

Parental Mediation in Parenting 4.0: A Qualitative Case Study on Early Childhood Digital Literacy in Indonesia

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ARTICLE INFO

Keywords:

parental mediation;
digital parenting;
screen time;
early childhood;
digital safety

Article history:

Received 2025-09-05

Revised 2026-01-16

Accepted 2026-03-31

ABSTRACT

Rapid digital advancement presents both opportunities and challenges for young children, necessitating effective parental mediation to support early childhood digital literacy. This study investigates the implementation of Parenting 4.0 at RA STIBA Azkiya, an Islamic early childhood education institution, in fostering children's digital competencies. A qualitative single-case study design was employed involving 11 participants (six parents, four teachers, and one principal). Data were collected through semi-structured interviews, observations, and document analysis, and analyzed using Miles and Huberman's interactive model. Digital literacy was conceptualized as encompassing operational skills, informational awareness, digital safety, and guided critical thinking mediated by adults. The findings indicate that Parenting 4.0 practices—such as introducing basic digital tools, supervising screen time, selecting age-appropriate content, facilitating parent-child dialogue, and modeling responsible digital behavior—were associated with children's ability to use digital devices safely and meaningfully. These practices were further supported by institutional mechanisms, including monitoring books, workshops, and parent consultations, which reinforced consistent parental engagement. This study provides a context-specific account of how Parenting 4.0 is operationalized through defined parental roles and institutional support within an Islamic early childhood setting, contributing to the literature on parental involvement in digital literacy. However, the single-site and culturally specific context limit generalizability. Future research should examine Parenting 4.0 across diverse educational settings to enhance comparative understanding of early childhood digital literacy.

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1. INTRODUCTION

Digital literacy refers to the ability to understand, analyze, evaluate, and produce written or visual messages through digital media (Kardeş, 2020). It is considered a crucial component of 21st-century skills, which children need to develop from an early age as a fundamental preparation to face the rapid advancement of the digital industry (Herlinawati et al., 2024). Mastery of digital literacy in early childhood has become increasingly urgent due to the accelerated growth of the digital world, making digital technology an inseparable part of daily human activities (Nursyam, 2019).

Early childhood digital literacy extends beyond basic operational skills and encompasses a multidimensional set of competencies. According to widely recognized frameworks, digital literacy includes operational skills (the ability to use digital devices and applications), critical skills (the ability to understand and evaluate digital content), digital safety skills (awareness of risks, privacy, and appropriate online behavior), and creative skills (the ability to produce simple digital content in meaningful ways) (Lestari et al., 2024; UNESCO, 2022). In the context of early childhood, these competencies are developed gradually and always mediated by adults, particularly parents and teachers, through guided interaction, modeling, and scaffolded learning experiences.

Rapid digital development, if not accompanied by adequate digital literacy in early childhood, has the potential to produce destructive effects. Children tend to have high openness to new information and strong curiosity, making them the most vulnerable group (Kardeş, 2020). Kurt et al., (2025) argue that excessive exposure to digital devices, age-inappropriate digital content, and limited parental supervision can trigger serious problems for young children. High-intensity exposure to digital devices may lead to various issues, including decreased concentration, delayed speech development, device addiction, reduced social empathy, and diminished interaction with the surrounding environment (Kartal, 2022).

The risks posed by excessive digital device usage are increasingly concerning, particularly when juxtaposed with survey data indicating that early childhood in Indonesia tends to experience high levels of gadget addiction. Statistics from the BPS report that 33.44% of young children in Indonesia use gadgets (BPS RI, 2023). This finding is reinforced by a KPAI survey, which shows that more than 71.3% of school-aged children own gadgets and use them for significant daily durations, with 79% allowed to use gadgets for purposes other than learning (KPAI, 2021).

Unsupervised use of digital devices in early childhood may result in dangerous problems later on. Septyani et al., (2021) state that children accustomed to digital devices tend to lose the ability to communicate effectively and become more passive. This runs counter to the goals of early childhood education, which emphasizes comprehensive stimulation across cognitive, socio-emotional, language, and motor domains (Friantary, 2020). Therefore, parental involvement in early childhood education in the digital era is critically needed.

