); Koch et al. (2025); McLaughlin et al. (2026); Sun et al. (2022)

Family circumstances strongly condition parents' capacity to implement recommendations. Screen use may become a practical resource during work, meals, transitions, stress, or limited access to childcare, and mediation differs by socioeconomic resources, parental education, culture, language, and children's additional needs (Altındağ Kumaş et al., 2026; Corkin et al., 2025; Nikken & Opree, 2018; Savadova & Gillen, 2025). Consequently, guidance that treats every family as equally resourced risks moralizing parental behavior while ignoring structural constraints.

Technological systems also shape risk. YouTube and other platforms organize children's exposure through recommendation structures and content availability, while parents must negotiate privacy, surveillance, and trust with limited information (Alhajji, 2025; Dias & Brito, 2020). Public advice itself

may be contradictory, oscillating between alarmist and opportunity-oriented narratives (Zaman et al., 2020). Digital safety therefore cannot be delegated entirely to individual families.

3.6 RQ4. Recommendations for Healthy Digital Ecosystems

The literature supports a shift from universal duration-based advice toward guidance that considers content, context, purpose, co-use, family routines, child characteristics, and developmental balance. Duration remains relevant, particularly for displacement of sleep, activity, and interaction, but it is an incomplete indicator of the quality of a child's digital experience (Barr, 2019; Barr et al., 2020; Mannell et al., 2024; Munzer et al., 2026).

Table 8. Recommendations derived from the reviewed evidence

Recommendation	Operational focus	Evidence base
Move beyond duration alone	Assess content, purpose, timing, social context, and balance with sleep, play, reading, and interaction	Barr (2019); Barr et al. (2020); Mannell et al. (2024)
Strengthen active mediation and responsive co-use	Explain, question, scaffold attention, connect media to offline experience, and follow the child's cues	Lavigne et al. (2023); Scott (2022); Taylor et al. (2024)
Develop parental competence without blame	Provide culturally responsive education on literacy, safety, routines, and role-modeling	McLaughlin et al. (2026); Pratiwi et al. (2022); Tosun and Mihci (2020)
Tailor support to family conditions	Address socioeconomic disadvantage, rural contexts, multilingual families, and children with special needs	Altındağ Kumaş et al. (2026); Maneekunwong et al. (2025); Savadova and Gillen (2026); Willard et al. (2026)
Improve measurement and research design	Use validated multidimensional measures, objective or multimethod exposure assessment, and longitudinal or experimental designs	Barr et al. (2020); Koch et al. (2025); McLaughlin et al. (2026); Sun et al. (2022)
Share responsibility across the ecosystem	Combine family guidance with educator partnership, safer platform design, and child-protection governance	Dias and Brito (2020); Government of Indonesia (2025); Zaman et al. (2020)

Early childhood educators can translate these principles into family support by discussing routines without judgment, demonstrating developmentally appropriate co-use, recommending high-quality content, and helping families connect digital experiences with conversation, play, reading, and creative activity. Health professionals can assess media use as part of broader sleep, activity, language, behavior, and family-stress conversations rather than relying on duration alone. Platform providers and policymakers should strengthen age assurance, data minimization, advertising protections, default safety settings, parental transparency, and accessible reporting mechanisms (Government of Indonesia, 2025; Munzer et al., 2026).

3.7 Integrative Model and Critical Synthesis

Across the evidence, digital parenting is best represented as a dynamic system rather than a list of isolated techniques. Contextual conditions influence parents' digital competence, confidence, risk-benefit appraisals, stress, and available support. These capacities shape mediation strategies, which in turn structure the child's digital experience through content, timing, interactivity, social context, and balance with offline life. Children's behavior and developmental responses then feed back into parental rules and expectations. This reciprocal model integrates family media ecology, parental mediation, digital literacy, and child-development perspectives (Barr, 2019; Choy et al., 2024; Mannell et al., 2024; Tan et al., 2024).

