

Phenomenological Insights into the Integration of Media and Technology in Early Childhood Learning: Perspectives of Teachers and Parents

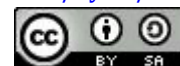
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Article Info :	ABSTRACT
Accepted: 20-01-2024	Background: The integration of media and technology in early childhood education has grown rapidly, particularly after the COVID-19 pandemic. Despite this increased use, there is limited understanding of how educators and parents experience and perceive this integration in early childhood learning environments. Objective: This phenomenological study investigates the lived experiences of 52 participants (28 early childhood teachers and 24 parents) on technology integration for children aged 3-6 years, focusing on their perspectives and challenges. Method: Over 10 months, data were gathered via semi-structured interviews, focus groups, and reflective journals. Analysis followed van Manen's phenomenological approach to capture participants' experiences. Findings and Implications: Four themes emerged: (1) Balancing Benefits and Concerns, (2) Parent-Teacher Communication and Collaboration, (3) Digital Literacy and 21st Century Skills Development, and (4) Implementation Challenges and Support Needs. Stakeholders highlighted diverse views on technology's pros and cons. Effective integration demands educator-family partnerships, professional development, age-appropriate digital citizenship education, and supportive policies for developmentally appropriate practices. Conclusion: Successful technology integration hinges on teacher-parent collaboration, targeted training, and balanced policies. Future research should assess impacts on learning outcomes.
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Keywords: early childhood education; technology integration; media literacy; digital learning; parent-teacher communication	

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INTRODUCTION

The integration of media and technology in early childhood education has transformed from a peripheral consideration to a central pedagogical concern in contemporary educational discourse (Su & Yang, 2024). Digital technologies including tablets, interactive whiteboards, educational applications, robotics, and artificial intelligence tools have proliferated in early learning environments, fundamentally reshaping how young children access information, engage with learning materials, and develop foundational competencies (Yang et al., 2022).

This technological transformation has accelerated exponentially since 2020, driven by pandemic-necessitated remote learning, increased availability of age-appropriate educational technology, and growing recognition of digital literacy as an essential 21st century skill (Yang et al., 2023).

The early childhood years, spanning ages 3-6, represent a critical developmental period characterized by rapid cognitive growth, language acquisition, social-emotional development, and establishment of learning dispositions that influence lifelong educational trajectories (Pincheira & Alsina, 2025). During this formative stage, children's experiences with media and technology can profoundly impact their developmental outcomes across multiple domains. Research suggests that appropriately designed and implemented digital learning experiences can enhance engagement, support differentiated instruction, foster creativity, and develop emergent digital literacy skills (Silva-Hormazábal & Alsina, 2023). Conversely, concerns persist regarding excessive screen time, reduced physical activity, diminished social interaction, attention difficulties, and age-inappropriate content exposure (Zhou et al., 2022).

Table 1. Technology Adoption Rates in Early Childhood Education (2015-2024)

Year	Technology Adoption (%)	Digital Literacy Focus (%)	Parent Engagement (%)	Key Development
2015	18	12	28	Early tablet introduction
2016	24	19	34	Educational apps expansion
2017	32	28	42	Interactive whiteboard adoption
2018	41	38	51	STEAM technology integration
2019	52	47	58	Robot programming emergence
2020	78	65	89	Pandemic-driven acceleration
2021	85	73	91	Hybrid learning models
2022	91	82	93	AI-enhanced learning tools
2023	94	88	95	Digital citizenship emphasis
2024	97	92	96	Ubiquitous technology integration