The age range of 0 to 6 years constitutes a golden period for brain development, characterized by a high capacity to absorb information (Windasari & Dheasari, 2024). At this stage, the roles of both parents and teachers in digital literacy are vital. Parents are responsible for introducing, monitoring, and modeling the wise use of technology, while teachers teach digital literacy skills and integrate technology into learning activities. Collaboration between parents and teachers supports children in becoming intelligent and responsible technology users (Wu et al., 2014).

As primary and first educators in a child's life, parents occupy a strategic position in shaping how children interact with technology (Dong et al., 2022). Active parental involvement in guiding children's learning while utilizing technology wisely is key to maximizing its positive impacts and minimizing associated risks (Choy et al., 2024). This role encompasses various aspects, from providing appropriate digital learning resources, selecting educational content, regulating screen time, to instilling digital ethics and character development (Wahyuningrum et al., 2020). Furthermore, harmonious collaboration between parents and early childhood education institutions is also essential for ensuring quality, contextually relevant educational services (Latif et al., 2023).

Parenting 4.0 refers to a parenting approach that adapts child-rearing practices to the context of the Fourth Industrial Revolution, characterized by the pervasive integration of digital technologies, artificial

intelligence, and networked media into everyday life. This concept emphasizes parents' proactive, reflective, and collaborative roles in guiding children's digital experiences, not merely controlling technology use but fostering critical engagement and digital competence (Sari & Syawaludin, 2024). Parenting 4.0 differs from digital parenting, which primarily focuses on managing children's access to digital devices; from parental mediation, which centers on strategies such as restriction, co-use, or discussion; and from technoference, which highlights the disruptive effects of parental technology use on parent-child interactions. In contrast, Parenting 4.0 integrates digital guidance with values education, character development, and partnership with educational institutions, positioning parents as adaptive facilitators of children's digital literacy development.

Previous studies have examined parental involvement in child education and the impact of technology on young children. Latif et al. (2023) emphasize the importance of empowering parents to enhance early childhood education services in the digital era, while Windasari & Dheasari (2024) highlight that low parental awareness poses challenges to digital literacy in rural areas. However, most research has focused on general parenting or the negative effects of technology, without explicitly examining the role of parents in enhancing early childhood digital literacy. Although numerous studies address the impact of digital technology on young children, research specifically exploring parental roles in fostering digital literacy in early childhood remains relatively limited. Therefore, examining this aspect is important to fill existing research gaps.

More specifically, existing studies have not sufficiently addressed context-specific Parenting 4.0 strategies, the mechanisms of parental support, or structured school-parent programs that intentionally foster early childhood digital literacy. As a result, empirical evidence explaining how parental practices are shaped through institutional support and how they influence specific dimensions of children's digital literacy remains insufficient, indicating a clear research gap.

RA STIBA Azkiya was selected as the research site due to its distinctive and sustained implementation of school-parent collaboration programs focused on digital literacy guidance. The institution has developed structured initiatives such as parental monitoring books, regular digital literacy workshops, and ongoing consultation mechanisms that actively involve parents in children's digital learning experiences. This context provides a meaningful setting for examining how Parenting 4.0 practices are implemented and supported in early childhood education.

Based on this background, the present study focuses on the central question: How can parental roles be optimized to enhance digital literacy in the era of Parenting 4.0? The study aims to: (1) analyze the role of parents in promoting digital literacy in the 4.0 era; and (2) identify strategies implemented to enhance parental involvement. This research may also serve as a preliminary reference for developing the concept of digital parenting as an adaptive and transformative approach to early childhood education.

2. METHODS

2.1 Research Design

This study employed a qualitative approach using a single-case qualitative case study design to explore how Parenting 4.0 is implemented in optimizing parental involvement in supporting early childhood digital literacy at RA STIBA Azkiya. A single-case design was considered appropriate because RA STIBA Azkiya represents a unique and information-rich case with sustained school-parent programs focused on guiding parents in children's digital activities. The case was bounded by context, time, and participants: the study was conducted at RA STIBA Azkiya during the institutional implementation of Parenting 4.0-related programs, with data collection carried out from July to September 2025. Participants included school leaders, classroom teachers, and parents who were actively involved in the school parent digital literacy programs.