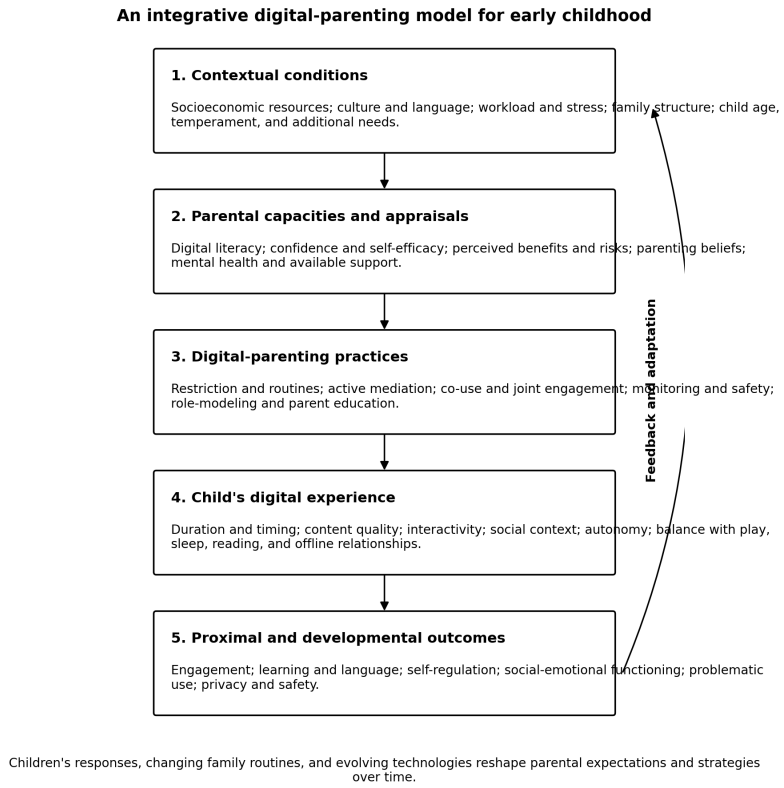


Figure 5. Integrative model of digital parenting in early childhood

The stakeholder-specific actions presented in Table 9 operationalize the ecosystem support required at each level of this model. The appraisal also clarifies the strength of possible conclusions. The corpus offers comparatively strong descriptive and interpretive evidence about how families negotiate media, why mediation varies, and which contextual factors matter. Evidence is more moderate for longitudinal associations and preliminary interventions, and weaker for causal claims about specific practices producing developmental outcomes. Statements such as "restrictive mediation reduces problematic use" or "co-use improves learning" should therefore be replaced by calibrated claims that these practices are associated with or may support outcomes under particular conditions (Fitzpatrick et al., 2023; Taylor et al., 2024).

3.8 Practical and Policy Implications

Table 9. Practical and policy implications

Stakeholder	Priority action	Rationale
Parents and caregivers	Use balanced routines, active discussion, responsive co-use, and consistent role-modeling; consider the child's age, temperament, and purpose of use.	Digital parenting is relational and context dependent, not a single restriction technique.
Early childhood educators	Offer nonjudgmental family guidance, model high-quality digital activities, and link digital content to play, conversation, and literacy.	Families need practical examples and consistent support across home and educational settings.
Health and family professionals	Assess media within sleep, activity, language, behavior, stress, and family-resource contexts.	Duration alone cannot explain developmental risk.

Technology and content providers	Apply privacy by design, age-appropriate defaults, advertising safeguards, transparent recommendations, and co-use features.	Platform architecture shapes children's exposure and parents' capacity to protect them.
Policymakers	Combine parental education with enforceable platform responsibilities and targeted support for disadvantaged families.	Child online protection is a shared public responsibility.
Researchers	Prioritize diverse longitudinal and experimental studies, linked-sample transparency, and validated multidimensional measurement.	The present evidence base is heterogeneous and largely observational.

3.9 Limitations and Future Research

This review has several limitations. First, the search was restricted to Scopus, English-language journal articles, selected subject areas, and exact-keyword filters, which may have reduced sensitivity and excluded relevant regional or interdisciplinary literature. Restricting the review to English-language, Scopus-indexed journal articles may also have introduced language and publication bias by excluding regional literature, non-journal evidence, and studies reporting null or less favorable findings. Second, the eligibility criteria were amended following the full-text audit to accommodate directly relevant methodological, secondary, and textual evidence. The amendment was reported transparently, and evidence types were synthesized separately, but it increased heterogeneity. Third, several retained sources covered age ranges extending beyond 0-6 years; their findings were used only when early-childhood relevance was identifiable and were interpreted with scope cautions. Finally, narrative synthesis cannot eliminate overlap between linked datasets or indirect overlap through included evidence syntheses, although these sources were explicitly separated to reduce double counting.

Future research should include broader multilingual database searches, greater representation from low- and middle-income settings, and longitudinal, experimental, mixed-methods, and cross-cultural designs. The field particularly needs preregistered longitudinal and experimental studies, objective or multimethod measures of digital exposure, analyses of platform design and commercial influence, and explicit testing of how mediation operates across developmental stages, disability contexts, rural settings, and multilingual families. Measurement research should strengthen content validity, test-retest reliability, measurement error, cross-cultural invariance, and responsiveness before instruments are used to compare groups or evaluate interventions (Koch et al., 2025; McLaughlin et al., 2026; Mokkink et al., 2024; Sun et al., 2022).

4. CONCLUSION

Digital parenting in early childhood is a multidimensional and context-dependent process involving parental beliefs, digital competence, mediation strategies, family circumstances, children's characteristics, and the design of digital environments. The literature consistently supports the importance of active guidance, communication, responsive co-use, age-appropriate boundaries, and parental role-modeling. However, the methodological appraisal shows that evidence is stronger for describing practices and associations than for establishing causal developmental effects.

Healthy digital ecosystems therefore require more than instructing parents to reduce screen time. Families need realistic and culturally responsive support; early childhood educators and health professionals need practical frameworks for discussing media quality and family routines; technology providers need stronger safety and privacy responsibilities; and policymakers need to combine education with enforceable child-protection standards. Future evidence should be more longitudinal, experimental, culturally diverse, and psychometrically robust, while retaining the ecological

understanding that children's digital experiences are embedded within relationships, routines, resources, and rapidly changing technologies.

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