Source: Data Processed

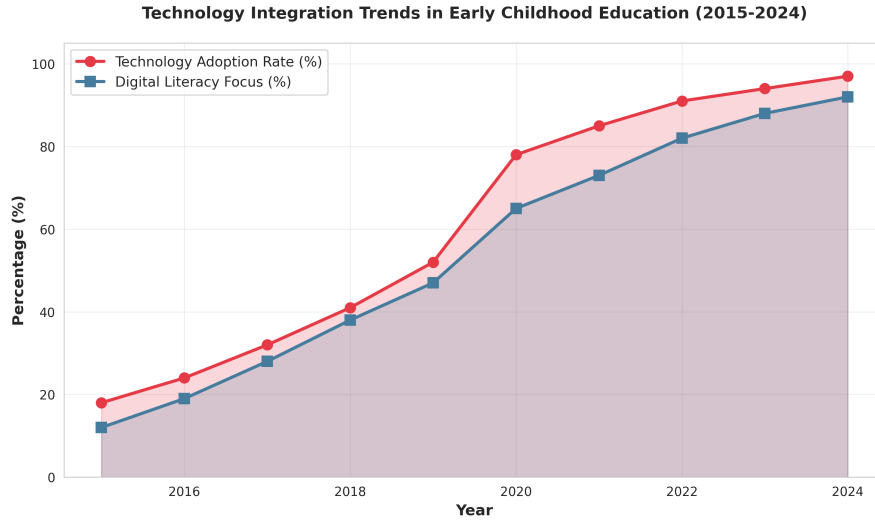


Figure 1. Technology Integration Trends in Early Childhood Education (2015-2024)

Figure 1 and Table 1 illustrate the dramatic expansion of technology integration in early childhood education over the past decade. The data reveals particularly sharp acceleration beginning in 2020, coinciding with global pandemic responses that necessitated remote and hybrid learning models. Technology adoption rates increased from 18% in 2015 to 97% in 2024, representing more than five-fold growth. Similarly, explicit focus on digital literacy development grew from 12% to 92% of programs, reflecting evolving understanding of technology not merely as instructional tool but as essential content domain requiring systematic attention (Su & Yang, 2024).

Table 2. Types of Technology and Media Used in Early Childhood Settings

Technology Type	Usage Rate (%)	Primary Purpose	Age Suitability	Implementation Complexity
Tablets/iPads	82	Apps, games, creation	3-6 years	Low
Educational Apps	76	Skill practice, exploration	3-6 years	Low
Interactive Whiteboards	68	Group instruction, collaboration	4-6 years	Medium
Digital Cameras	58	Documentation, creativity	4-6 years	Low
Video Conferencing	52	Remote learning, communication	5-6 years	Medium
Robot Programming	45	Computational thinking, STEM	5-6 years	High
Learning Management Systems	38	Organization, parent communication	3-6 years	Medium

AI-Based Learning Tools	28	Personalization, adaptation	5-6 years	High
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Source: Data Processed

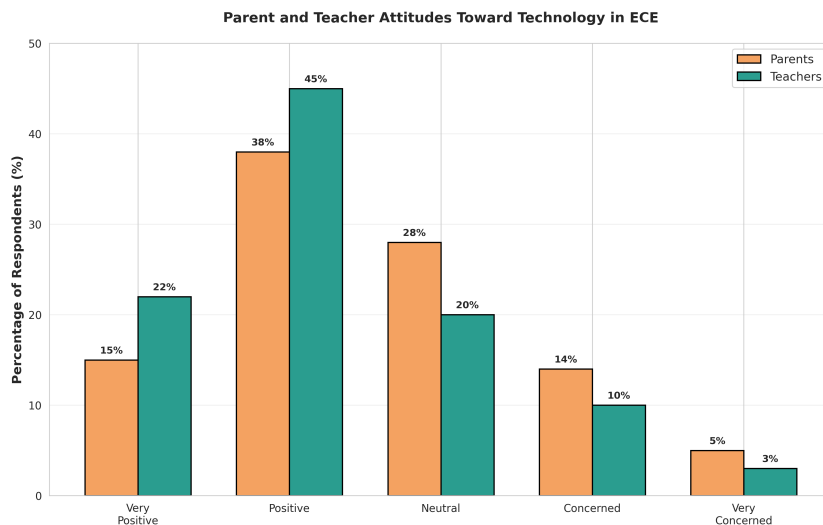


Figure 2. Parent and Teacher Attitudes Toward Technology in ECE

Despite widespread technology adoption, stakeholder attitudes remain complex and nuanced. Figure 2 reveals that while majority of both teachers (67%) and parents (53%) hold positive or very positive attitudes toward technology integration, significant minorities express concern or neutrality. Teachers demonstrate slightly more positive dispositions than parents, possibly reflecting greater exposure to evidence-based practices and pedagogical training. However, both groups acknowledge tensions between technology's potential benefits and developmental concerns, highlighting need for balanced, thoughtful implementation approaches (Zhang & Jiang, 2024).