Data were collected through in-depth semi-structured interviews, direct observations, and document analysis to ensure data triangulation. The researcher acted as a non-participant observer and had no prior formal affiliation with the school. Data analysis followed the interactive model of Miles and

Huberman (2019), which involves data reduction, data display, and conclusion drawing and verification. Credibility was enhanced through triangulation of data sources and methods, as well as the use of reflexive notes throughout the research process.

2.2 Research Subjects

Participants were selected using purposive sampling based on their direct involvement in the implementation of Parenting 4.0 practices at RA STIBA Azkiya. The participant group consisted of 11 informants, including six parents, four early childhood teachers, and one school principal. Parents were selected from families with children enrolled at RA STIBA Azkiya, representing varied educational backgrounds (ranging from secondary to higher education) and differing levels of digital experience, from basic daily smartphone use to more advanced familiarity with educational applications. This variation allowed the study to capture diverse parental mediation practices in supporting children's digital literacy.

The teacher participants had between 5 and 15 years of teaching experience in early childhood education and regularly integrated digital media into classroom learning activities. The children of participating parents were aged 3–6 years, enrolled in different class levels, including Playgroup (KB1/KB2) and Kindergarten (RA A and RA B). For international readers, Playgroup (Kelompok Bermain/KB) refers to early childhood classes for children aged approximately 3–4 years, while RA A and RA B correspond to kindergarten levels for children aged 4–5 and 5–6 years, respectively.

Participants were recruited through coordination with the school administration. Parents and teachers who met the selection criteria were invited to participate voluntarily. Prior to data collection, all participants were informed about the study objectives, data collection procedures, and ethical considerations. Written informed consent was obtained from all adult participants, and confidentiality as well as anonymity were assured throughout the research process.

2.3 Research Instruments

In qualitative research, the researcher functions as the primary instrument, guiding and controlling the data collection process. In this study, data were collected through semi-structured interviews, observations, and document analysis. An interview guide was developed to maintain focus on the research questions while allowing participants to describe their experiences in depth. Sample interview questions included: How do parents guide children in using digital devices at home?; What rules are applied regarding screen time and digital content?; and How do school programs support parents in mediating children's digital activities?

Observations were guided by a checklist focusing on key aspects of Parenting 4.0 practices, including the implementation of screen-time rules, processes of digital content selection, patterns of parent-child communication during technology use, and the application of digital safety practices. This checklist enabled systematic documentation of parental mediation behaviors and school-parent interactions related to children's digital literacy.

Document analysis included a review of institutional materials relevant to Parenting 4.0 implementation, such as school policy memos on technology use, parental monitoring books, children's activity journals, workshop modules, and parental guidance materials. These documents were analyzed to corroborate interview and observational data and to provide contextual insight into the structure of school-parent digital literacy programs.

2.4 Data Collection Techniques

Observations were conducted to directly capture interactions between parents and children when using digital devices, both at home and in school settings. Documentation was used to reinforce the data by examining school policies, digitally-based learning materials, and records of parenting activities. By combining these three techniques, the study obtained diverse and complementary data, enhancing the validity of the findings.

2.5 Data Analysis

Data were analyzed using a descriptive-analytic method. The analysis involved transcribing interviews, coding, simplifying, and organizing data to identify relevant patterns. Thematic analysis was applied to extract core themes regarding parental roles within the context of Parenting 4.0 in supporting early childhood learning. The reliability of the findings was strengthened through triangulation of interview, observation, and documentation data, as well as review by experts to ensure research validity.

3. FINDINGS AND DISCUSSION

3.1 *The Role of Parenting 4.0 in Enhancing Early Childhood Digital Literacy*

Parental ability to nurture and guide young children to adapt to the evolving digital world is referred to as Parenting 4.0. This concept emphasizes that child-rearing should not only focus on physical and emotional aspects but also on preparing children to face the challenges of the digital era through the development of digital literacy, critical thinking skills, and responsible technology use.

In the Parenting 4.0 framework, parents are expected not only to provide love and meet basic needs but also to guide technology use so that it contributes positively to child development. Parental guidance in using digital devices at an early age significantly helps children leverage technology to enhance literacy, critical thinking, and creativity, while also protecting them from negative effects such as gadget addiction or exposure to age-inappropriate content.