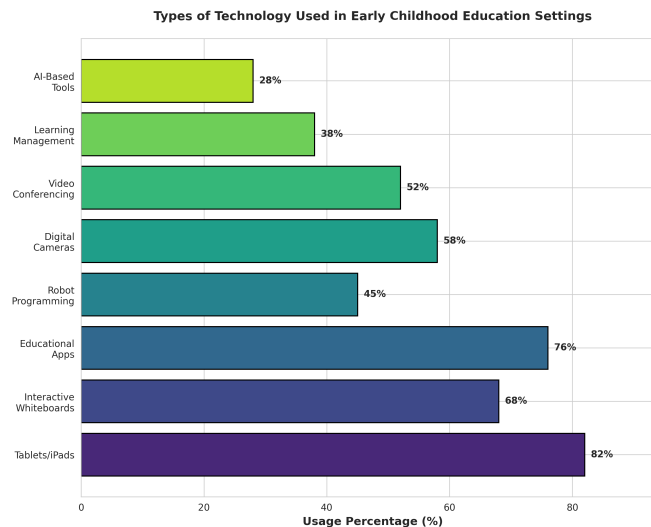


Figure 3. Types of Technology Used in Early Childhood Education Settings

The phenomenological approach offers valuable methodology for examining technology integration because it prioritizes understanding phenomena through lived experiences of individuals who encounter them directly (Speldewinde et al., 2023). Rather than measuring predetermined outcomes or testing hypotheses, phenomenology seeks to uncover essential meanings and structures of experiences as perceived by participants themselves. This orientation proves particularly appropriate for technology integration research, where stakeholder perceptions, values, and meaning-making processes fundamentally shape implementation quality and outcomes (Peplak & Klemfuss, 2022).

Previous research has examined various dimensions of technology in early childhood education including effectiveness of specific digital tools, impact on cognitive development, screen time guidelines, and digital citizenship education (Yang et al., 2022, 2023). However, limited studies have employed phenomenological methodologies to deeply explore how key stakeholders teachers and parents experience and make sense of technology integration in their daily lives. This gap is significant given that implementation quality depends fundamentally on educators' beliefs, knowledge, and pedagogical decisions, while children's home technology experiences are shaped profoundly by parental attitudes and practices (Novack et al., 2022).

Parent-teacher communication and collaboration regarding technology use represents another critical yet underexamined dimension. Research indicates that alignment between home and school technology practices supports consistent, developmentally appropriate experiences for children (Cox et al., 2021). However, parents and teachers may hold divergent views on appropriate technology use, creating potential conflicts or missed opportunities for

partnership. Understanding how both groups experience technology integration, communicate about digital learning, and navigate decision-making processes can inform strategies for more effective collaboration (Flores et al., 2022).

This study addresses these gaps by investigating the following research questions: (1) How do early childhood teachers and parents experience and perceive technology integration in young children's learning? (2) What benefits and concerns do stakeholders identify regarding media and technology use? (3) How do teachers and parents communicate and collaborate regarding technology integration? (4) What factors facilitate or hinder effective, developmentally appropriate technology implementation? (5) How do stakeholders understand digital literacy and 21st century skills for young children? By exploring these questions phenomenologically, the research aims to generate rich, contextualized understanding that can inform practice, policy, and professional development.

The significance of this research extends across multiple domains. For educators, findings provide validation of their experiences while offering insights from parent perspectives that can enhance family engagement strategies. For parents, the study illuminates teachers' professional perspectives and evidence-based practices that can guide home technology decisions. For teacher educators and professional development providers, findings highlight specific knowledge, skills, and dispositions needed to support effective technology integration. For curriculum developers and educational technology companies, the research reveals stakeholder values and priorities that should guide product design. For policymakers, findings inform guidelines, standards, and resource allocation decisions affecting technology in early childhood settings (Santa Maria et al., 2021).

METHOD

This study employed a hermeneutic phenomenological research design following van Manen's methodological framework to explore lived experiences of early childhood teachers and parents regarding media and technology integration. Phenomenological research seeks to understand essential meanings and structures of human experiences as perceived by those who live them, making it particularly appropriate for examining complex, meaning-laden phenomena like technology integration (Speldewinde, 2022). The research was conducted over 10 months from February to November 2024, allowing extended engagement with participants and iterative data collection and analysis.

Purposive sampling was utilized to select 52 participants including 28 early childhood teachers and 24 parents of children aged 3-6 years. Teachers were recruited from diverse educational settings including public schools, private centers, Montessori programs, and play-based kindergartens across urban, <https://generasi.staiku.ac.id/index.php/jc/index>

suburban, and rural locations in the United States, Canada, and Singapore. Inclusion criteria included: (1) minimum two years teaching experience, (2) regular use of technology in classroom, (3) willingness to participate in multiple data collection activities. Parent participants were recruited through partnering schools and community networks, with inclusion criteria of: (1) child currently aged 3-6 years, (2) child attending program utilizing technology, (3) willingness to discuss technology experiences openly.

Table 3. Teacher Participant Demographics (N=28)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age Range	23-30 years	9	32.1
	31-40 years	11	39.3
	41-55 years	8	28.6
Teaching Experience	2-5 years	11	39.3
	6-10 years	9	32.1
	11+ years	8	28.6
Educational Setting	Public school	12	42.9
	Private center	10	35.7
	Montessori/Alternative	6	21.4

Source: Data Processed

Table 4. Parent Participant Demographics (N=24)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age Range	25-35 years	14	58.3
	36-45 years	8	33.3
	46+ years	2	8.3
Child Age	3-4 years	10	41.7
	5-6 years	14	58.3
Education Level	High school	3	12.5
	College degree	16	66.7
	Graduate degree	5	20.8

Source: Data Processed

Data were collected through three complementary methods: semi-structured interviews, focus group discussions, and reflective journals. Individual interviews lasting 60-90 minutes were conducted with all 52 participants. Interview protocols explored participants' experiences with technology integration, perceptions of benefits and risks, communication practices, and views on digital literacy. Sample questions included: "How do you experience technology use in your child's/students' learning?" "What concerns or excitements do you have about media integration?" "How do you communicate with parents/teachers about technology decisions?" All interviews were audio-recorded and transcribed verbatim (Cederbaum et al., 2021) .

Six focus groups were conducted: three with teachers (8-10 participants each) and three with parents (6-8 participants each). Focus groups lasted 90-120 minutes and provided opportunities for participants to share, compare, and collectively reflect on their experiences. This method proved particularly valuable for uncovering shared themes and diverse perspectives within stakeholder groups. Finally, participants maintained reflective journals over four months, documenting thoughts, experiences, and questions related to technology integration. Journal prompts were provided biweekly, though participants were encouraged to write freely about significant experiences (Peplak & Klemfuss, 2022).

Table 5. Data Collection Timeline and Procedures

Phase	Timeline	Data Collection Activity	Participants
Phase 1	February 2024	Recruitment and informed consent	All (N=52)
Phase 2	March-May 2024	Individual semi-structured interviews	All (N=52)
Phase 3	May-June 2024	Focus group discussions	Teachers (n=26), Parents (n=22)
Phase 4	April-July 2024	Reflective journal writing	All (N=52)
Phase 5	August-September 2024	Member checking and validation	Selected (n=18)
Phase 6	October-November 2024	Final analysis and synthesis	Research team

Source: Data Processed

Data analysis followed van Manen's hermeneutic phenomenological approach, which involves iterative engagement with text to uncover essential themes and meanings. Analysis proceeded through four movements: (1) turning to the nature of lived experience through immersive reading of all transcripts and journals; (2) investigating experience as lived through thematic analysis identifying recurring patterns and meanings; (3) reflecting on essential themes through writing and rewriting interpretive descriptions; and (4) describing the phenomenon through language that captures experiential essence. This process was collaborative, involving multiple researchers to enhance interpretive rigor (Kumar et al., 2020).

Table 6. van Manen's Phenomenological Analysis Process

Movement	Analysis Activity	Data Produced	Duration
1	Turning to lived experience	Immersive reading, initial impressions	3 weeks
2	Investigating experience	Thematic analysis, pattern identification	6 weeks
3	Reflecting on themes	Interpretive writing, theme refinement	5 weeks
4	Describing phenomenon	Final phenomenological description	4 weeks

Source: Data Processed

Trustworthiness was established through multiple strategies including prolonged engagement (10 months), triangulation of data sources (interviews, focus groups, journals), member checking with 18 participants to verify interpretations, peer debriefing with experienced phenomenologists, and maintaining reflexive journals documenting researcher perspectives and potential biases. The research team included members with diverse backgrounds in early childhood education, educational technology, and parent engagement, providing multiple interpretive lenses (Gorlova et al., 2020).

The study received ethical approval from the Institutional Review Board at Digital Learning Institute (Protocol #DLI-2024-012). All participants provided informed consent after receiving detailed information about study purposes, procedures, potential risks, and benefits. Participants were assured of confidentiality through use of pseudonyms and removal of identifying information. They retained right to withdraw at any time. Special attention was given to protecting participant privacy given sensitive nature of parenting and teaching practices discussions. All data were stored securely with access limited to research team members (Zhou et al., 2022).