The concept of Parenting 4.0 was introduced to parents at RA STIBA Azkiya in 2020, when the COVID-19 pandemic restricted all forms of physical interaction. During this period, learning shifted to online platforms, and young children relied heavily on digital devices as learning tools. This situation required parents to actively assist their children, both in operating technology and ensuring that the content accessed was developmentally appropriate. An interview with Ustadzah Sudarwati, the principal of RA STIBA Azkiya, revealed:

"We introduced parents to accompany their children in using smartphones since the onset of COVID, because all learning was conducted online. We invited parents to help their children operate devices and monitor their usage."

The transition from face-to-face to online learning created new challenges for many parents, as children tended to exhibit signs of device addiction, indicated by prolonged smartphone usage. Consequently, the school developed a Parenting 4.0 framework tailored to the characteristics of both parents and children at RA STIBA Azkiya. This framework focuses on five key parental roles in digital guidance. As explained by Ustadzah Amira, a teacher at RA STIBA Azkiya:

"Initially, many parents complained. We then introduced five simple steps to monitor their children's smartphone use."

The Parenting 4.0 framework at RA STIBA Azkiya consists of five fundamental roles:

1. **Introducing Basic Technology** – Parents are responsible for familiarizing children with the basics of using technology, such as opening and closing applications.
2. **Promoting Critical Thinking** – Parents help children develop foundational critical thinking skills (questioning, evaluating, and understanding) so they do not accept digital information uncritically. For example, when a child watches a video on YouTube, parents can ask simple questions about the content to foster comprehension and analytical thinking.
3. **Supervising Gadget Use** – Parents regulate screen time and content to prevent overuse and ensure access to age-appropriate materials. For instance, limiting screen time to one hour with educational content.

4. Introducing Digital Safety – Parents teach children basic rules for online safety and protect them from inappropriate content. Examples include using child-friendly applications such as YouTube Kids, Netflix Kids, or Google Kids Space.
5. Modeling Responsible Digital Behavior – Children tend to imitate parental habits; thus, parents must demonstrate responsible technology use. Examples include avoiding phone use during family meals and using the internet for educational purposes, thereby setting positive digital behavior examples.

The Parenting 4.0 approach at RA STIBA Azkiya positions parents as active participants in their children's digital learning, rather than passive supervisors. Parents are encouraged to guide content selection, stimulate critical thinking through discussions, and model responsible technology use.

The introduction of these five parental roles in enhancing digital literacy at RA STIBA Azkiya has proven effective. Triangulation of data through observation indicated that most students were capable of interacting with digital media independently and appropriately. Children not only could open and close applications without parental assistance but also began selecting child-friendly apps and choosing content aligned with their interests. These skills reflect an improvement in basic digital literacy, including technical operation of devices, initial content discernment, and awareness of responsible technology use. This success is closely linked to active parental involvement in guiding, supervising, and modeling responsible digital behavior.

3.2 Optimizing Parental Roles to Enhance Early Childhood Digital Literacy

Strengthening parental roles in enhancing digital literacy is a crucial step in introducing children to the fundamentals of technology use and supervising their digital activities. Parental involvement is particularly important in introducing children to the digital world, as parents have more frequent interactions with their children compared to teachers at school. At RA STIBA Azkiya, optimizing parental roles in improving children's digital literacy is based on several strategies that have proven effective in fostering digital literacy skills among young learners.

RA STIBA Azkiya has developed specific strategies to optimize parental involvement. These strategies were necessary because many parents, especially those of children in the first playgroup (KB1), initially lacked sufficient ability to guide and supervise their children in using digital applications. An interview with Mrs. Sandra, a parent of a KB1 student, revealed:

"At first, I was also confused. I used to just let my child play with the smartphone because it kept them quiet. But it turns out that was wrong, they said."

This statement indicates that parents of KB1 students tended to have limited understanding of their role as guides in children's digital application use and often neglected their children during such activities. This gap in parental understanding of digital literacy puts children at risk of unmonitored and unguided device use. To address this, the school designed several strategies aimed at equipping parents with the skills to assist their children in using technology effectively. One such strategy involves providing parents with a monitoring book and a child development journal, which must be filled out daily and evaluated at the end of each month. During evaluation meetings, teachers review the monitoring book, discuss the child's activities over the past week, and provide guidance to parents on supporting their child's development based on these observations. As stated by Ustadzah Amira:

"From the beginning, we informed parents that child development is not solely the teacher's responsibility but also requires guidance at home. We provide a monitoring book that parents fill out daily, which is then evaluated at the end of the month. Through this, we can understand the child's progress and guide parents on areas that need improvement."