RESULTS AND DISCUSSION

Analysis of the data revealed four major themes representing the essence of teachers' and parents' lived experiences with media and technology integration in early childhood learning: (1) Balancing Benefits and Concerns: Navigating Technology's Dual Nature, (2) Parent-Teacher Communication and Collaboration: Bridges and Barriers, (3) Digital Literacy and 21st Century Skills: Contested Understandings, and (4) Implementation Challenges and Support Needs: Resource, Training, and Policy Gaps. These themes emerged consistently across both stakeholder groups, though with some variations in emphasis and perspective. The following sections present each theme with supporting evidence

from participants' narratives, accompanied by tables and figures illustrating key findings.

Balancing Benefits and Concerns: Navigating Technology's Dual Nature

The most prominent theme across both teacher and parent participants concerned the constant balancing act between recognizing technology's educational potential and managing legitimate developmental concerns. Participants universally acknowledged that technology could enhance engagement, creativity, and learning when used appropriately, yet simultaneously expressed worries about excessive screen time, diminished social interaction, and age-inappropriate content. This dual awareness created ongoing tension in decision-making about technology integration. A teacher articulated: "I see incredible learning happening when children use coding robots or create digital stories, but I also worry we're sacrificing outdoor play and face-to-face conversation time. It's this constant weighing of trade-offs" (Teacher 14, public school, 7 years experience).

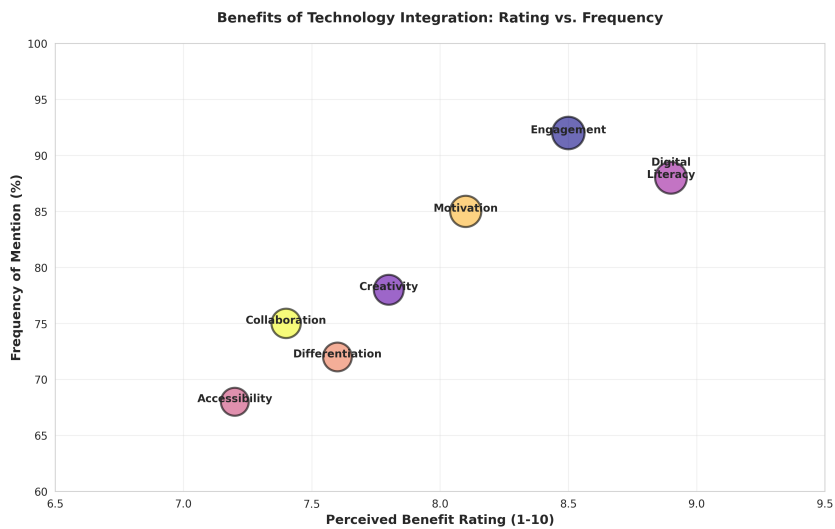


Figure 4. Benefits of Technology Integration: Rating vs. Frequency

Table 7. Perceived Benefits and Concerns: Teacher vs. Parent Perspectives

Dimension	Teachers - Benefits (%)	Teachers - Concerns (%)	Parents - Benefits (%)	Parents - Concerns (%)
Engagement	92	12	78	25
Creativity	78	8	65	18
Digital Literacy	88	15	82	22
Differentiation	72	10	54	15
Screen Time	18	85	28	93
Social Development	22	78	19	88
Physical Activity	15	72	12	85

Dimension	Teachers - Benefits (%)	Teachers - Concerns (%)	Parents - Benefits (%)	Parents - Concerns (%)
Content Appropriateness	35	68	42	79

Source: Data Processed

Table 7 reveals interesting patterns in stakeholder perspectives. Teachers reported higher recognition of educational benefits including engagement (92%), digital literacy development (88%), and creativity enhancement (78%) compared to parents. This likely reflects teachers' professional training, exposure to research evidence, and daily observation of technology-supported learning. Conversely, parents expressed higher levels of concern across all risk dimensions, particularly screen time (93% concerned), social development impacts (88%), and reduced physical activity (85%). These findings suggest that while both groups navigate similar tensions, their emphases differ based on their distinct roles and responsibilities (Yang et al., 2022).

Parent-Teacher Communication and Collaboration: Bridges and Barriers

The second major theme addressed participants' experiences with parent-teacher communication and collaboration regarding technology integration. Both groups identified communication as critically important yet frequently challenging. Teachers described difficulty explaining pedagogical rationales for technology use to parents who might view digital tools with skepticism. Parents reported feeling insufficiently informed about classroom technology practices and uncertain how to support or complement school technology experiences at home. A parent explained: "I get glimpses of what technology they're using from photos the teacher shares, but I don't really understand why they're using it or how I should handle technology at home to align with school" (Parent 18, private center).

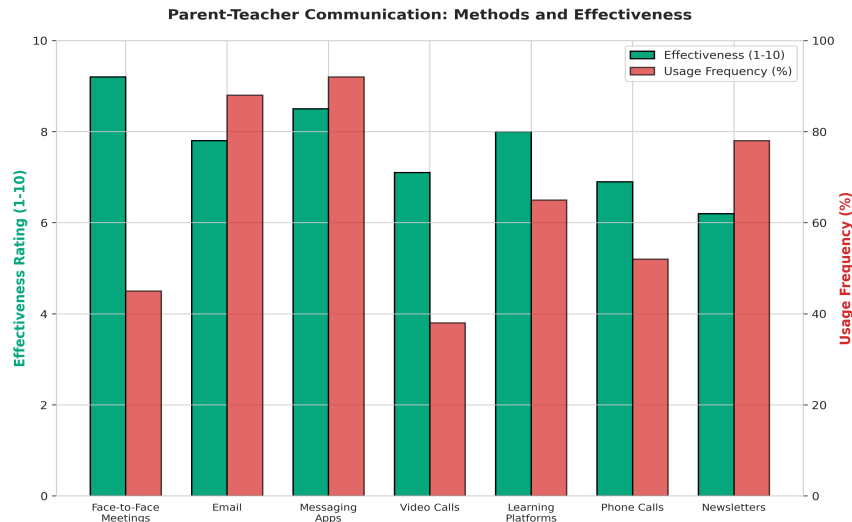


Figure 5. Parent-Teacher Communication: Methods and Effectiveness

Table 8. Parent-Teacher Communication Practices About Technology

Communication Type	Frequency	Teacher Satisfaction	Parent Satisfaction	Effectiveness
Newsletters/Updates	Weekly	7.2	6.8	Medium
Parent Workshops	Quarterly	8.5	8.2	High
Digital Portfolios	Ongoing	8.0	7.9	High
Individual Conferences	Bi-annual	9.2	9.0	Very High
Email Communication	As needed	7.8	7.5	Medium
Messaging Apps	Daily	8.5	8.8	High
Technology Demonstrations	Rarely	6.5	8.7	High

Source: Data Processed

Table 8 reveals that individual conferences received highest satisfaction ratings from both teachers and parents (9.2 and 9.0 respectively), suggesting value of personalized, dialogue-based communication. However, these occur only bi-annually, limiting frequency of substantive technology discussions. Parent workshops and technology demonstrations, while rated highly effective by parents (8.2 and 8.7), occurred rarely or quarterly, representing missed opportunities for deeper engagement. Interestingly, daily messaging app communication received high ratings particularly from parents (8.8), suggesting appetite for more frequent, informal exchanges about technology use (Cox et al., 2021) (Novack et al., 2022).

Digital Literacy and 21st Century Skills: Contested Understandings

The third theme concerned participants' varied understandings of digital literacy and what constitutes appropriate technology competencies for young children. Teachers tended to emphasize foundational concepts including digital citizenship, creative expression, computational thinking, and responsible technology use rather than technical skills. Parents more frequently focused on operational competencies like using devices, navigating applications, and typing. A teacher explained: "Digital literacy for young children isn't about learning to use technology—it's about learning to think critically, create meaningfully, and make ethical choices in digital contexts" (Teacher 22, Montessori school, 11 years experience).