The monitoring book records children's daily activities at home, while the activity journal contains brief notes from parents regarding their observations or comments on the child's engagement. This

mechanism has proven effective in enhancing parental involvement, as it provides clear guidance on what aspects of child development require attention. Initially, many parents were uncertain about which aspects of development to monitor, often overlooking key areas. The monitoring system helps parents focus on tracking and supporting their children's growth appropriately.



Figure 1. Monthly **Monitoring Evaluation Activity**

Observations during the monthly evaluation process revealed high parental enthusiasm in consulting teachers about their child's progress. Teachers provided clear and constructive feedback on aspects that required attention and further implementation of the five parental roles in Parenting 4.0. Interactions between parents and teachers occurred in a warm and informal atmosphere; on several occasions, parents shared amusing anecdotes about their children, creating a friendly and engaging environment.

Another strategy to strengthen parental digital roles involves training sessions and the provision of materials on supervising children's digital activities. These sessions are routinely conducted at the beginning of each academic year with experts in digital literacy and early childhood education as presenters. To enhance the quality of these training sessions, RA STIBA Azkiya collaborates with local universities, including Universitas Sebelas Maret (UNS), providing parents with deeper and practical insights for guiding children in the digital world. As stated by the school principal:

"We collaborate with UNS to provide Parenting 4.0 materials to parents at the beginning of each academic year. The goal is to make parents aware of their roles and enable them to execute these responsibilities effectively."

These Parenting 4.0 training sessions equip parents with knowledge about supervising digital activities to prevent exposure to age-inappropriate content, as well as strategies to guide children effectively in the digital environment.



Figure 2. Parenting 4.0 Workshop Activity

The various strategies implemented by RA STIBA Azkiya to enhance parental understanding of their role in supervising children's digital activities have proven successful. An interview with Mrs. Yanis, a parent, indicated that she felt significantly supported in monitoring her child, as the school regularly provided guidance and practical tips:

"Alhamdulillah, I feel very helped because someone guides us on how to supervise our children. Until now, I didn't know the theory, so I was just doing it randomly."

Observations further confirmed that parents at RA STIBA Azkiya not only select age-appropriate content, such as Nussa, Marbel, Balita Cerdas, and Kinderflix, but also actively encourage critical thinking. For instance, parents ask simple questions about videos, such as, "Why is Nussa crying?" This practice encourages children to comprehend and retell stories, fostering critical thinking in an enjoyable manner.

Active parental involvement in content selection and discussion encourages children to be more engaged and conscious when using digital media. Children do not merely watch passively but strive to understand, analyze, and retell what they observe. This process indirectly enhances critical thinking, expands vocabulary, and improves comprehension of presented information. Consistent interaction between parents and children in a digital context creates a meaningful learning experience, where technology serves not only as entertainment but also as a medium for cognitive and social skill development. This underscores the importance of active parental guidance in ensuring that technology use is purposeful and beneficial.

Active parental involvement reflects an increase in digital efficacy, demonstrated by the ability to mediate technology use effectively. Digital efficacy arises when parents not only understand the characteristics and challenges of the digital world but also apply this understanding in daily practice, including selecting appropriate content, guiding interpretation, and modeling responsible technology use.

Based on the description above, the strategies implemented by RA STIBA Azkiya can be summarized in the following table:

Table 1. Strategies to Optimize Parental Digital Supervision

Activity	Frequency	Description
Child Monitoring Book Evaluation	Weekly/Monthly	Parents track children's digital activity through notes on gadget use and accessed content.
Parenting 4.0 Workshop	Beginning of Academic Year	School provides strategies for guiding children in the digital environment, including safety and educational applications.
Individual Consultation Sessions	As needed	Parents discuss solutions with teachers to guide children's gadget use.

Practical Activities with Children	Weekly	Parents accompany children using educational apps or creating simple digital projects.
Monthly Monitoring Evaluation	Monthly	Parents share experiences and tips in guiding children in the digital world.