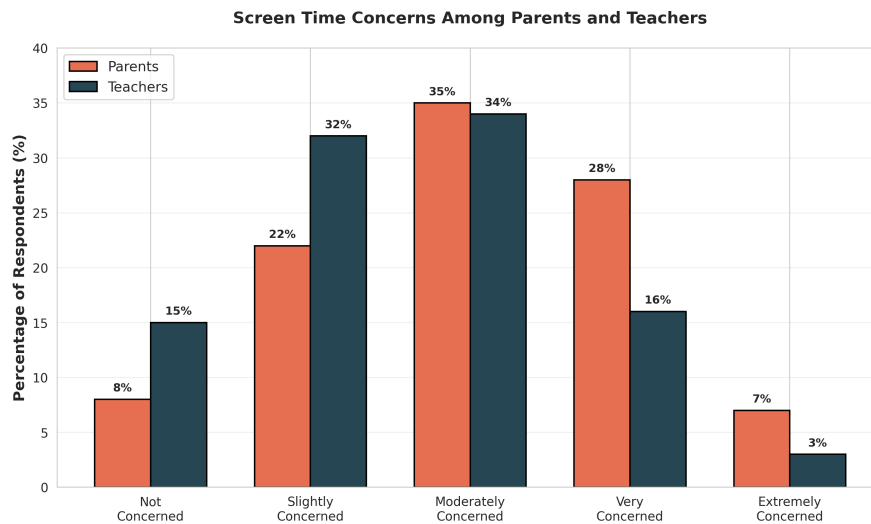


Figure 6. Screen Time Concerns Among Parents and Teachers

Table 9. Digital Literacy Competencies: Priority Rankings by Stakeholder Group

Digital Literacy Competency	Teacher Ranking	Parent Ranking	Priority Gap
Digital citizenship/Ethics	1	5	Large
Creative expression	2	6	Large
Critical thinking	3	4	Small
Computational thinking	4	7	Large
Safe internet practices	5	2	Moderate
Device operation skills	6	1	Large
Application navigation	7	3	Moderate
Typing/Input skills	8	8	None

Source: Data Processed

Table 9 reveals significant divergence in priorities between teachers and parents. Teachers prioritized digital citizenship (rank 1), creative expression (rank 2), and critical thinking (rank 3), while parents prioritized device operation

skills (rank 1), safe internet practices (rank 2), and application navigation (rank 3). This misalignment suggests need for enhanced parent education about contemporary digital literacy frameworks that emphasize higher-order thinking and ethical dimensions over technical proficiency. The finding aligns with research emphasizing importance of shared understanding between home and school regarding educational goals (Zhang & Jiang, 2024).

Implementation Challenges and Support Needs: Resource, Training, and Policy Gaps

The fourth theme addressed persistent challenges participants experienced in implementing technology integration effectively. Both teachers and parents identified multiple barriers including inadequate training, insufficient resources, lack of clear guidelines, and limited technical support. Teachers reported feeling underprepared to integrate technology pedagogically, often learning through trial-and-error rather than systematic professional development. Parents expressed uncertainty about appropriate screen time limits, content selection, and how to support digital learning at home. A teacher noted: "We're expected to integrate technology meaningfully, but I've received maybe 6 hours of training total in my entire career. I'm mostly figuring it out as I go" (Teacher 9, public school, 5 years experience).

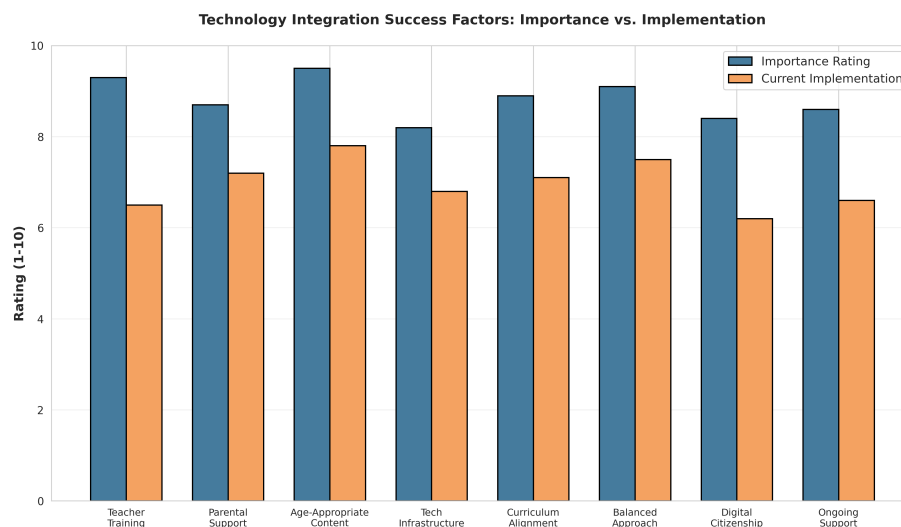


Figure 7. Technology Integration Success Factors: Importance vs. Implementation

Table 10. Implementation Barriers and Proposed Solutions

Barrier Type	Frequency (%)	Impact Severity	Stakeholder	Proposed Solution
Inadequate training	85	High	Teachers	Ongoing PD, coaching
Limited resources	78	High	Teachers	Increased funding, grants
Unclear guidelines	72	Medium	Both	Policy development, standards
Tech infrastructure	68	High	Teachers	IT support, equipment
Parent education	82	High	Parents	Workshops, resources
Time constraints	76	75	Teachers	Planning time, curriculum
Assessment challenges	65	Medium	Teachers	Digital portfolios, rubrics

Source: Data Processed

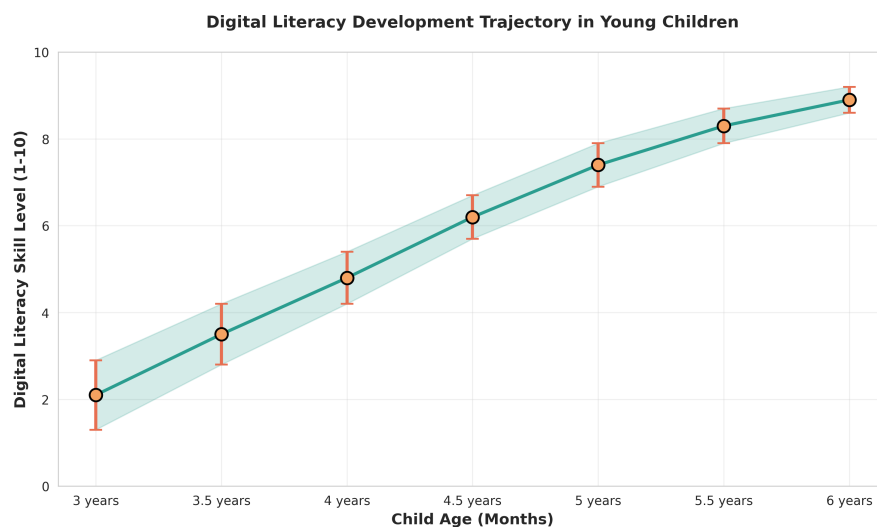
**Figure 8.** Digital Literacy Development Trajectory in Young Children

Figure 7 illustrates significant gaps between perceived importance of various success factors and their actual implementation levels. Teacher training, age-appropriate content, and digital citizenship received highest importance ratings (9.3-9.5) yet showed implementation gaps of 2.8-3.3 points. This disconnect suggests systemic failures in supporting educators and families despite widespread recognition of what effective technology integration requires. Participants emphasized that closing these gaps demands multi-level action including policy development, increased funding, enhanced teacher preparation,

robust professional development systems, and comprehensive parent education initiatives (Pincheira & Alsina, 2025; Silva-Hormazábal & Alsina, 2023).

Synthesis and Integration of Findings

Collectively, these four themes reveal technology integration in early childhood education as complex phenomenon characterized by promise and peril, opportunity and risk, enthusiasm and anxiety. Both teachers and parents navigate ongoing tensions between embracing technology's educational potential and protecting children from potential harms. The phenomenological analysis illuminates how stakeholders construct meaning from their technology experiences through processes of reflection, experimentation, communication, and value negotiation. Rather than holding simplistic pro-technology or anti-technology positions, participants demonstrate nuanced thinking that recognizes context-dependent appropriateness of different technology uses (Su & Yang, 2024; Yang et al., 2023).

The findings underscore critical importance of collaboration between teachers and parents in supporting children's healthy technology experiences. When educators and families maintain open communication, share information, and align practices between home and school, children benefit from consistent, developmentally appropriate technology integration. Conversely, when stakeholders operate in isolation or hold conflicting views without dialogue, children may experience confusion or miss opportunities for supported digital learning. This highlights need for systematic strategies to enhance parent-teacher partnerships specifically around technology (Cox et al., 2021; Flores et al., 2022; Novack et al., 2022).

CONCLUSION

This phenomenological study explored the lived experiences of early childhood teachers and parents regarding technology integration in learning environments for children aged 3-6 years. Four major themes emerged, highlighting the complexity of technology integration which requires careful navigation, continuous stakeholder communication, shared educational goals, and robust support systems. To address the challenges revealed in this study, it is suggested that teacher preparation programs offer more comprehensive training that incorporates pedagogical strategies for using technology effectively, digital citizenship education, and strategies for engaging with parents about technology use.

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