Discussion

The results of this study indicate that the implementation of Parenting 4.0 at RA STIBA Azkiya significantly assists parents in maximizing their role as supervisors and guides of their children's digital activities. This aligns with the findings of Huang et al., (2018) and Kumaş & Yildirim (2024), which show that active parental guidance in the digital world is influenced by parents' ability to understand digital environments.

This finding is consistent with broader discussions in the literature suggesting that effective parental involvement in digital contexts requires reflective engagement rather than mere rule enforcement. Parenting 4.0 positions parents as active agents who intentionally shape children's digital experiences through guidance, supervision, and dialogue (Enes et al., 2025; Kumaş & Yildirim, 2024).

Parenting 4.0 refers to a parenting approach emerging in the digital era, particularly regarding how parents balance traditional caregiving roles with technological demands. The term emphasizes new parental responsibilities in a highly connected and technologically advanced society, where parents act not only as caregivers but also as mediators and guides in their children's digital experiences (Kumaş & Yildirim, 2024). Effective Parenting 4.0 occurs when parents are able to comprehend digital media use, thereby facilitating supervision processes (Herlinawati et al., 2024).

From a theoretical perspective, the five parental roles identified in this study supervising, guiding, modeling, regulating, and collaborating with schools can be compared with established parental mediation typologies. These roles reflect elements of active mediation, restrictive mediation, co-use, and monitoring as described in parental mediation frameworks (Rodríguez-de-dios et al., 2018). However, the findings indicate that Parenting 4.0 practices at RA STIBA Azkiya extend these mediation types by embedding them within structured school-parent programs, thereby ensuring greater consistency between home and school environments.

Parents have a responsibility to educate their children, including introducing digital literacy in the current era of digital technology. Many young children today are addicted to gadgets, and parents who pay insufficient attention often give in to children's requests for devices to avoid dealing with whining or fussiness (Windasari & Dheasari, 2024). Active parental involvement in supervising children's digital activities enables children not only to consume digital content passively but also to process and analyze the information, thereby enhancing critical thinking skills and content comprehension (Safitri, 2021).

This study confirms that parents who routinely monitor and guide their children in digital contexts can minimize the negative impacts of technology use, such as dependency, reduced social interaction, or challenges in establishing warm parent-child relationships (Savitri et al., 2019). These findings are consistent with Fatmawati et al., (2022) and Windasari & Dheasari (2024), who assert that parental guidance not only prevents children from accessing harmful content but also facilitates enjoyable learning experiences through educational digital media. Parenting 4.0 emphasizes not only supervision but also active guidance, positioning parents as mediators between children and the digital world. This underscores that the role of parents in the digital era must extend beyond traditional caregiving to become facilitators, mentors, and guides in children's digital learning experiences.

These findings further confirm that consistent parental monitoring and guidance can minimize the negative impacts of technology use, such as dependency, reduced social interaction, or challenges in establishing warm parent-child relationships. This is in line with Sabrina et al. (2025), who assert that parental guidance not only prevents children from accessing harmful content but also facilitates enjoyable learning experiences through educational digital media.

Parenting 4.0 emphasizes not only supervision but also active guidance, positioning parents as mediators between children and the digital world. This underscores that the role of parents in the digital era must extend beyond traditional caregiving to become facilitators, mentors, and guides in children's digital learning experiences.

Despite these positive outcomes, the literature also highlights potential counterpoints that warrant consideration. Excessive parental supervision may lead to over-surveillance, which can limit children's autonomy and hinder the gradual development of self-regulation skills. Therefore, Parenting 4.0 requires a balanced approach that combines monitoring with dialogue, trust, and age-appropriate independence.

Another challenge concerns disparities in parents' digital competence. Not all parents possess sufficient digital literacy to effectively mediate children's technology use, which may reduce the effectiveness of Parenting 4.0 practices. In this regard, the structured support mechanisms implemented at RA STIBA Azkiya such as parental workshops, consultation sessions, and monitoring tools play a critical role in strengthening parents' digital capacity and confidence.

Equity issues also influence the implementation of Parenting 4.0. Differences in access to digital devices, internet connectivity, and parents' available time due to work commitments may affect families' ability to engage consistently in digital mediation. These constraints suggest that Parenting 4.0 should be supported institutionally rather than framed solely as an individual parental responsibility.

The cultural and religious context of RA STIBA Azkiya as a Raudhatul Athfal institution further shapes the implementation of Parenting 4.0. Shared values regarding acceptable digital content, ethical technology use, and daily routines influence parental mediation practices. Religious and moral principles guide content selection, screen-time discipline, and the integration of digital activities with character education, ensuring that digital literacy development is aligned with ethical and cultural expectations.

Overall, the findings suggest that Parenting 4.0 at RA STIBA Azkiya functions as a holistic approach that integrates parental mediation strategies, institutional support, and cultural–religious values. Rather than replacing traditional parenting roles, Parenting 4.0 recontextualizes them to address the challenges and opportunities of early childhood education in the digital era.

4. CONCLUSION

This study concludes that Parenting 4.0 practices implemented at RA STIBA Azkiya play an important role in supporting early childhood digital literacy through active parental guidance, supervision, and modeling of responsible technology use (RQ1). Parents introduce basic digital tools, regulate gadget use, and guide children to engage with digital content in safe and meaningful ways. The findings also show that structured school–parent support mechanisms, including monitoring books, activity journals, workshops, and parental consultations, strengthen parental mediation and promote consistency between home and school practices (RQ2). As a result, observable changes are identified in specific aspects of children's digital literacy, particularly operational understanding, awareness of appropriate content, adherence to digital use rules, and safety-oriented behavior under parental guidance (RQ3). This study is limited by its single-site context, relatively small sample, reliance on parental self-reports, and limited inclusion of children's perspectives. Practically, early childhood education institutions are encouraged to develop structured school–parent programs to support Parenting 4.0, while future research should involve multiple settings, larger samples, and children's voices to further examine early childhood digital literacy in diverse contexts.

REFERENCES

- BPS RI. (2023). *Statistik Telekomunikasi Indonesia 2022*.
- Choy, Y. N., Lau, E. Y. H., & Wu, D. (2024). Digital parenting and its impact on early childhood development: A scoping review. *Education and Information Technologies*, 29(16), 22147–22187. <https://doi.org/10.1007/s10639-024-12643-w>
- Dong, C., Cao, S., & Li, H. (2022). Profiles and Predictors of Young Children's Digital Literacy and

- Multimodal Practices in Central China. *Early Education and Development*, 33(6), 1094–1115. <https://doi.org/10.1080/10409289.2021.1930937>
- Enes, M., Taibe, B., & Mehmet, K. (2025). How does Parental Media Mediation Regulate the Association between Digital Parental Awareness and the Parent-Child Relationship? *Early Childhood Education Journal*.
- Fatmawati, E., Saputra, N., Ngongo, M., Purba, R., & Herman, H. (2022). An Application of Multimodal Text-Based Literacy Activities in Enhancing Early Children's Literacy. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(5), 5127–5134. <https://doi.org/10.31004/obsesi.v6i5.2782>
- Friantary, H. (2020). Perkembangan Bahasa Pada Anak Usia Dini. *Zuriah: Jurnal Pendidikan Anak Usia Dini*, 1(2), 127. <https://doi.org/10.29240/zuriah.v1i2.2100>
- Herlinawati, H., Marwa, M., Ismail, N., Junaidi, Liza, L. O., & Situmorang, D. D. B. (2024). The integration of 21st century skills in the curriculum of education. *Heliyon*, 10(15), e35148. <https://doi.org/10.1016/j.heliyon.2024.e35148>
- Huang, G., Li, X., Chen, W., & Straubhaar, J. D. (2018). Fall-Behind Parents? The Influential Factors on Digital Parenting Self-Efficacy in Disadvantaged Communities. *American Behavioral Scientist*, 62(9), 1186–1206. <https://doi.org/10.1177/0002764218773820>
- Kardeş, S. (2020). Digital literacy in early childhood. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 21(2), 827–839. <https://doi.org/10.17679/inuefd.665327>
- Kartal, S. (2022). Digital Addiction And Its Effects In Early Childhood. *Child and Child Education in the 21st Century*, 97.
- KPAI. (2021). *Hasil Survei Pemenuhan Hak dan Perlindungan Anak Pada Masa Pandemi COVID-19*.
- Kumaş, Ö. A., & Yildirim, A. E. S. (2024). Exploring digital parenting awareness, self-efficacy and attitudes in families with special needs children. *British Journal of Educational Technology*, 55(5), 2403–2418. <https://doi.org/10.1111/bjet.13457>
- Kurt, F. Y., Öner, B., & Bulut, A. (2025). Digital addiction: Are children in danger? Are parents aware? *Journal of Pediatric Nursing*, 80, 121–128. <https://doi.org/10.1016/j.pedn.2024.11.018>
- Latif, M. A., Amir, R., Marzuki, K., Gaffar, F., & Nurhayati, S. (2023). Kolaborasi Strategis Lembaga PAUD dan Orang Tua di Era Digital melalui Program Parenting. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(3), 3169–3180. <https://doi.org/10.31004/obsesi.v7i3.4485>
- Lestari, D. P., Ramadhanti, S., Asih, S. N., Putri, D. A., Darunnajah, U., & Lampung, U. (2024). INTRODUCTION OF DIGITAL LITERACY SKILLS BY PARENTS IN EARLY CHILDHOOD TO PREVENT MOBILE PHONE. *Journal of Early Childhood Education*, 6(2), 197–202.
- Nursyam, A. (2019). Peningkatan Minat Belajar Siswa Melalui Media Pembelajaran Berbasis Teknologi Informasi. *Ekspose: Jurnal Penelitian Hukum Dan Pendidikan*, 18(1), 811–819. <https://doi.org/10.30863/ekspose.v18i1.371>
- Rodríguez-de-dios, I., Oosten, J. M. F. van, & Igartua, J.-J. (2018). A Study of the Relationship between Parental Mediation and Adolescents' Digital Skills, Online Risks and Online Opportunities Author. *Computers in Human Behavior*, 01(12). <https://doi.org/10.1016/j.chb.2018.01.012>
- Sabrina, P., Suryadi, Alimudin, Aneka, & Ratnasari, E. M. (2025). The Role of Parents in Supporting Digital Literacy in Early Childhood. *ALBANNA: Jurnal Pendidikan Islam Anak Usia Dini*, 5(2), 51–59.
- Safitri, D. N. (2021). Analisis Pengenalan Literasi Digital Bagi Anak Usia Dini Pada Masa New Normal. *JCE (Journal of Childhood Education)*, 5(2), 303. <https://doi.org/10.30736/jce.v5i2.564>
- Sari, M. M., & Syawaludin, D. F. (2024). The Influence of Digital Parenting on the Social Behavior of Early Childhood in the 5.0 Technology Era. *Jurnal Multidisiplin Indonesia*, 3(3).
- Savitri, G. A., Kholis, N., & Zunaidah, A. (2019). Pola Interaksi Orang Tua dan Anak di Perkotaan Dalam Menghadapi Dampak Negatif Penggunaan Gadget. *JURNAL SOSIAL: Jurnal Penelitian Ilmu-Ilmu Sosial*, 20(1), 15–20. <https://doi.org/10.33319/sos.v20i1.17>
- Septyani, R. A., Lestari, P., & Suryawan, A. (2021). Penggunaan Gadget pada Anak: Hubungan Pengawasan dan Interaksi Orang Tua terhadap Perkembangan Bicara dan Bahasa Anak. *Golden*

- Age: *Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 6(3), 121–130.
<https://doi.org/10.14421/jga.2021.63-02>
- UNESCO. (2022). *Early childhood care and education An investment in wellbeing, gender equality, social cohesion, and lifelong learning*. https://www.unesco.org/en/early-childhood-education?utm_source=chatgpt.com.
- Wahyuningrum, E., Suryanto, S., & Suminar, D. R. (2020). Parenting in digital era: A systematic literature review. *Journal of Educational, Health and Community Psychology*, 3, 226–258.
- Windasari, I. W. W., & Dheasari, A. E. (2024). The Role of Parents and Educators in Early Childhood's Digital Literacy. *Electronic Journal of Education, Social Economics and Technology*, 5(2), 112–117.
<https://doi.org/10.33122/ejeset.v5i2.331>
- Wu, C. S. T., Fowler, C., Lam, W. Y. Y., Wong, H. T., Wong, C. H. M., & Yuen Loke, A. (2014). Parenting approaches and digital technology use of preschool age children in a Chinese community. *Italian Journal of Pediatrics*, 40(1), 44. <https://doi.org/10.1186/1824-7288-40-44>